

**AN INVESTIGATION OF LOCKE'S MODEL OF WORK MOTIVATION FOR
THE FINANCIAL SERVICES-INDUSTRY**

by

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**submitted in accordance with the requirements
for the degree of**

DOCTOR OF LITERATURE AND PHILOSOPHY

in the subject

INDUSTRIAL PSYCHOLOGY

at the

UNIVERSITY OF SOUTH AFRICA

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JANUARY 2002

658.314 OLIV



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ACKNOWLEDGEMENTS

A research project such as this is the result of much reading, discussion, writing and rewriting. The final result is not only the work of the author - many others have contributed and to them I am indebted:

Dr. Pieter van der Merwe for his guidance and consistent support during both the initial conceptualisation of this research and during the three years of study. His clarity of thought and friendly encouragement was a constant source of inspiration. For the generosity with which he shared his intellect, his expertise and his friendship, I am grateful.

Prof. Frans Cilliers and Prof. Marié de Beer, my two promoters for their advise and guidance.

Prof Cas Coetzee whose statistical expertise was vital in the final compilation of the results of the final document

Moia Joubert for her editorial assistance and professionalism.

Samantha Lou for her intensity and patience and for so willingly and skilfully repeatedly giving of her time and energy in ensuring that this document was professionally presented.

Don Brown for his support and for allowing me to conduct a great deal of this research in Momentum Employee Benefits.

My husband Hein and my two daughters, Nicole and Jessica for their support, love and encouragement, even when it meant personal sacrifice for them. My parents and parents-in-law for their support, love and help with the children.

Ultimately, all things come from God and to Him I am grateful for His bountiful gifts of knowledge, energy, family and friends.

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SUMMARY

This research empirically investigates Locke's (1997) model of work motivation by means of quantitative research. The OCQ consisting of three tiered questionnaires was constructed based on Locke's model. OCQ-Tier1 deals with core components of Locke's model. OCQ-Tier2 determines which factors caused the incidence of dissatisfaction in OCQ-Tier1. OCQ-Tier3 enables the identification of corrective actions.

The OCQ was administered to financial services employees. The results were analysed and Locke's model was tested by means of structural equation modelling using the AMOS graphics programme. The results indicated that the model, suggesting causal links between components within OCQ-Tier1, could not be confirmed. A better fit was found at OCQ-Tier2 and OCQ-Tier3.

In testing the causal links across the three tiers per component, the models did not fit the data for "personal actualisation" and "goal achievement". Moderate confirmation of the models was found in the case of "goal setting" and "goal behaviour" across the three tiers after some adaptations were made to the models on the basis of "modification indices", suggested by AMOS. A reasonably good fit was found for the models across the three tiers for "quality of work life".

The level of correlation between factors was high because of this, and in some cases some of the factors were merged.

Modification indices in the statistical output suggested that improvement was possible if covariance between error terms in the model was allowed. This suggested possible systematic sources of covariance between items not accounted for by the factors in the models.

As confirmed by the Cronbach Alpha coefficients within tiers and across tiers, the general level of internal consistency was very high. Possibly response set and response style were the cause of this. This made the testing of models difficult in the present study. So too was it difficult to draw a conclusion about the internal consistency reliability of the

measurement of each component across the three tiers, because the high Cronbach coefficients may to some extent be due to indiscriminate high correlations between items.

Key words:

Organisational climate; work motivation; structural equation modelling; Locke; assessment; questionnaire.

CHAPTER 1

OVERVIEW OF THE RESEARCH

The aim of this chapter is to firstly provide a background to and motivation for the research. The problem statement will be discussed and the aims specified. The paradigm perspective will be discussed. Thereafter the research design and methodology will be presented. Finally, the chapter layout will be specified and a chapter summary given.

1.1 BACKGROUND TO AND MOTIVATION FOR THE RESEARCH

The 1960s and 1970s witnessed an explosion in intellectual curiosity about work motivation. Theoretical developments emerged in need theories (e.g. Herzberg, 1966; Maslow, 1953), cognitive theories (e.g. Cyert & March, 1964) expectancy/valence theory (e.g. Vroom, 1964), goal-setting theory (e.g. Locke, 1968) and reinforcement theory (e.g. Wrightsman, 1977). Progress could be seen in both conceptual development and empirical research. The 1980s and 1990s witnessed a series of refinements and extensions, as well as some theoretical development such as social learning theory (e.g. Aronson, 1994; Baron & Bryne, 1994) applied to the workplace. However, by the later 1990s, intellectual interest in the development of work motivation theories, at least as measured by journal publications, seemed to have declined precipitously. As evidence of this, articles published in human resources or management journals over the past decade contain little focus on genuine theoretical development in the area of work motivation and organisational climate. In reviewing the obligatory chapter of work motivation in a typical introductory management of organisational behaviour textbook, the average date cited usually hovers around the late 1970s.

An observer might conclude that either interest has declined in this subject (perhaps because it is no longer a pressing issue in organisations) or that the work motivation problem was solved long ago thereby eliminating the need for additional work. Neither of these conclusions seems very plausible. On the contrary, in the new economy, replete with its dot-coms, e-coms and increased globalisation, a motivated workforce is frequently cited as a hallmark of competitive advantage (Tolentino, 2000). Successful companies (and

countries) will compete in the future principally on the basis of quality, capacity and commitment of their human capital (Lynch, Eisenberger & Armeli, 1999; Tolentino, 2000).

In addition to the necessity to acquire financial and physical resources, every organisation needs people in order to function. More specifically, Katz and Kahn (1966) have posited that organisations have three behavioural requirements in this regard. Firstly, people must be attracted not only to join the organisation, but also to remain with it. Secondly, people must perform the tasks for which they were hired, and must do so in a dependable manner, and thirdly, people must go beyond this dependable role performance and engage in some form of creative, spontaneous and innovative behaviour at work (Katz, 1964; Katz & Kahn, 1966). In other words, according to this reasoning, for an organisation to be effective it must come to grips with the motivational challenges of stimulating both the decision to participate and the decision to produce at work (March & Simon, 1958). This view is supported by Denison (1996) and Schneider (1990).

Motivation as a concept represents a highly complex phenomenon that affects and is affected by a multitude of factors in the organisational milieu. A comprehensive understanding of the way in which organisations function requires that attention be focused on why people behave the way they do on the job (i.e. the determinants of employee work behaviour and the ramifications of such behaviour for an organisation). An understanding of the topic of motivation is thus essential in order to comprehend more fully the effects of variations in other factors (such as leadership style, job redesign and salary systems) as they relate to performance and satisfaction (Denison, 1996; Kopelman, Brief & Guzzo, 1990; Schneider, 1990; Steers & Porter, 1979).

The world of work changed dramatically in the last decade of the 20th century, perhaps more than any other decade of that century. This trend is continuing in the new millennium. Companies are both downsizing and expanding (often at the same time in different divisions or levels of the hierarchy). The workforce is characterised by increased diversity with highly divergent needs and demands, information technology has frequently changed both the manner and location of work activities and new organisational forms (such as those found in e-commerce) are now commonplace. Teams are redefining the notion of hierarchy, as well as traditional power distributions. The use of contingent

workers is rising and globalisation and the challenges of managing across borders are now the norm instead of the exception. All these changes can have a profound influence on how companies attempt to motivate their employees.

Given the ever-tightening constraints placed on organisations by unions, legislation and increased local and foreign competition, management have had to look for new mechanisms to maintain and increase their level of organisational effectiveness and efficiency. Management must therefore ensure that they are deriving full potential benefit from their resources - including the human resources at their disposal. Thus, to a certain extent, organisational effectiveness becomes a question of management's ability to motivate their employees to direct a reasonable effort towards the goals of the organisation. The way in which employees view decision-making participation, teamwork and communication has a lot to do with whether or not they see the organisation as supportive. Creating the right climate in which employees are committed to and satisfied with their jobs can be viewed as an exercise in improving communication with employees, increasing the quality and amount of employee participation in decision making, and making improvements in the quality of involvement in work teams (Kopelman, et al., 1990; Schneider, 1990; Steers & Porter, 1979).

The nature of present and future technology presents a further reason for organisations to understand and motivate their people (Covin & Slevin, 1997; Steers & Porter, 1979). As technology increases in complexity, machines tend to become necessary, yet insufficient vehicles of effective and efficient operations. Modern technology can no longer be considered to be synonymous with the term "automation". It becomes necessary for an organisation to ensure that it has employees who are both capable of using, and willing to use the advanced technology to achieve organisational objectives.

Organisations have for some time viewed their financial and physical resources from a long-term perspective, and only recently have they begun to seriously apply this same perspective to human resources. Many organisations are now beginning to pay increasing attention to developing their employees as future resources (a "talent" bank) upon which they can draw as they grow and develop (Covin & Slevin, 1997; Tolentino, 2000). Evidence of such concern can be seen in the increased popularity of training and development programmes, assessment centres, performance management and the

emergence of human resources accounting systems. More attention is being directed towards stimulating employees to enlarge their job skills (through training, job design or job rotation) at all levels in an effort to ensure a continual reservoir of well-trained and highly motivated people (Lynch et al, 1999; Schneider, 1987; Steers & Porter, 1979).

There appear to be several reasons why the topic of motivation needs to receive increased attention by both those who study organisations and those who manage them. The simplistic, prescriptive guidelines concerning "economic humans" are simply no longer sufficient as a basis for understanding human behaviour at work. New approaches and greater understanding are called for to deal with the complexities of contemporary organisations. To this end it is important to obtain a more comprehensive and empirically based knowledge of motivation at work.

Based on the foregoing discussion, it becomes apparent that a multitude of variables throughout the organisational milieu can be important inputs into the motivational force equation. Such a conclusion forces employers to adopt a broad perspective when they attempt to understand or explain why employees behave as they do at work. However, this simple enumeration of motivationally relevant factors fails to recognise how these variables may interact with one another within a systems type of framework to determine work behaviour. For example, individuals may have a strong desire to perform well on the job, but may lack a clear understanding of their proper role. Employees may thus waste or misdirect effort and thereby fail to receive expected rewards. Similarly, an employee may truly want to perform at a high level, but lacks the necessary ability for good performance on the particular job. It is thus important when studying various approaches to work motivation, to take cognisance of the interactive or system dynamics between major sets of variables that may influence resulting effort and performance.

To this end, organisational climate permits the analysis of the determinants of motivated behaviour in actual complex situations (Kopelman et al, 1990; Litwin & Stringer, 1968). Schein (1971) claims that organisational behaviour cannot be understood if the focus is on individual motivation only or on organisational conditions only without looking at the interaction between these two.

Employees also differ within organisations. Research by Schneider, Smith, Taylor and Fleener (1998) provides convincing support for the notion that organisations tend to differ with respect to the personality characteristics of their members. This research was based on data from the Myers-Briggs Type Indicator (Myers & McCaulley, 1985) for over 12000 managers across 142 organisations. A particularly strong feature of this research was the ability to control industry effects in testing the homogeneity hypothesis.

Other research has approached the test of the homogeneity hypothesis from the currently popular person-organisation fit perspective. Day and Bedeian (1998) used the five-factor model of personality as the basis for testing a structural model of the effects of personality similarity on job satisfaction, job performance, and organisation tenure and found that certain personality types experience higher levels of job satisfaction, job performance and organisation tenure than others.

Litwin and Stringer (1968), Gelfand (1972) and De Bruyn (1981) suggest that the link between employee and employer is provided by organisational climate, representing the interaction of individual motivations and organisational conditions. The perceptions of organisational conditions and organisational climate therefore influence employees' behaviour. It is a filter through which employees perceive objective phenomena in order to interpret the meaning within their own frames of reference and personality (Day & Bedeian, 1998; Krueger & Dickson, 1994; Litwin & Stringer, 1968).

According to Litwin and Stringer (1968), organisational climate simplifies the problem of measuring the situational determinants of behaviour by allowing individuals in the situation to think in terms of bigger integrated experiences.

Gelfand (1972) suggests that the concept of organisational climate lends itself well to the planning of change. Such usefulness is especially marked in an organisational development effort where the aim could be to develop a self-renewing system, to move towards high collaboration and low competition and to manage conflict (Likert, 1961). A recognition of the dimensions of organisational climate is also inherent where the best approach to organisational design depends on the nature of the work to be done (Morse & Lorsch, 1970). Involving employees in the process of organisational development and change initiatives improves organisational functioning and affords employees the

opportunity to take accountability during the change process (Schneider, 1990; Schneider, Brief & Guzzo, 1996). The process perspective generally focuses on the activities that the individual engages in such as goal setting, planning a learning strategy, acquiring resources and monitoring progress (Oddi, 1987).

Furthermore, the organisation conditions for successful and effective coping, in terms of Schein's (1971) adaptive coping principles, presupposes a particular type of organisational climate.

Available evidence suggests that the climates of organisations will differ, especially for different industries and cultures (Schneider, 1990). For example, researchers have proposed that a range of contextual factors lead to the formation of organisational climate (Argyris, 1972; Payne & Pugh, 1976; Schneider, 1990). The most frequently mentioned factors are organisation size, organisation structure, leadership style, goal direction/orientation, nature of business and the composition of the workforce (Argyris, 1972; Morse & Lorsch, 1970; Schneider, 1990). Also, organisations require different climates if they are to survive in environments with different characteristics (Lawrence & Lorsch, 1967). Organisations are becoming more diverse places (Jackson, 1992). Workforce diversity with respect to race, gender and ethnicity has increased as a result of sociocultural changes and is to some extent protected by law. While demographic diversity in the workplace has become increasingly apparent in recent years, a range of individual differences in the values, beliefs, attitudes and personalities of organisational members is assumed to have existed for some time. However, Schneider (1987, 1990) argues that the range of individual differences in the aforementioned psychological variables has become less prevalent within organisations over time. Apart from the human aspects, different work climates are therefore related to the contextual aspects of organisations. It appears that the dimensions of organisational climate need to be validated for a specific organisation or industry. Gelfand (1972) saw this same need in standardising the Litwin and Stringer measure for South African conditions, specifically in the manufacturing industry. Furthermore, the validity of climate perceptions can be queried (Guion, 1973) where significant differences exist in climate perceptions by organisational level (Payne & Pugh, 1976; Schneider, 1987, 1990) because enmity is expected.

Another important aspect of evaluating the usefulness of measures of organisational climate and work motivation, is to question whether the dimensions of organisational climate and work motivation that have been proposed are comprehensive. The concern is that some of the dimensions of organisational climate and work motivation are themselves multidimensional.

The concept of organisational climate and work motivation is thus a complex area in organisational theory, involving many debates about its conceptualisation, and especially how it should be measured. Exploring work motivation theory and developing an organisational climate questionnaire within a specific industry allows for an analysis, at both the theoretical and empirical level, of these complexities.

Scientifically exploring existing work motivation literature with a view to practical application in an industry enhances understanding of the concepts and provides platforms from which to launch further research. The primary objective of most organisational climate questionnaires is to obtain a valid and reliable representation of the organisation within a specific contextual framework, as it exists at a specified point in time. Generally, climate questionnaires may be applied in practice in order to determine progress towards a specific benchmark situation, diagnose the state of the organisation, identify deviations and determine specific corrective actions. They may also allow for a psychological “download” from time to time and for the performance of a combination of the previously mentioned activities.

1.2 PROBLEM STATEMENT

Over time and as a result of various situational experiences and changes, financial services organisations in South Africa have developed specific and unique features (Roux, 1996). These characteristics are found in the behaviour and activities of individual members, the teams and groups they form, as well as the institutional processes the organisations supports (Covin et al, 1997; Kopelman et al, 1990). These factors influence and are influenced by each other and collectively contribute and shape the organisation's climate (Schneider, 1990). Before research of this nature can progress, an appropriate contextual

framework for the research is necessary to anchor both the format and the interpretations that can be made from the data.

The South African financial services industry is both sophisticated by world standards and complex (Roux, 1996). The employees are from diverse cultural backgrounds and racial groups and vary in terms of experience and qualifications. The history and organisational cultures between and within the various financial institutions differ. For a study on organisational climate and work motivation to be applicable, cognisance must be taken of the organisation's culture (Denison, 1996; Trice & Beyer, 1993). There is little value to the organisation if a measure of organisational climate is determined, but that measure only represents the perception of a small proportion of the workforce and in no way measures the workforce.

As discussed in the previous section, it is becoming increasingly important for organisations to understand why people behave the way they do on the job and how these factors which affect the way people feel and behave are interrelated, as well as how organisations can measure these factors (Denison, 1996, Schneider, 1990; Steers & Porter, 1979). Locke (1997) proposed a highly integrative and systemic model that encapsulates most of the key motivational theories of the past four decades and provides an understanding of some of the basic causal relationships between various motivational components. Locke (1997) focused extensively on empirical evidence provided by various research projects, and based on these findings, suggested certain causal analogues explaining the connection between the main parts. An inspection of Locke's model reveals that there appear to be six primary elements of work motivation, namely personal actualisation, personal goal setting, goal support, goal directed behaviour, goal achievement and quality of work life. A study of both Locke's model of work motivation and other literature on motivation may find support for firstly the existence of the six elements and secondly the causal relationships between them. Thirdly, from an initial overview of the literature and implied in Locke's work, there seems to be an indication that corrective actions are suggested to address the causes of the dissatisfaction with one of the primary elements.

A tool which may be used to investigate these assumptions and views does not exist, so one will need to be specifically constructed for the purpose of empirically investigating Locke's model of work motivation.

Once this has been done, a method of statistical processing will need to be employed, which will give a visual portrayal of relations which are assumed to exist between the elements being studied. The results of the analysis will provide a source of additional information which could be used for future investigation of Locke's model of work motivation within the South African Financial services industry. To this end, the aims of this research are listed below.

1.3 GENERAL AIM OF THIS RESEARCH

The general aim of this research is to empirically investigate Locke's model of work motivation in the South African financial services industry. A questionnaire constructed specifically for this purpose will be used. The specific aims of the research will be discussed in the context of both the aims of the literature review and those of the empirical study.

1.3.1 Aims of the literature review

The specific aims of the literature review are as follows:

- (1) to contextualise the research in terms of organisational psychology and more specifically in terms of the financial services industry and an organisation and human resources model
- (2) to study the literature on organisational climate and work motivation in order to gain a greater understanding of these concepts and the dimensions and their constructs which will ultimately form the foundation on which the questionnaire is constructed
- (3) to integrate literature from the work motivation theories with Locke's (1997) work motivation model both for the purpose of conceptualising the dimensions and their

constructs and for operationalising them in the form a questionnaire constructed specifically for this research

1.3.2 Aims of the empirical study

The specific aims of the empirical study are as follows:

- (1) to compile a questionnaire with diagnostic, causal and corrective measures of organisational climate based primarily on Locke's (1997) work motivation model
- (2) to statistically evaluate the fit of the constructed questionnaire to Locke's model of work motivation by means of structural equation modelling
- (3) to formulate recommendations on the findings in terms of the existing literature and the empirical study

1.4 THE RESEARCH MODEL

The research model of Mouton and Marais (1994, p.22) serves as a framework for this research. It aims to incorporate the five dimensions of 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 1.1, Mouton and Marais's (1994) model is described as a systems theoretical model with three subsystems which interrelate with one another 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.

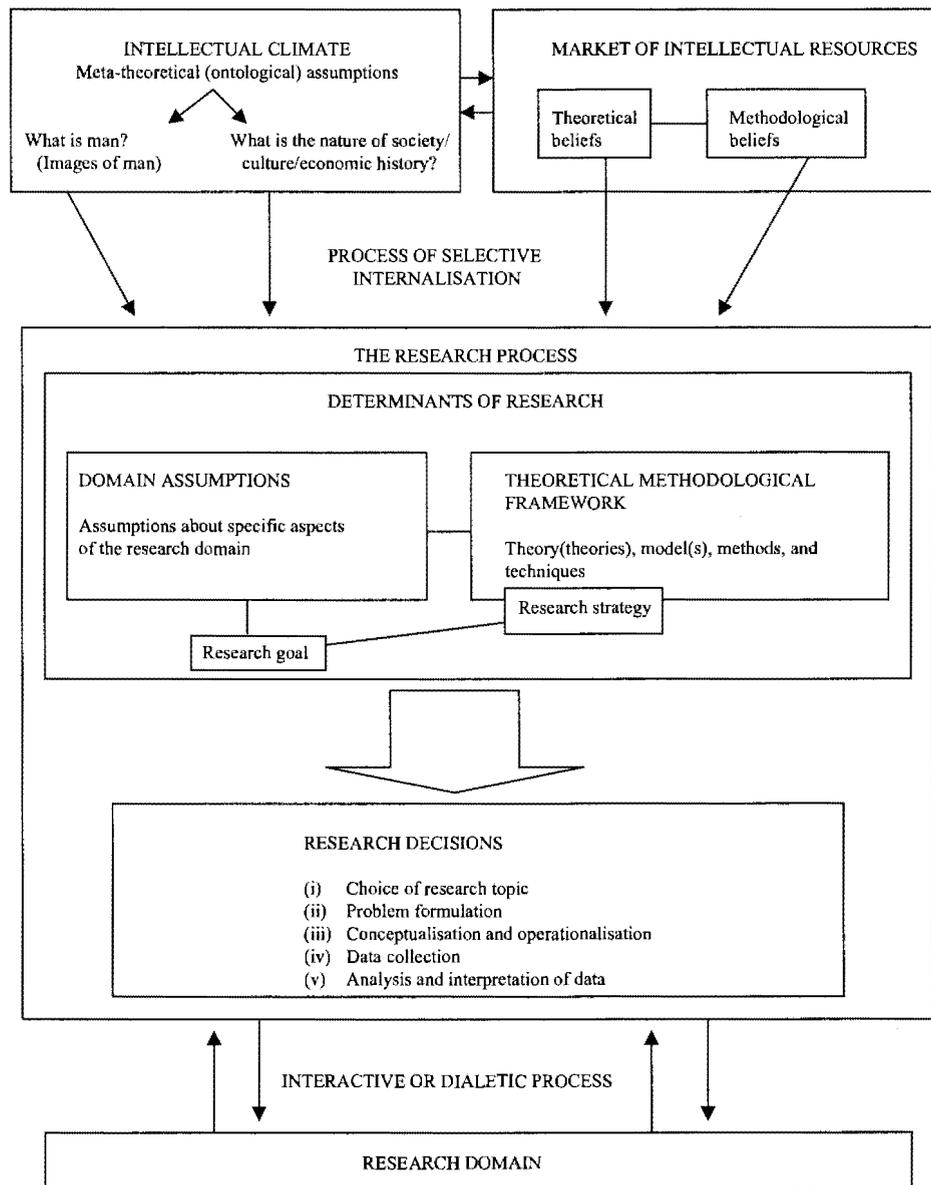


Figure 1.1: The Research Model (Mouton & Marais 1994, p22)

1.5 THE PARADIGM PERSPECTIVE

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

In terms of a discipline, this research focuses on psychology, industrial psychology and organisational psychology as fields of application. More specifically, the literature study focuses on the variables that together constitute work motivation and organisational

climate. The empirical study focuses on psychometrics and statistical analysis of the data within and between the paradigms.

According to Kuhn (1970) a paradigm is a model for conducting normal research. The paradigm acts as a container to define the problem area for the researcher, what he should research and how this should be done. Paradigms also determine what should be regarded as valid solutions. Baggett (2000) defines a paradigm as a working set of assumptions and premises about a given topic of scientific research. It represents a theoretical construct which defines the phenomena being investigated, and to a large extent, determines the appropriateness of approach and methodology of research to be used (Baggett, 2000). Neuman (2000) defines a paradigm as a general organising framework for social theory and empirical research. It includes basic assumptions, major questions to be answered, models for good research practice and theory, and methods for finding the answers to questions. However, when comparing the natural and social sciences using Kuhn's (1970) 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, p. 150) because the social sciences are not a discipline in which there is a single dominant paradigm. The social sciences are not exact sciences when compared with 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 analysis. The principles of the paradigmatic perspectives apply equally to this research.

The overall approach of this research will be from a systems viewpoint (Katz & Kahn, 1978). 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 four paradigm perspectives applicable in this research. The literature study on organisational climate and work motivation, as well as the literature study on Locke's work motivation model and the integration of the theory will be presented from the

behaviouristic, humanistic and eclectic paradigms. The empirical research will be presented from the functionalist paradigm and the integration of results and recommendations from the eclectic paradigm.

1.5.1.1 The behaviourist paradigm

Watson (as cited in Meyer, Moore & Viljoen, 1990, p. 174; Eysenck, 1994) who is often regarded as the father of behaviourism, highlights the central concepts of behaviourism to be that observable behaviour is regarded as the only acceptable object of study in psychology, that behaviourism is regarded as consisting of connections between stimuli and responses and that the prediction of behaviour is considered to be the ultimate objective of psychology.

Ivey and Simek-Downing (1980) add to the other basic assumptions of the behaviourist paradigm, namely that the human condition can be studied objectively and predicted, that the success of prediction and interventions can be measured and that an individual's behaviour is directly related to events and stimuli in the environment.

1.5.1.2 The humanistic paradigm

The humanistic approach or perspective developed during the 1950s with the work of Carl Rogers and Abraham Maslow. The main tenet of this approach to studying humans is the idea that people are constantly growing, changing and attempting to reach their full potential. Humanistic psychology focus upon self-direction, free will, and the ability of the person to make choices independently, as being the most important characteristics of the person. Humanistic psychologists therefore believe that human beings have the potential to become better human beings and attain a higher level of functioning (Heffernan, 1997).

The following are the basic assumptions of the humanistic paradigm. It takes as its model responsible human beings who are able to choose freely from the possibilities available to them. It emphasises people in the making – people in the process of growing and striving

to realise their potential (Baggett, 2000; Heffernan, 1997; Meyer, et al, 1990). The humanistic paradigm relates to the concept that human beings are more than the sum of their parts, that they make decisions based on choices and that they can actively change their life and situations. Underlying this is the need for actualisation of potential (Baggett, 2000; Heffernan, 1997; Meyer, et al., 1990).

1.5.1.3 The functionalist paradigm

According to Morgan (1980) and Atkinson, et al (1996), the important features of the functionalist paradigm are that it is primarily regulative and pragmatic in its basic orientation. It is concerned with understanding society in a way that generates useful empirical knowledge. According to the functionalist paradigm, society has a concrete real existence, and a systemic character that is oriented to produce an ordered and regulated state of affairs, and 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, p. 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, namely the acquisition of knowledge and skills (Jordaan & Jordaan, 1989).

1.5.1.4 The eclectic paradigm

The eclectic paradigm consists of a myriad of many of the traditional paradigms. In this instance, it has elements of behaviouristic, humanistic (Hayes, 1994; Hergenhahn, 1992) and functionalistic (Atkinson et al (1996) paradigms.

1.5.2 Metatheoretical assumptions

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, 1990). Metatheoretical assumptions are made on industrial psychology, growth psychology, organisational psychology and psychometrics.

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 towards the minimisation of problems in this context (Heffernan, 1997; McCormick & Ilgen, 1981).

According to Reber (1985) and Robbins (1996), 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 and the effects of work, fatigue and pay on the individual. With reference to this study, organisational behaviour and the effects and relationships of organisational behaviour, organisational climate and work are researched.

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

1.5.2.2 Growth psychology

Strümpfer (1990) suggests that growth psychology relates to one's using whatever potential is available as a catalyst for growth and wellbeing. Maslow (1971), who is included among the growth psychologists, has based his theory of self-actualising

psychology on healthy, creative individuals, stressing people's desire to achieve to their highest potential.

According to Maslow (1971), individuals' striving for growth culminates in supreme development and the use of all of their 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. Maslow's work will be further discussed in chapters 3 and 4.

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 the team leader in particular played a significant part in increasing the performance of the work group by promoting cohesion and involvement in the work group (Robbins, 1996; Roethlisberger & Dickson, 1939). This led to further research in work group behaviour, management styles, participation in decisions and feedback. Subsequent research by Trist (1981) 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. Organisational psychology concerns recruitment and selection monitoring, staff performance, employee motivation, organisational climate analysis, devising ways of improving the work setting and addressing particular problems that arise in relation to work (Heffernan, 1997).

1.5.2.4 Psychometrics

This branch of psychology involves 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; Robbins, 1996). Psychometric instruments put researchers in a position to measure behaviour in various forms offering different explanations for intra- and interpersonal functioning.

In this research, a questionnaire is developed and used to measure individuals' perceptions of organisational climate.

1.5.3 The market of intellectual resources

The theoretical beliefs described here are testable statements about the “what” (perspective) and “why” (interpretation) 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).

The model of work motivation by Locke (1997) will be empirically investigated. Motivation theories will be explored in the context of theories of individual behaviour, managerial approaches to work motivation and organisational effectiveness theories. The central hypothesis of the research can be formulated as follows: The organisational climate questionnaire developed in this research for the purpose of the investigation of Locke's (1997) model of work motivation reflects Locke's model of work motivation and may be used as a tool for further investigation towards the development of a measure of organisational climate in organisations in the South African financial services industry. Chapter 2 is devoted to the models, theories and conceptual descriptions upon which this research is based.

1.5.4 Methodological assumptions

Methodological assumptions are beliefs about the nature of social science and scientific research (Mouton & Marais, 1994). 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 domain and these relate to methodological choices, assumptions and suppositions that make for good research.

1.5.4.1 The 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 (Mouton & Marais, 1994). 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). In this research quantitative analysis is used to explore Locke's (1997) model of work motivation within the context of the South Africa financial services industry.

1.5.4.2 The ontological dimension

The ontological dimension of research encompasses that which is investigated in reality (Mouton & Marais, 1994). It relates to the study of human activities and institutions whose behaviour can be measured. This research measures properties of organisational climate that affect an individual and groups of individuals. Although individual behaviour is measured, the data can and should apply to teams and organisations. The research studies individuals as employees of a financial institution and researches aspects of their behaviour in the context of the organisation as well as the collective trends among groups of people in the organisation.

1.5.4.3 The teleological dimension

This dimension suggests that the research should be systematic by nature and goal directed (Mouton & Marais, 1994). It is therefore important to state the problem being investigated and relate this to the research goals. The goals in this research are explicit, namely to explore the extension of an existing model of work motivation by means of a questionnaire which is diagnostic and which provides causal and corrective information. Furthermore, in practical terms, the teleological dimension looks to furthering the field of industrial psychology by providing 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), this dimension relates to the quest for truth. A primary aim of research in the social sciences is therefore to generate valid findings which approximate reality as closely as possible. This research attempts to achieve this through good research design and the provision of reliable and valid results.

1.5.4.5 The methodological dimension

According to Mouton and Marais (1994), the methodological dimension of research 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 in more detail. This research relates to data collection through a questionnaire and data analysis through statistical techniques.

1.6 RESEARCH DESIGN

The section will provide a description of the types of research, the validity and reliability aspects of the research and the unit of research.

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), 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.

According to Neuman (2000), the goal is to formulate more precise questions that future research can answer. Exploratory research is often the first stage in a sequence of studies. This research is exploratory in that it compares a number of concepts and identifies characteristics of organisational climate, and work motivation. Through quantitative methods, attempts will be made to identify these constructs. Through the steps of the research methodology, every attempt will be made to make this research valid. The development of an organisational climate questionnaire and the exploration of Locke's (1997) model of work motivation in this research forms part of its exploratory nature.

1.6.1.2 Descriptive research

Descriptive research aims at investigating certain domains in depth (Mouton & Marais, 1994). 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. According to Neuman (2000), descriptive research presents a picture of the specific details of a situation, social setting or relationship. This research meets the requirements of descriptive research by describing the characteristics of organisational climate and work motivation accurately, and by defining the constructs and identifying them through quantitative techniques.

1.6.1.3 Explanatory research

Explanatory research goes further than merely indicating that relationships exist between variables (Mouton & Marais, 1994). It indicates the direction of the relationships in a causal relationship model. According to Neuman (2000), explanatory research builds on exploratory and descriptive research and goes on to explain the reason why something occurs. Going beyond focusing on a topic or providing a picture of it, explanatory research looks for causes and reasons. The researcher seeks to explain the direction of relationships and seeks to explain the relationship between elements of organisational climate and work motivation in the context of the diagnostic information, causes and corrective options for the organisation.

Thus the 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), for research to be internally valid, the constructs must be measured in a valid manner and the data that are 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 followed 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, p 50). Internal validity is illustrated in table 1.1.

TABLE 1.1
INTERNAL VALIDITY

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

Source: Mouton & Marais, 1994, p51)

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. The constructs, concepts, and dimensions that form part of the work motivation and organisational climate in this research are to be found in the relevant literature. Hence, there has not been a subjective choice of constructs, concepts and dimensions. There has also been a concern to ensure that the concepts have been ordered in a logical and systematic manner. This contributes to the meaningful

formulation of information. Every attempt has been made to search for and make use of a broad spectrum of literature which includes classical and recent literature.

1.6.2.2 Validity with regard to the empirical research

The questionnaire developed specifically for this research will be statistically analysed. The choice of the sample from the financial services industry is representative of the job categories and levels for the particular sample.

Research of a general universal interest stresses external validity (Mouton & Marais, 1994). In this research, external validity will be maximised if the results can be applied to similar universal situations. The sample will be taken from two of the four major South African financial institutions.

1.6.3 Reliability

Reliability is improved by structuring the research model in such a way that nuisance variables are limited (Mouton & Marais, 1994; Anastasi & Urbina, 1997). Reliability of the literature review is improved when other interested academics have access to the literature sources and to the theoretical views in the literature.

Reliability of the empirical research is improved when a representative sample is used (Anastasi & Urbina, 1997). This research makes use of a representative sample of financial services employees representing a broad spectrum of job levels and categories in the financial services industry.

1.6.4 The unit of research

The unit of research, in this instance, is the individual in organisational context. Babbie, (1979, as cited in Mouton & Marais, 1994, p 38) makes it clear that where the individual is the unit of analysis, the researcher focuses on the characteristics and the orientations of

individual behaviour. This research focuses on orientations of individuals in organisational climate and work motivation respectively. The purpose is to integrate these orientations into a meaningful organisational climate measurement questionnaire for use in a financial services organisation.

The individual (either male or female) will be referred to in the masculine ("he") for convenience sake.

1.7 RESEARCH METHODOLOGY

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

PHASE 1: LITERATURE REVIEW

Step 1 : The context of the research

The research will be contextualised in terms of organisational psychology and more specifically, the financial services industry and an organisational and a human resources model.

Step 2: The study of the organisational climate and work motivation literature

Literature on organisational climate and work motivation will be studied. Literature related to the rationale for studying organisational climate, the relationship between organisational climate and organisational culture, the definition and creation of organisational climate, theoretical models, dimensions and approaches to and research on organisational climate, measurement of organisational climates and critique of the concept of organisational climate will be explored.

Step 3: Study of Locke's (1997) model of work motivation and related theory

Locke's (1997) model of work motivation and related theory on work motivation will be studied and integrated with the literature review in chapter 3 from both a conceptualisation and operationalisation perspective. For each of the six elements suggested in Locke's (1997) model of work motivation, questions will be specifically compiled on three levels

of analysis culminating in the construction of the questionnaire for the purposes of empirically exploring the Locke's (1997) model of work motivation in this research.

PHASE 2 : THE EMPIRICAL STUDY

Step 1: Theoretical background, rationale for the design and description of the organisational climate questionnaire (OCQ)

The theoretical background for the investigation of Locke's (1997) model of work motivation using the organisational climate questionnaire specifically constructed for this research will be investigated. Thereafter attention will be paid to the rationale for the design of the questionnaire, followed by a discussion on the construction of the questionnaire.

Step 2: Sample

The sample used in this research will be described, with reference to the demographic and biographical make-up.

Step 3: Administration process and data gathering

The administration of the questionnaire will be discussed in the context of data collection strategy, invitation to sample, preparation and questionnaire administration.

Step 4: Data capturing

The method of data capturing will be discussed.

Step 5: Scoring of data

The scoring of data obtained in this research will be discussed.

Step 6: Statistical analysis

The statistical processes, including the structural equation modelling technique used in this research, will be discussed.

Step 7: Reporting on Results

The results of the statistical analyses will be reported and interpreted according to the sequence of the six elements evident in Locke's model of work motivation.

Step 8: Conclusions, limitations and recommendations

Based on the results obtained, the conclusions, limitations and recommendations for this research will be formulated.

1.8 CHAPTER DIVISION**Chapter 2: The contextual framework for the research**

The purpose of chapter 2 is to define the contextual framework for surveying with a view to anchoring both the format as well as the interpretations which can be made from the data.

Chapter 3 : Organisational climate

The purpose of chapter 3 is to explore the literature on organisational climate and work motivation.

Chapter 4 : Conceptualisation and operationalisation of motivation

The purpose of chapter 4 is to integrate Locke's (1997) model of work motivation and related literature with the literature studies in chapter 3 from a conceptualisation and an operationalisation perspective, culminating in the construction of the organisational climate questionnaire.

Chapter 5 : Empirical study

The purpose of this chapter is to describe the empirical research and statistical processes used.

Chapter 6 : Results

The results of the empirical study are reported and interpreted in chapter 6.

Chapter 7 : Conclusions, limitations and recommendations

The purpose of this chapter is to reach conclusions from the integration of the results. Limitations of the research are discussed. Recommendations for the study of industrial psychology and future research are also formulated.

1.9 CHAPTER SUMMARY

The background and motivation for the research was discussed in Chapter 1. The problem statement was discussed and the literature and empirical aims specified. The paradigm perspective was discussed, after which the research design and methodology was presented. Finally the chapter layout was given. A contextual framework for the research follows in chapter 2.

CHAPTER 2

THE CONTEXTUAL FRAMEWORK FOR THE RESEARCH

The aim of this chapter is to provide the contextual framework for this research. Selecting an appropriate contextual framework for surveying is important, because it anchors both the format and the interpretations which can be made from the data (Kopelman et al, 1990; Mink et al, 1979; Schneider, 1990; Schneider, et al, 1990). For example, if the contextual focus is defined as the perceptions of the organisation's clients of the value systems existing in the organisation, then the items chosen should contain client observable value incidences and the interpretation of the data may not be validly extrapolated to indicate, say, the effectiveness of client service delivery. In this research, specific attention is paid to defining the context for surveying which is discussed in this chapter.

2.1 A FRAMEWORK OF ORGANISATIONAL ACTIVITY

Over time and as a result of various situational experiences, each organisation develops specific characteristics and unique features (Kopelman et al, 1990; Mink et al, 1979). These characteristics are found in the behaviour and activities of individual members, the teams and groups they form, as well as the institutional processes the organisation supports (Kopelman et al, 1990; Mink et al, 1979). Figure 2.1 suggests the relationship between these activity layers.

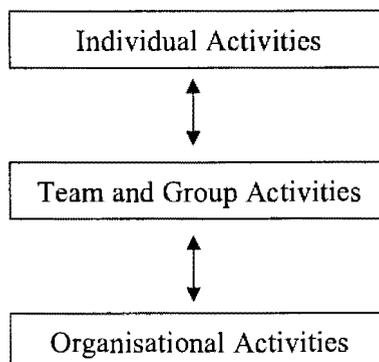


Figure 2.1: Layers of Organisational Activity (Kopelman et al, 1990; Mink et al, 1979; Schneider, 1990)

The principle of "coring" or centralising which forms an important basis for human behaviour should also be considered (Mink et al, 1979). In terms of this principle, the inner unitary perceptions, which humans form about themselves are translated into internally consistent behaviour patterns, which they apply to drive their behaviour (Kopelman et al, 1990; Mink et al, 1979; Schneider, 1990; Schneider et al, 1996).

In turn, people's internal behaviour patterns determine their external and interpersonal behaviours by virtue of self-fulfilling loops, social contracting and expectation patterns. This process of behaviour moderation is evident at all three layers of organisational activity and produces the total organisational model as depicted in figure 2.2 (Kopelman et al, 1990; Mink et al, 1979; Schneider, 1990; Schneider et al, 1996).

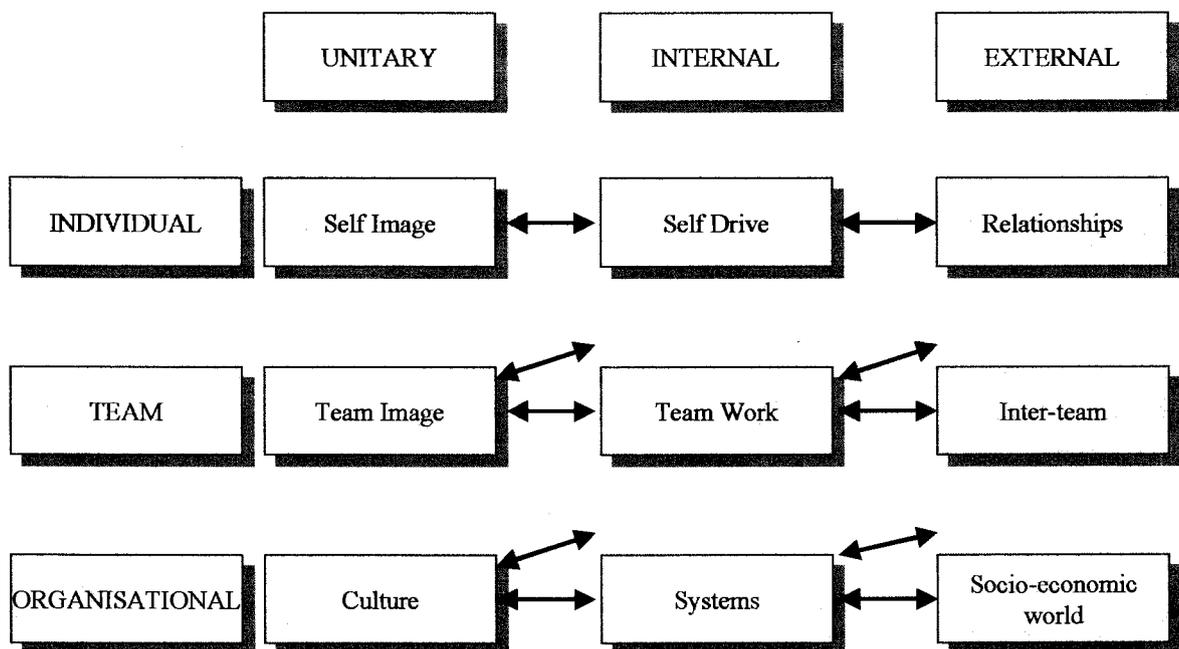


Figure 2.2: Total Organisational Model (Adapted from model by Mink et al, 1979)

The total organisation model suggests that organisational climate is the net result of the individual and team layers of organisational activity, the moderated behaviour patterns resulting from the unitary/internal/external phases of functioning as well as the impact of systems, procedures and the external socio-economic-political world.

However, different work situations do exist as organisations differ in terms of size, structure, leadership style, goal orientation and composition of the workforce (Argyris,

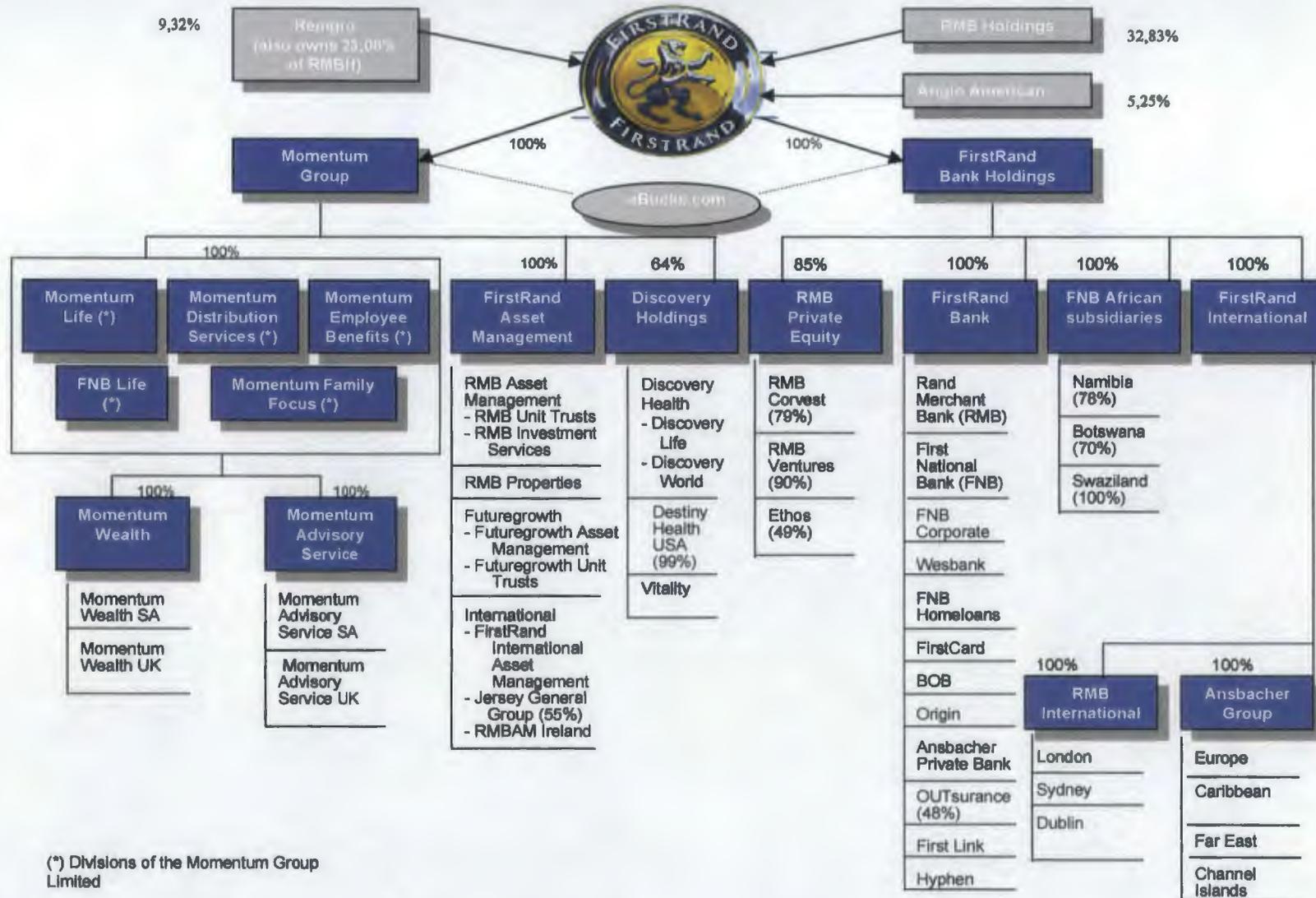
1972; Kopelman et al, 1990; Schneider, 1990). They require different climates to survive in environments with different characteristics. The purpose of this research is to investigate the extension of an existing work motivation model by means of an integrated organisational climate questionnaire for the financial services industry, which is diagnostic and which provides causal and corrective information. A large South African financial services group with an integrated financial services network in South Africa was selected. The target population for this research forms part of this network.

2.2 THE FINANCIAL SERVICES NETWORK

The financial services industry in South Africa is sophisticated and integrated. There are four major players, namely SBIC, Absa, FirstRand and Nedcor. This research was conducted in two of these institutions namely the FirstRand Group and Nedcor. A brief historic overview of the development of these institutions will be given as background.

FirstRand was created in April 1998 through the merger of the financial services interests of AAC and RMBH. The major companies involved at the time were the listed entities, First National Bank Holdings of Southern Africa Limited (FNBH) and the Southern Life association Limited (Southern Life), which were controlled by AAC and Momentum Life Assurers Limited (Momentum), the holding company of Discovery Health and Rand Merchant Bank which were controlled by RMBH. Momentum was used as the vehicle to effect the merger. In terms of the scheme of arrangement, Southern Life and FNBH shareholders received 675 Momentum shares in exchange for every 100 shares held. In addition, Momentum raised R5,1 billion by way of a rights issue in terms of which 572,7 million shares were issued at a price of 900 cents per share. The purpose of the rights issue was to facilitate the elimination and crossholdings which existed between Southern Life and FNBH. Momentum changed its name to FirstRand Limited and was listed on the Johannesburg Stock Exchange on 25 May 1998. A day later, a similar listing occurred on the Namibia Stock Exchange. The vision was to create a new group of company structures with critical mass to take advantage of the conversions of products in the financial services industry without the limitations imposed by minorities in operating companies. This was achieved in the following manner: Two separate groups were established with one comprising insurance and asset management-related activities and the other banking. The

crossholdings between FNBH and Southern Life were eliminated. The 40% interest in RMB held by Momentum policyholders was eliminated. RMB and FNB merged to form FirstRand Bank Limited. Momentum merged into Southern Life which company changed its name to FirstRand Insurance Limited. A review of the capital needs of the two groups took place to ensure that they were properly funded and the introduction of a common set of values known as the FirstRand Business Philosophy was introduced. The group structure is depicted in figure 2.3 (www/momentum/co.za/groupstructure.htm).



(*) Divisions of the Momentum Group Limited

Figure 2.3: FirstRand Financial Services Group Structure (<http://www.momentum.co.za/groupstructure.htm>)

Nedbank was founded in 1888 in Amsterdam as Nederlandsche Bank en Credietvereniging. On 1 August of the same year, owing to Dutch influence, the bank opened its first South African office in Pretoria with initial capital of GBP 50 000. This was to be the beginning of what is today known as Nedcor. In 1906, the London office opened as well as an office in Bloemfontein. Between 1920 and 1925, offices opened in Durban, Port Elizabeth and East London. In 1925, Nedbank merged with Transvaal Commercial Bank. In 1940, the Pretoria branch became the headquarters, with all assets transferred to South Africa from the Netherlands. In 1960, the head office moved from Pretoria to Johannesburg. In 1964, the Netherlands Bank became the first bank to introduce computerised banking services in South Africa. By 1969, shareholding increased to 100% by purchase from Bank Mees en Hope of Amsterdam. On 1 October 1971, the name was changed to Nedbank Limited. In 1973, following a merger with Syfrets Trust Company and Union Acceptances Limited, Nedbank Group Limited was formed. In 1983, Nedbank became the first bank to pay interest on current accounts and opened a full-service branch in New York. In 1984, Nedbank established further international links by opening branches in Jersey, Hong Kong, Switzerland and Grand Cayman. In 1985, NedTravel was established which included American Express Foreign Exchange, Travel International, Development promotions, EG Tours and Associated Air Travel Bureau. In 1986, Nedbank merged with Finansbank Beperk (merchant bank) to form Nedbank Investment Bank (NIB). In 1988, Nedbank merged with SA Permanent Building Society. In 1989, Perm merged with Nedbank to become Nedperm Bank Limited. Nedbank opened a representative office in Taipei, Taiwan. In 1992, their name changed to Nedcor Bank Limited and Nedbank became a division of Nedcor Bank Ltd. In 1993, a co-operation agreement was signed with SFOM, including a merger of all their commercial banking operations in Namibia to create The Commercial Bank of Namibia. Nedcor Bank's personal banking division was introduced and they expanded the international division. In 1994, Nedfin Bank merged with Nedbank and was incorporated into Nedbank Commercial Division. The financial services division changed its name to Nedbank Investment Bank Divas, which is a division of Nedcor Bank Ltd.

In 1997, Syfrets, UAL and NIB merged their stock-broking interests to become Nedcor Investment Bank (NIB). Netbank was introduced, which was the first full-service banking on the Internet and NedCheque, South Africa's first debit card obtained worldwide access

through MasterCard and Visa. In 2000, MedMobile, Netcard and the Nedbank Client Care Centre was launched (<http://www.nedcor.co.za>).

2.3 MACRO-ORGANISATIONAL MODEL

In identifying a suitable business model for this research, it was necessary to find a model that does not focus on the functions of an organisation, but rather one that recognises the complexity of organisations without being overly complicated.

The following business model was then developed specifically for use in this research. The model draws primarily on the work of Roux (1996) who developed a risk-based strategic business model by specifically focusing on the South African banking environment. The model was applied to four major players within the banking industry, namely Absa, FNB, Nedcor and SBIC.

Roux's (1996) model was later adapted by incorporating four main resources of organisations as identified in the literature on business studies (Cronje, Du Toit, Mol, Van Reenen & Motlatla, 1997) and by including the role of the external environment on organisations. The adapted model is presented in figure 2.4 and is followed by a discussion.

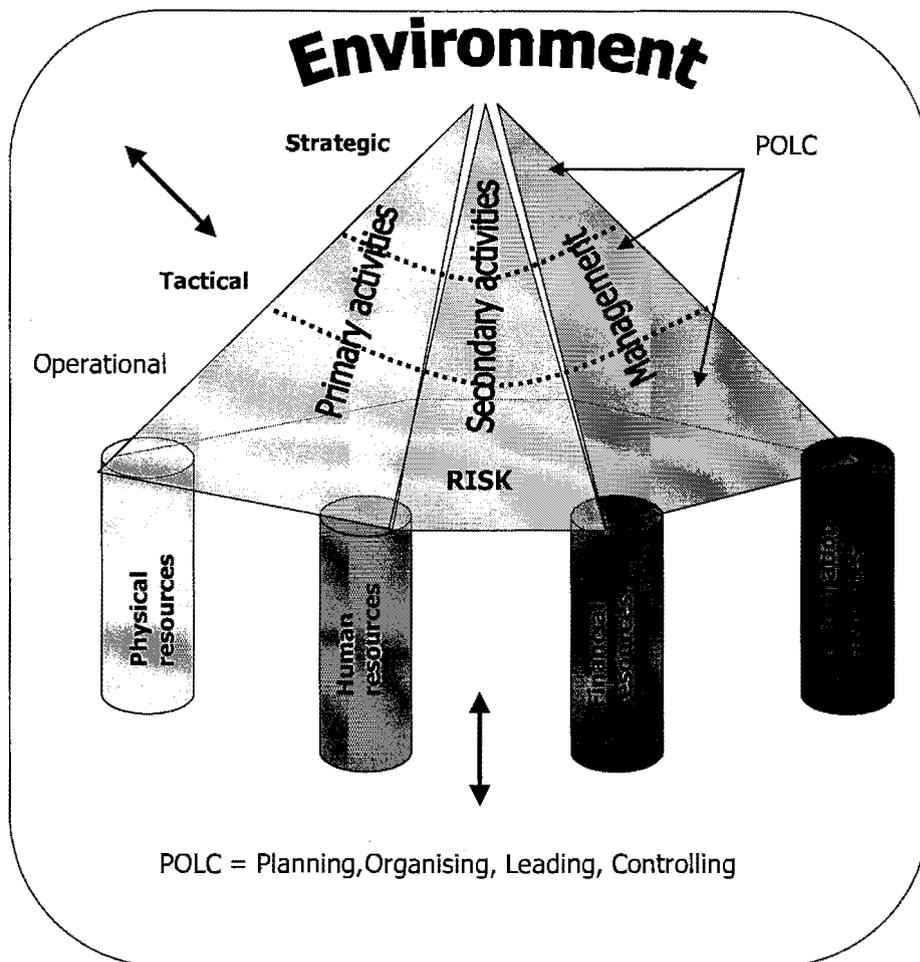


Figure 2.4: A Business Model (Adapted from Roux, 1996)

The first two elements that Roux (1996) identified in his business model were that of activities within the organisation, more specifically primary and secondary activities.

By following a top-down approach, the risk-based strategic business model (Roux 1996) divides the organisation into its main business activities. The model relies heavily on Porter's (1980) work in distinguishing between primary and secondary activities as depicted in figure 2.5.

Porter's Value Chain

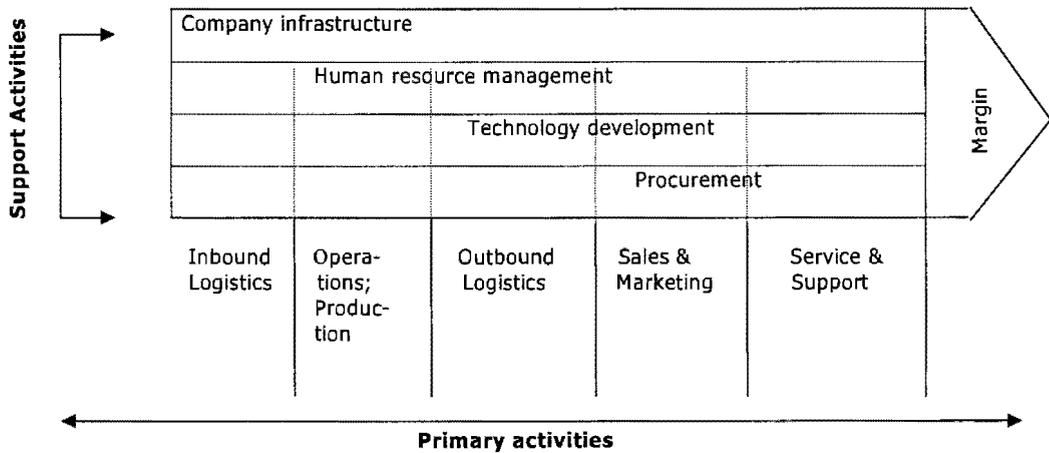


Figure 2.5: Porter's Value Chain (Porter, 1980)

As can be seen from figure 2.5, all activities play an integral role in organisational outputs, but the nature of the roles differs.

The third triangle in the business model represents the role of management, and specifically the generic functions of management, namely planning, organising, leading and controlling. These functions are based on those expounded in the early 1900s by Henri Fayol of France, a leading pioneer in management theory (O' Brien, 1993, p. 338). Managers allocate human and material resources and direct the organisation's operations. They plan for the future and decide on the best way to achieve the objectives. In performing these functions, managers need to motivate their staff and increase the organisation's overall efficiency, effectiveness and productivity (Chen, Greene & Crick, 1998; Hellriegel & Slocum, 1989; Schneider, 1990).

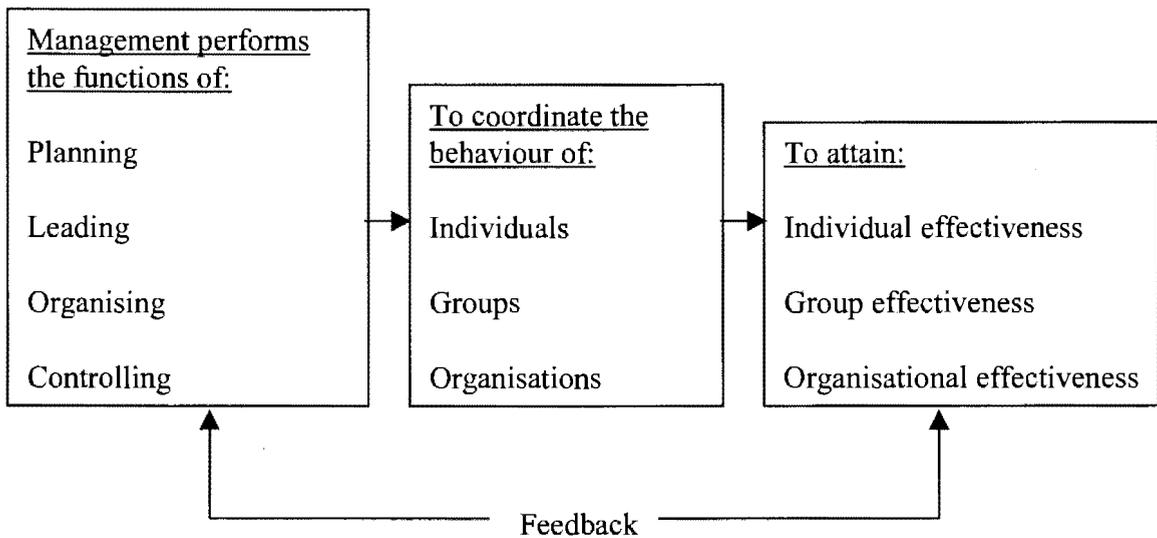


Figure 2.6: Management's Contribution to Effectiveness (Gibson, Ivancevich & Donnelly, 1994)

The third element shown in the business model (fig 2.4) is business levels. Three levels of business are identified, namely the strategic level, the tactical level and the operational level. These levels refer to the intensity with which managers and their workforce attend to activities. These levels also broadly represent top management, middle management and first-line management/supervisory level respectively (Hellriegel & Slocum, 1989, p. 7).

As can be seen from figure 2.4, management functions take place at all levels of business and parallel to the activities in the organisation. Figure 2.6 illustrates the process whereby management impacts on organisational success.

The unique element in Roux's (1996) model is that of risk, that according to him underlies all activities and functions in the organisation. Risk thus forms the core element of the organisation. The inherent risks within the organisation must be viewed as potentially positive or negative. The McKinsey 7-S framework (Thompson & Strickland, 1992, p. 262) identifies the following risk factors, which are of particular value to this research since they indicate the role of the "soft issues" in risk management. The risk factors are structure, systems (including administrative systems, practices and procedures), strategy, skills (including capabilities and core competencies), shared values (including attitudes

and philosophy), style (particularly top management style) and staff (particularly the approach to staffing the organisation).

The business model was adapted by incorporating resource elements (indicated by the pillars).

The four main resources of the organisation are physical, human, financial and information (Roux, 1996). These can be illustrated as follows:

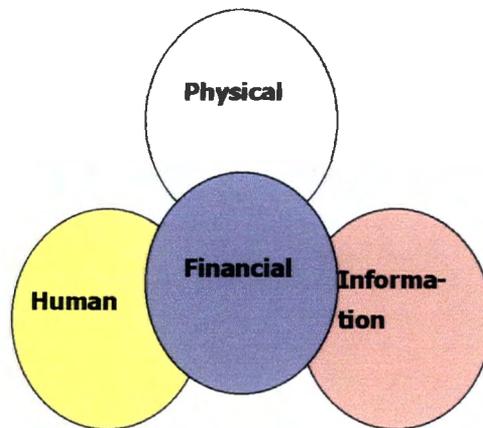


Figure 2.7: Resources of the Organisation (Adapted from Roux, 1996)

Lastly, the environment influences and is influenced by the organisation (Roux 1996).

As can be seen from the business model (fig 2.4), the human resource component is one of the four building blocks or main resources of the organisation. The human resource component, similar to the other three resources, is present throughout all levels of business, although the intensity of tasks may differ. It forms part of all activities (both primary and secondary) and is an essential part of management. Furthermore, human resources form part of an organisation's inherent risk basis, being both a potential positive and negative factor, but they are also strongly influenced by and influence the external environment.

2.4 HUMAN RESOURCE WORK MOTIVATION MODEL

Locke (1997) refers to various approaches to work motivation which have surfaced out of the behavioural sciences over the last few decades. Three basic approaches have formed the crux of the work. The behaviourist approach, suggests that human beings are driven mainly by environmentally conditioned forces and that conscious choice is rarely present in their actions. The second approach acknowledges the consciousness of the human being, but focuses on the subconscious motivational drivers such as ego states to explain behaviour. A third approach recognises both conscious and subconscious drivers and tends to focus on goal-forming behaviour patterns (Locke, 1997).

Following these approaches, Locke (1997) refers to a whole series of work motivation theories which have been proposed and empirically tested by proponents of each. These include, inter alia, the goal-setting theory, the social cognitive theory, the personality theory, the valence-instrumentality-expectancy theory, the attribution theory, the equity theory, the procedural justice theory and the job characteristics theory. These work motivation theories will be discussed in chapters 3 and 4, and then integrated with Locke's (1997) work motivation model.

In a ground-breaking article, Locke (1997) proposed a highly integrative and systemic model which encapsulates all the previously mentioned theories and provides an understanding of some basic causal relationships between various motivational components. What is important for the purposes of this research is that Locke focused extensively on empirical evidence provided by various research projects, and based on these findings, suggested certain causal analogues explaining the connection between the main model parts. In his own words: "It must be stressed that ... this model is not speculative but is, with one exception, entirely empirical" (Locke, 1997, p. 401). Locke's (1997) model of work motivation is depicted in figure 2.8.

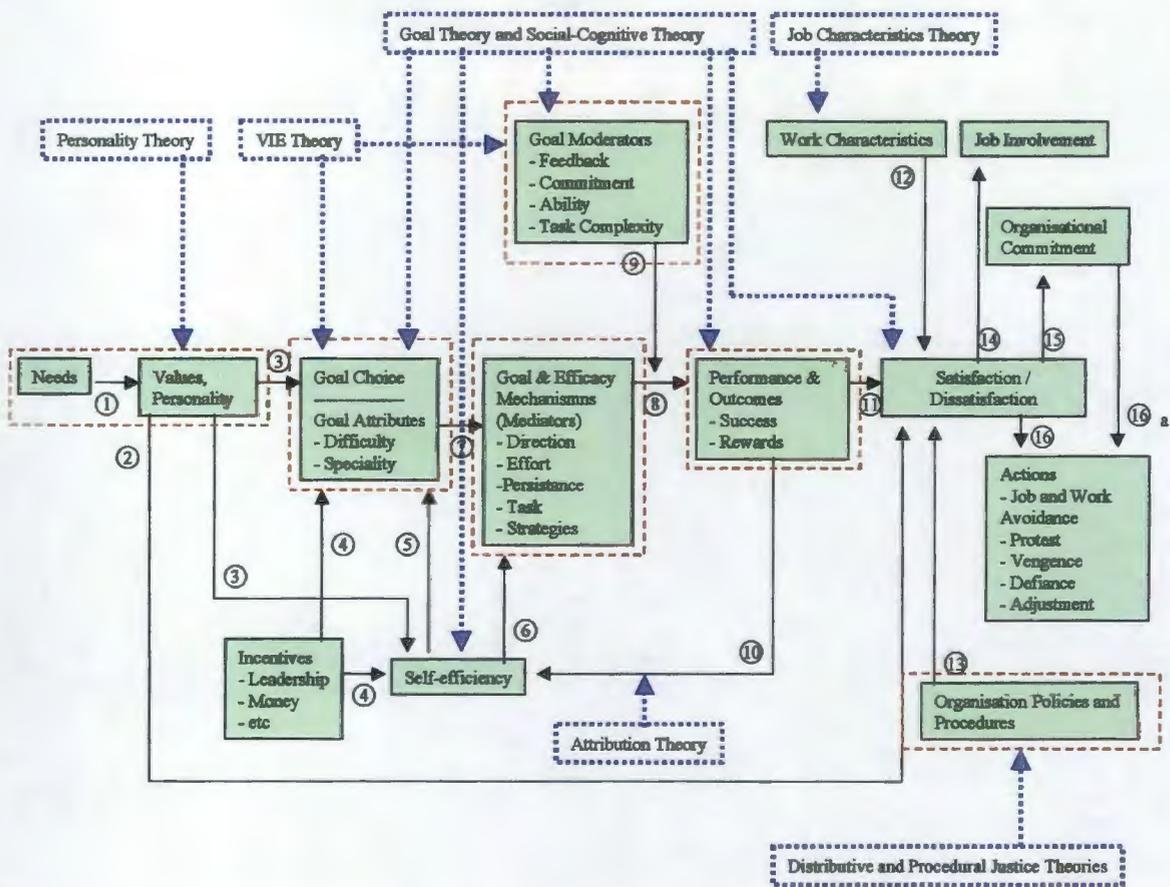


Figure 2.8: Locke's (1997) Work Motivation Model

In his summary of the model, Locke identifies a full set of 15 causal analogues between the various subcomponents of the model:

- The relationship between needs and values is a relatively unresearched area dealing with the impact of personal drivers, hierarchy of needs and career motivation on the formation of personal values and expectations.
- Values and needs affect satisfaction. The individual's self-esteem and temperamental condition affect perceptions of work, the job and satisfaction.
- Values and personality affect the selection of personal goals and self-esteem, and in turn goals and efficacy affect performance levels and recognition of success or failure.

- The prospect of incentives and the quality of leadership affects the selection of goals as well as the individual's self-esteem (self-efficacy).
- Self-esteem, empowerment and locus of control affect goal choice and especially difficulty levels.
- Self-efficacy and goals impact on goal drivers by providing direction, controlling effort, directing persistence and determining strategies.
- Goal drivers and especially quality of leadership, task strategies and task environment, affect performance levels. This is done through the organisation's reward policies.
- Goal moderators such as feedback, ability and task complexity determine the end performance levels.
- Performance enhances the self-esteem and empowerment of the individual.
- Performance determines satisfaction or dissatisfaction, which in turn determines learning.
- Work characteristics impact on satisfaction as a result of perceived challenge, task difficulty and value-instrumentality-valence.
- Policies and procedures impact on satisfaction as a result of perceived fairness, procedural justice and distributive justice.
- Satisfaction enhances involvement and involvement increases satisfaction.
- Satisfaction impacts on commitment to the organisation.
- Satisfaction or dissatisfaction determines anger or happiness, approach or avoidance, agreement or protest and compliance or maliciousness.

These are at best the primary directions and types of analogues existing amongst the various components of the model.

A summary of the areas which appear to be measurable according to the model are

- actualisation of personal needs
- actualisation of personal values
- actualisation of potential
- strength of personal incentives
- self-efficacy
- satisfaction with goals
- management and leadership climate
- goal clarity
- goal instrumentality (tools)
- effort
- achievement climate
- team environment
- personal optimisation
- recognition
- rewards
- work characteristics
- job involvement
- organisational policies and procedures

This integrative and systemic model which encapsulates most of the classical work motivation theories is used as a point of departure for further research into the investigation of the model. An organisational climate questionnaire based on Locke's (1997) model will be constructed specifically for this research with the purpose of empirically investigating the model.

2.5 CHAPTER SUMMARY

In chapter 2, an overview of the contextual framework was provided. A framework for organisational activity including the layers of organisational activity (Kopelman et al, 1990; Mink et al, 1979; Schneider, 1990) and the total organisational model (Mink et al, 1979) were discussed. In the context of the South African financial services network, an overview was given of FirstRand and Nedcor. A discussion of the macro-organisational model (Roux, 1996) including Porter's (1990) value chain, management's contribution to effectiveness (Gibson et al, 1994) and resources of the organisation (adapted from Roux, 1996) followed. The human resources work motivation model with specific emphasis on Locke's (1997) work motivation model within this context was discussed. Literature on organisational climate and work motivation will be discussed in chapters 3 and 4.

CHAPTER 3

ORGANISATIONAL CLIMATE

The aim of this chapter is to explore the literature on organisational climate and work motivation. The literature review traces organisational climate back to when Kurt Lewin initiated the first explicit studies of organisational climate in the 1930s, and then further explores the integration of several decades of empirical research on work motivation. Literature from 1930 to 1980 will be reviewed in this chapter and then integrated with more recent literature and Locke's (1997) model of work motivation in chapter 4, against the backdrop of the contextualisation and operationalisation of the variables used in the construction of the questionnaire.

3.1 INTRODUCTION

Organisational climate is a relatively enduring characteristic of an organisation which distinguishes it from other organisations and embodies members' collective perceptions about their organisation with respect to such dimensions as autonomy, trust, cohesiveness, support, recognition, innovation and fairness. It is produced by member interaction, serves as a basis for interpreting the situation, reflects the prevalent norms, values and attitudes of the organisation's culture and acts as a source of influence for shaping behaviour (Moran & Volkwein, 1992, p. 2).

Many researchers have presented different definitions of organisational climate, and there has been some confusion about the manner in which organisational climate is distinct from the notion of organisational culture. This chapter will, in part, provide a review of the evolution of this definition of organisational climate and provide an explanation of its relationship with the concept of organisational culture.

The study of organisational climate has its roots in the work of Kurt Lewin in the late 1930s (Denison, 1996; Lewin et al, 1939; Schneider, 1990). Lewin et al (1939) used the term "psychological climate" to describe the essential elements that linked human behaviour to generalised stimuli. Although the concept of organisational climate evolved

from the Atkinson motivation theory (Atkinson, 1958), it was Lewin who initiated the first explicit studies of psychological climate in the 1930's. Climate is defined as a "molar" concept, which means that it is a large all-encompassing concept, describing the total effect of the situation. Such a concept is more manageable and useful in describing the effects of actual life situations than the more "molecular" situational variables used by Atkinson, namely the need for power, achievement and affiliation. The Atkinson model will be discussed later in this chapter. Lewin (1951), who seeks to describe the essential dynamics that linked human behaviour to generalised environmental stimuli suggests that in order to characterise the psychological field properly, one has to take into account such specific items as particular goals, stimuli, needs, social relations, as well as more general characteristics of the psychological field as the atmosphere (eg. the friendly, tense or hostile atmosphere) or the amount of freedom (Schneider, 1990; Schneider et al, 1996). Lewin (1951) further suggests that the characteristics of the field are as important in psychology as, say, the field of gravity for the explanation of events in classic physics. Psychological atmospheres are empirical realities and are scientifically describable facts (Lewin, 1951; Schneider, 1990).

Lewin et al, (1939) investigated the psychological climate in an experiment investigating the effects of three different leadership styles on group members' behaviour. Lewin and his associates reviewed the behavioural differences in the various boys' clubs studied and concluded that in nearly all cases, differences in club behaviour could be attributed to differences in the leader-induced "psychological climate" rather than to other characteristics of the club (Lewin et al, 1939). Lewin's work will be discussed in more depth later in this chapter and related to other models and theories.

Following Lewin's work, other researchers attempted to build upon climate theory and to describe how climates are established and maintained in organisations. One of the best known of these attempts was the so-called "role-set" theory (Kahn, Wolfe, Quinn, Snock & Rosenthal, 1964), which presented an alternative to the climate model. The theory differs from Lewin's climate model, in which the group's leader style is the most influential, by positing that workplace managers can influence workers' perceptions of their roles or "role-sets", by changing group membership or by directly influencing expectations through training.

Other researchers have tried to create an integrated model of organisational behaviour which focused on the use of organisational climate as an intervening variable which mediates between organisational system factors and the individual's motivation characteristics (Brown & Leigh, 1996; Kopelman et al, 1990; Litwin & Stringer, 1968). Organisational climate represents this interaction and can be a useful tool in matching the characteristics of the individual to the situation. Litwin and Stringer (1968) suggest that the term "organisational climate" refers to a set of measurable properties of the work environment perceived directly or indirectly by the people who live and work in the environment and are assumed to influence their motivation and behaviour. This has formed the foundation of much climate research to date (Schneider, 1990; Schneider et al, 1996; Moran & Volkwein, 1992).

With regard to theories of individual behaviour, one study of work and motivation (Vroom, 1964) suggests that individuals choose to behave in particular ways based on the outcomes they believe will result, and that they aim to achieve certain levels of satisfaction. According to Vroom's (1964) theory, outcomes have a value or "valence". Firstly, the valence of an outcome is an increasing function of the algebraic sum of the product of valences of all other possible outcomes, and the individual's conception of its instrumentality for the attainment of other outcomes. Secondly, the pressure on a person to perform an act is an increasing function of the algebraic sum of the products of the valences of all outcomes and the strength of that person's expectancy that the act will be followed by the attainment of the outcomes (Vroom, 1964). Thus the perceptions and behaviours of individuals in organisations are affected by their own and others' roles and by the organisational context. Many studies suggest that people can benefit from the ability to create climates which are compatible with particular goals and needs (O'Leary-Kelly, Martocchio & Frink, 1994; Patterson, Payne & West, 1996; Payne & Pugh, 1976 and Schneider, 1994). Vroom's theories will be discussed again later in this chapter, when they are compared with other theories.

Having realised that people are motivated to act in order to satisfy certain needs, researchers (Denison, 1996; Mink et al, 1979; Moran & Volkwein, 1992) then postulated that people were not only influenced by their inner needs, but also by environmental factors. It was thus shown that in an organisation, the organisational climate influences

employees' motivation, which in turn, has an effect on their job satisfaction and productivity.

The cognitive or economic behaviour theories (Cyert & March, 1964; Schneider, 1975; Tolman, 1959) of organisations view organisations as systems for decision making. These theorists state that humans are rational, logical or reasonable, and that decision making and organisational choice are the major functions of organisations (Cyert & March, 1964; March & Simon, 1958).

Theories of organisations which concentrate on organisational structure (Lawrence & Lorsch, 1967) rather than climate, view the environment as having three components, namely physical, cultural and technological. The mutual interaction of these parts imposes or specifies certain constraints on the behaviour and interactions of the people involved in the system (Lawrence & Lorsch, 1967; Likert, 1961; Woodward, 1965). Recently, studies have concentrated on smaller, more flexible entrepreneurial organisations and their structures and the impact they have on the people (Chen et al, 1998; Covin & Slevin, 1997).

Organisational climate is also considered to be influenced by a manager's style of management (Blake & Mouton, 1964; Schneider, 1990). However, throughout this process from managerial style to organisational climate, to aroused motivation, to job satisfaction and productivity are many reciprocal influences that make it impossible to dogmatically uphold a one-way cause-and-effect relationship between any two of these factors. Furthermore, individual personality traits and cultural sensitivities also play a role in explaining behaviour in organisations, which together with the previously mentioned factors make the manager's task of eliciting productive activity from their employees, an extremely challenging one (Denison, 1996; Locke, 1997).

According to Schneider and Reichers (1983), most theorists have dealt with organisational climate as a process or nonstatic phenomenon. They recognise the need for a theory which links individuals to the environment. Some agreements do appear to be forming on a climate approach to the understanding of organisational phenomena. The approach rests on perceptions of employees that are descriptive of organisational or subsystem events, practices and procedures which, if taken together, are useful in characterising organisations

or subsystems (Schneider, 1990; Schneider & Reichers, 1983). This is in line with the work motivation model developed by Locke (1997) on which this research is based.

3.2 RATIONALE FOR STUDYING ORGANISATION CLIMATE

When Antoine de Saint-Exupéry wrote: "What is essential is invisible to the eye" (De Saint-Exupéry, 1945, p 68) in 1945, he was probably restating what Sigmund Freud had introduced 30 years earlier, with his principle of unconscious psychological processes directing humans' behaviour. Human behaviour, humans' visible expression of the invisible forces within themselves has always fascinated those involved in interpersonal relationships. Because humans' basic tenet of cause and effect has often appeared to fail to explain human behaviour, it has often been enshrouded in mystery.

Organisational climate has much to offer in terms of its ability to explain the behaviour of people in the workplace. Ashforth (1985) put forward the view that climate has the potential to facilitate a truly integrative science of organisational behaviour. Schneider (1994) later discussed climate in terms of the atmosphere that employees perceive is created in their organisations by practices, procedures and rewards. Employees observe what happens to them (and around them) and then draw conclusions about the organisation's priorities. They then try to set their own priorities accordingly. (Schneider, 1994).

Schneider et al, (1996) argue that sustainable organisational change is most assured when both the climate, in terms of what the organisation's members experience, and the culture, in terms of what the organisation's members believe the organisation values, change. Other empirical studies have claimed that climate has a considerable impact upon organisational effectiveness (Campion, Medsker & Higgs, 1993; Drexler, 1997; Franklin, 1975; Fredrickson, Jensen & Beaton, 1972; Furnham & Drakeley, 1993; Kanter, 1983; Lawler, Hall & Oldham, 1974; Likert, 1961, 1967; Schneider et al, 1996).

However, because an organisation's success, depends largely on the predictable behaviour of people (Schneider et al, 1996; Schneider & Reichers, 1983), many researchers have probed into this "invisible aspect of human experience" in an attempt to explain what

factors determine people's behaviour. Those who are in managerial functions, whose responsibility it is to ensure that selected inputs are processed effectively into profitable outputs, are particularly concerned about how best to secure productive activity from their employees. In a similar vein, those in marketing functions are most concerned about customer behaviour and one can therefore conclude that the success of most organisational functions depends on the extent to which human behaviour is correctly understood and people are creatively motivated (Denison, 1996; Schneider & Reichers, 1983).

The diagnostic phase of the organisational process has been described as one of the most crucial (Schneider et al, 1996), yet least researched areas of organisational development.

Although there appears to be significant use of organisational climate data, researchers are not in complete agreement about a precise definition of organisational climate. Guion (1973, p 120), for instance, concludes that the term "organisational climate represents a very 'fuzzy' concept". Schneider (1990) agrees with Guion's (1973) view of the vagueness of the climate concept. A large part of the definitional problems evolve because climate can be viewed as an organisational phenomenon or a summary of individual perceptions. The definition of organisational climate will be dealt with after a discussion of the differences and similarities between organisational climate and organisational culture.

3.3 ORGANISATIONAL CLIMATE AND ORGANISATIONAL CULTURE

Before discussing the definition of organisational climate, it is necessary to distinguish between the concepts of organisational climate and culture. Both researchers and practitioners tend to confuse the concept of organisational "climate" with that of organisational "culture" (Denison, 1996).

In their explanation of how to match corporate culture with business strategy, Schwartz and Davis (1981) take great care to ensure that the two terms, namely "climate" and "culture" are not confused with each other. They stress that climate is not culture, and clearly distinguish between the two concepts. Schlesinger and Blazer (1985) agree that the term "climate" is often referred to as "culture" and they, like Schwartz and Davis (1981) and Denison (1996), clearly distinguish between the two concepts.

In researching the link between culture and performance, Schlesinger and Blazer (1985), define culture in terms that explicitly exclude climate and behaviour from the definitions of the concept. They compare climate with fashion fads that are easily changed and are not rooted in the core of the organisation. Climate is viewed as being transitory, tactical and manageable in the short term. In contrast, culture is viewed as being difficult to change in the short term.

Schwartz and Davis (1981) and Denison (1996) emphatically state that climate is not culture. According to them, climate is a measure of whether employees' expectations about working in the organisation are being met. On the other hand, they view culture as a pattern of beliefs and expectations that members of the organisation share. Climate therefore measures whether the expectations are being met, while culture is concerned with the nature of these expectations. Like Destanick (1986), they believe that climate is a measure of fit between the organisation's prevailing culture and the employees' individual values.

Destanick (1986), in contrast to Verwey (1983), differentiates between the two concepts. He views the climate instrument as a measure of the way members of an organisation view and react to the organisation's culture. The instrument is seen to be a quantitative snapshot in time of an organisation's health, by means of the perceptions of its members.

Resnick (1981) asserts that in the case of climate, respondents are in effect asked to ignore their personal feelings about the organisation and merely describe what goes on within it. The question is then whether climate is an attribute of the organisation or of the perceiving individual. In this context, the distinction between culture and climate becomes vital because it needs to be determined if culture is the "shared" values of members of the organisation or employee perceptions of the work environment.

Selby and Garretson (1981) and Kopelman et al, (1990) define culture as a rule for constructing the world and interpreting it - the material artefacts being products of the application of the cultural rules. In this definition, culture relates to the perception that people have of the organisation.

Culture may generally be viewed as an attribute of the organisation and not of the individual (Denison, 1996; Schwartz & Davis, 1981). Culture as a metaphor draws attention to the symbolic aspects of the organisation, its rituals, heroes and stories. As an internal independent variable, organisations are viewed as cultural-producing phenomena (Trice & Beyer, 1993; Tunstall, 1983). Culture therefore applies to the organisation as an entity and not to individual perceptions (Trice & Beyer, 1993; Tunstall, 1983). Most of the definitions attributed to the concept "organisational culture" stress the fact that it consists of commonly held attitudes or shared beliefs and values (Albert, 1983; Denison, 1996; Tunstall, 1983).

The concept "climate" appears to have grown from a sociological analogy to physical or geographical climate. As such it is viewed as an attribute of the organisation, much as variables of the physical climate are seen as attributes of the physical world (Guion, 1973). With reference to climate's geographical analogy, it is interesting to note that Payne and Pugh (1976) correlate climate dimensions such as progressiveness and development, risk taking, warmth, support and control, with temperature, rainfall and wind velocity. Albert (1983), Tunstall (1983) and Denison (1996) refer to organisational culture as a set of values that influence employees' behaviour.

Organisational culture defines a set of expected behaviour patterns that are generally supported in the organisation (Albert, 1983; Moran & Volkwein, 1992). These expectations or norms consist of unwritten rules that have a significant impact on behaviour. Similarly, the behaviour of individuals working in the organisation will be directly influenced by their perception of the organisation's climate or their perception of the organisation's prevailing culture (Moran & Volkwein, 1992; Tunstall, 1983).

Trice and Beyer (1993) define culture in terms of what it is not. It is not climate, which is measured with researcher-based data, whereas culture is measured by intense data collection of an emic (contrastive) nature. Reflecting the concerns of both Schneider (1990) and Glick (1988), Trice and Beyer (1993) state that various researchers have subsumed so many different variables under the climate concept that it overlaps with most constructs in organisational behaviour as well as with structure, technology, formalisation and effectiveness. The appeal of the climate construct was that it seemed to give researchers a way to combine a broad array of variables already studied into a single

omnibus concept that would simplify the process of characterising and comparing the psychological environments.

The definition of culture put forward by Trice and Beyer (1993) noted that it has many unique indicators like myths, symbols, rites and stories. Denison (1996) took what he considered to be a more controversial view in arguing that it is not clear that culture and climate are examining distinct organisational phenomena. However, the literature refers to culture as being deeply rooted in the structure of an organisation and based upon the values, beliefs and assumptions held by the members. Climate, however, tends to present social environments in relatively static terms, measured by a broad set of dimensions and can be regarded as temporary and subject to a range of controls (Denison, 1996). Table 3.1 gives an outline of differences between the literature using an epistemological approach, the point of view taken, methodology used, temporal orientation, level or analysis and the discipline area.

TABLE 3.1
CONTRASTING ORGANISATIONAL CULTURE AND ORGANISATIONAL CLIMATE

Research Perspective	Cultural Literature	Climate Literature
Epistemological	Contextualised and idiographic	Comparative and nomothetic
View Point	Emic (native view)	Etic (researcher's view)
Methodological	Qualitative observation	Qualitative data
Temporal Orientation	Historical evolution	A historical snapshot
Level of Analysis	Underlying values and assumptions	Surface level manifestations
Discipline	Sociology	Psychology

Source: Denison (1996, p 625)

Culture studies were searching for that which is unique in each setting and used qualitative methods, whereas climate studies in contrast, used quantitative methods and looked for factors that were generalisable across different settings. One of the difficulties that seem to have plagued researchers is that the same climate can be traced to the desire to find

generalisable factors that are applicable to all environments, to the extent that a multiplicity of dimensions, climate instruments and underlying theoretical assumptions have been produced by various researchers (Denison, 1996; Kopelman et al, 1990).

When Moran and Volkwein (1992) examined the relationship between culture and climate they saw an organisation's climate as a specific portion of the overall construct. They viewed climate as being embedded the overall construct of culture, which was seen as larger and more abstract. As far as individual behaviour in the formation of climate is concerned, both Moran and Volkwein (1992) and Ashforth (1985) saw the contextualising of the psychological principles contained in the Gestalt and functionalist approaches to behaviour. Figure 3.1 depicts how Moran and Volkwein (1992) conceptualised the relationship between climate and culture. They viewed culture as being the invisible construct which guides and informs individual behaviour, in effect setting an agenda from which climate can develop and where, in their view, it can have some enduring quality.

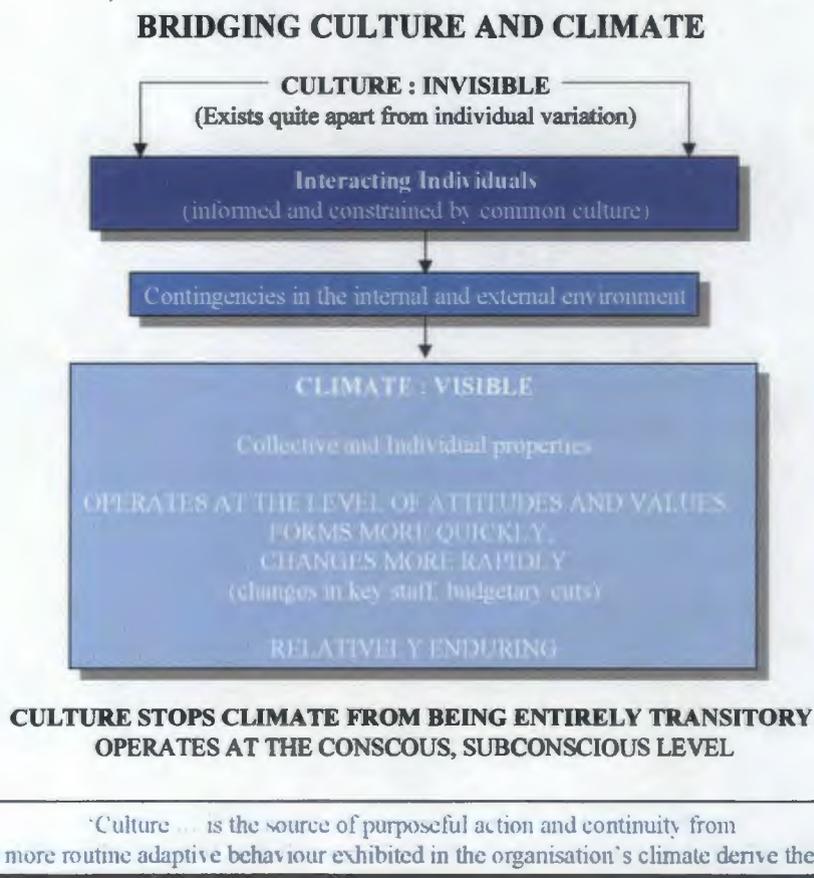


Figure 3.1: Moran and Volkwein's (1992) Depiction of Culture and Climate

Schneider (1975) presents an alternative perspective on the nature of the climate construct in theory and research, describing climate to have been conceptualised across studies in one of three ways – as a dependent, independent and intervening variable, which he merely considered different vantage points. Firstly, those theorists (Dieterly & Schneider, 1974; George & Bishop, 1971; Lawler et al, 1974) who saw climate as a dependent variable, used the construct to analyse varying situations and procedures in a macro sense. Secondly, the group (Andrews, 1967; Frederickson, Jenson & Beaton, 1972; Lewin et al, 1939; Pritchard & Karasick, 1973) who used climate as an independent variable, were concerned with interpreting practices which produce varying organisational climates. Thirdly, the final group (Hall & Schneider, 1972; Likert, 1967; McGregor, 1960) used the construct as an intervening variable, where climate was a pre-determined way of specifying types of procedures that will lead members to view climate in a particular way.

The view emerging from some theorists is that climate should be viewed as an intervening variable that is psychological by nature and represents an individual's social interaction which is underpinned by the culture of the organisation (Ashforth, 1985; Moran & Volkwein, 1992). Moran and Volkwein (1992) have examined the constructs of climate and culture, tracing the theoretical antecedents, arguments and positions in an attempt to demonstrate differences and also provide a link between the two constructs.

It is understandable that two concepts that are so interrelated can be confused and used in the same context, because the difference between them is so subtle in nature: yet from a strategic management perspective, this difference is extremely relevant. An organisational climate diagnostic tool can be used in an attempt to decipher the culture of the organisation, because of the relationship that exists between the two concepts.

In summary of the preceding discussions, the views of Denison (1996) and Moran and Volkwein (1992) will be adopted. These views are based on the theory that culture researchers were more concerned with the evolution of social systems over time, whereas climate researchers were generally less concerned with evolution but more concerned with the impact that organisational systems have on groups and individuals. In line with this culture, researchers argued for the importance of deep underlying assumptions, whereas climate researchers, in contrast, typically placed greater emphasis on organisational members' perceptions of observable practices and procedures that are closer to the surface

of organisational life and categorisation of these practices and perceptions into analytic dimensions defined by the researchers. Denison's (1996, p 621-622) view will be adopted for the purposes of this research. The two concepts "organisational climate" and "organisational culture" are related in that the former is a measure of the perceptions of individuals working in the organisation, of the culture of the organisation and their reaction to the organisation's culture.

3.4 DEFINITION OF ORGANISATIONAL CLIMATE

A variety of definitions have been formulated in the context of the various studies.

Following the seminal work of Lewin et al, (1939), obtaining consensus on a definition of climate has been difficult because the climate construct is complex and many different researchers have used the same terminology to mean different things to the extent that providing a definition of organisational climate has been likened to "nailing jello to the wall" (Schneider, 1990, p 1). Others have argued that if the use of the same term to mean different things continues, climate research will "grind to a stop in an assemblage of walled in hermits each mumbling to himself words in a private language that only he can understand" (Boulding, cited in Glick, 1988, p133).

One definition refers to organisational climate as a set of attributes of a particular organisation and/or its subsystems that can be perceived in the way that organisations and/or their subsystems deal with their members and the larger environment (Beer, 1971; Dachler, 1973; Schneider & Hall, 1972).

Several themes are implicit in this definition of organisational climate. The first is that perceptual responses are primarily descriptive rather than evaluative. Secondly, the level of inclusiveness of the items, scales and constructs used to depict organisational structures is macro rather than micro. Thirdly, the units of analysis tend to be attributes of the organisation or specific subsystems rather than those of individuals, and fourthly, the perceived attributes have potential behavioural consequences.

Another view is offered by a number of other researchers (Forehand & Gilmer, 1964; Schneider, 1990). They summarise organisational climate as a relatively enduring quality of an organisation's internal environment that distinguishes it from other organisations and which, firstly, results from the behaviour and policies of members of the organisation, especially top management, and secondly, it is perceived similarly by members of the organisation. In addition, organisational climate serves as a basis for interpreting situations and acts as a source of pressure for directing activity (Denison, 1996; Forehand & Gilmer, 1964).

In attempts to establish a unified definition of organisational climate, earlier studies suggest a union between individual and aggregate levels of analysis (Carlin, 1966; Halpin & Croft, 1963; Michael, 1961; Moran & Volkwein, 1992; Pelz & Andrews, 1966). Another approach equates organisational climate, or the organisation's internal structure and make-up, with organisational culture, a more encompassing concept that includes the larger environment within which the organisation functions (Argyris, 1958; Denison, 1996). A related conception defines organisational culture as the degree to which the organisation is capable of adapting to its dynamic environment (Margulies, 1965). The most widely used term, however, is "organisational climate" (Pritchard & Karasick, 1973).

Conceptualisations of organisational climate differ according to the scholar or researcher's orientation. Some definitions emphasise subjective factors while others stress objective characteristics. The largest group of researchers (Denison, 1996; Litwin & Stringer, 1968; Moran & Volkwein, 1992) have attempted to operationalise the concept by identifying participant perceptions of different aspects of the work organisation. In these studies, organisational climate is defined as a set of measurable properties of the work environment, perceived directly or indirectly by the people who live and work in this environment, and assumed to influence motivation and behaviour (Denison, 1996; Litwin & Stringer, 1968; Moran & Volkwein, 1992).

One study argues that a distinction should be drawn between organisational attributes and individual attributes when referring to "climate" since the term applies to the psychological climate of the organisation (Johannesson, 1973). That study has led others to draw the conclusion that climate derives from characteristics of both the individual and the organisation (Johnston, 1976; Moran & Volkwein, 1992; Schneider, 1990).

Another attempt to define the concept proposes that organisational climate is a "set of systems namely leadership style, communication pattern, control systems, organisational goal setting, delegation of authority, responsibility, etc. which represents the process of formulating decisions, and the pattern of organisational adoption" (Singh & Das, 1978, p 216). Thus organisational climate reflects the set of attributes and mechanisms which organisations adopt to deal with their members and environments. Along the same lines, Ansari (1980, p 90) defined organisational climate as "the sum total of particular attributes and mechanisms of the organisation as a whole as well as those values and norms which symbolise the ongoing patterns of the organisation and its sub-units".

Organisational climate, as used in this research, is a concept describing the quality of the organisational environment subjectively perceived or experienced by the organisation's members. This is aligned to the definition supplied by Litwin and Stringer (1968) who define organisational climate as being a set of measurable properties of the work environment perceived directly or indirectly by the people who live and work in this environment and is assumed to influence their motivation and behaviour.

Although the term "organisational climate" is rather difficult to define, owing to the various operational definitions invoked in research, Tagiuri and Litwin (1968) have ascribed 14 attributes which help to delimit the concept of climate. According to them, the attributes of climate are firstly that it is a molar, synthetic concept (like personality), secondly, that it is a particular configuration of situational variables; and thirdly, that its component elements may vary, even though it may remain the same. Climate is the meaning of an enduring situational configuration that has a connotation of continuity, but not as lasting as culture. Other attributes include that climate is determined by other people's characteristics, conduct, attitudes and expectations, by sociological and cultural realities, and that climate is external to the workers, who may, however, feel that they contribute to its nature. Also mentioned is the fact that climate is distinct from the task of both the observer or worker, and that it is in the worker's or observer's head, although not necessarily in a conscious form, but is based on characteristics of external reality.

Other attributes accounted for are that climate can be shared (as consensus) by several people in the situation, and that it is interpreted in terms of shared meanings (with some individual variation around a consensus). It cannot be a common delusion, since it must be

veridical based on external reality and it may or may not be capable of description in words, although it may be capable of specification in terms of response. Climate has potential behavioural consequences and is an indirect determinant of behaviour in that it reflects upon attitudes, expectations and states of arousal, which are direct determinants of behaviour (Denison, 1996; Moran & Volkwein, 1992; Tagiuri & Litwin, 1968).

The summation of the above assumptions provides a basis for a definition of climate in an organisation. Tagiuri and Litwin (1968) define climate as a relatively enduring quality of the total environment that firstly, is experienced by the occupants, secondly, influences their behaviour, and thirdly, can be described in terms of the values of a particular set of characteristics (or attributes) of the environment.

Although many investigations have adopted Tagiuri and Litwin's definition (Albrecht, 1979), other definitions are also used to specify climate. Dennis (1975) defined climate as a subjectively experienced quality of the internal environment of an organisation where the concept embraces a general cluster of inferred predispositions, identifiable through reports of members' perceptions of messages and message-related events occurring in the organisation. Payne and Pugh (1976) describe climate as a molar concept reflecting the content and strength of the prevalent values, norms, attitudes, behaviours and feelings of the members of a social system. A multidimensional "summary perception which people have of (or about) an organisation" is how Schneider and Snyder (1975, p. 319) conceptualise climate. For them it is "a global impression of what the organisation is ..." (Schneider, 1990; Schneider & Snyder, 1975, p 319). As such, "climate perceptions are perceptions of organisational events and conditions that occur in the work setting (Schneider & Snyder, 1975, p 319). For Schneider and Snyder (1975), climate perceptions are descriptive of conditions which exist in the work environment. As implied earlier in this chapter, Hellriegel and Slocum (1974) suggest that organisational climate is a set of attributes that can be perceived about a particular organisation and/or its subsystems, and can be deduced from the way the organisation and/or its subsystems deal with their members and environment.

Most of the studies described have focused on the psychological nature of climate. Jones and James (1979) point out that individuals transform perceptions of relatively specific events and conditions into psychologically meaningful descriptions of contingencies and

situational influences (ie ambiguity, warmth and progressiveness). The many studies which have emphasised psychological climate have the following elements of commonality: firstly, "psychological climate" refers to an individual's work environment; secondly, it involves cognitive processing of specific perceptions into abstract depictions of psychologically meaningful influences in the situation; and thirdly, it relates closely to environmental characteristics that have relatively direct and immediate ties to an individual's work experience. Fourthly, it is multidimensional (Denison, 1996; Jones & James, 1979; Joyce & Slocum, 1979; Moran & Volkwein, 1992; Payne, Fineman & Wall, 1976; Schneider, 1975, 1990).

Evidence from available research suggests that the climates in which people work are influenced by the organisational procedures and practices that occur in their job settings (Bedeian, Armenakis, & Curran, 1981; Denison, 1996; Gibson et al, 1994). Along these lines, organisational climate has been described as "the set of characteristics that describe an organisation and that distinguish an organisation from other organisations, are relatively enduring over time and influence the behaviour of people in the organisation" (Forehand & Gilmer, 1964, p 370).

A definition of organisational climate as a perceptual measure of an organisational phenomenon is offered by Campbell and Beaty (1971) who suggest that climate is a summary variable intended to represent perceptual filtering, structuring, and description of numerous stimuli impinging on mankind from the domain of the situation.

From this perspective and that of the previously mentioned Pritchard and Karasick (1973), organisational climate is viewed as an organisational phenomenon. In other words, each organisation has a distinctive climate of its own that is more which just a collection of individual employees' perceptions. In support of this contention, Pritchard and Karasick (1973) studied data from 76 managers in two organisations. They concluded that the perceptions of organisational climate were influenced by both the overall organisation and its subunits.

A second perspective from which organisational climate can be viewed and defined is the individual attribute approach. This area is characterised by Schneider and Bartlett (1970) and Trice and Beyer (1993). These researchers refer to the organisational climate as a set

of summary perceptions held by individuals about their organisational environment. These summary perceptions perform the function of an information processor, using inputs from characteristics and objective events within the organisation. From this point of view, the concept of climate should be described as personalistic. It is therefore not totally accurate to speak of climate in terms of perceptions shared by members of a work group or an organisation. Schneider and Bartlett (1970) and Trice and Beyer (1993) are of the opinion that what is important to individuals is the way in which they perceive the organisation, not how others might choose to describe it.

The controversy over whether organisational climate is an organisational or an individual phenomenon has been complicated by the fact that the existence of subsystem climates of organisations has been proposed. In presenting their case for the existence of subsystem climates, Powell and Butterfield (1978) review studies in which differences have been found between various groupings of individuals in organisations.

One of the few studies which specifically discount the importance of subsystem climates is that of Drexler (1977). In his studies, data were obtained from 1 256 groups representing 6 996 individuals in 21 organisations. Climate as an organisational attribute accounted for 42,2% of the variance found in perceived organisational climate. Subunit/department effects were found, but they were much weaker than the organisational effects. Drexler (1977) suggests that the results support the position that descriptive measures of organisational climate characterise organisations. Such measures have organisation-specific variance and, in James and Jones (1974) terminology, constitute organisational attributes (Drexler, 1977).

It can be seen that the controversy over precisely what organisational climate is and how it should be defined is far from over. Research suggests that organisational climate exists at the organisation, subsystem, and individual levels, in varying degrees. This notion is expressed by Powell and Butterfield (1978) who suggest that climate is a property of subsystems in organisations and that subsystems may consist of organisational members taken individually, in groups formed on any basis, or as a whole (Denison, 1996; Powell & Butterfield, 1978; Schneider, 1990).

If organisational climate is not an organisational phenomenon, as a number of researchers suggest, the usefulness of the concept as a diagnostic technique would be limited. In reviewing different definitions and measurement techniques described in the organisational climate literature, James and Jones (1974) conclude that many researchers appear to be more concerned with measurement techniques than with understanding and explicating the underlying concepts or constructs they are attempting to measure. In other words, the definition should guide the measurement of the phenomenon, not the reverse. James and Jones (1974) hold that at that stage of definitional development, a precise conceptual statement of the nature of organisational climate was not possible.

Having explored some of the definitions put forward by other researchers, it is useful to explore how organisational climates are created.

3.5 THE CREATION OF ORGANISATIONAL CLIMATES

Three approaches to the question of how organisational climates are created are explored. The first is the structural approach, in which the organisational setting is thought to influence people's attitudes, values and perceptions of the organisation. In this view, aspects of the work context such as the organisation's size, the centrality or decentrality arise from objective decision-making authority, the number of levels in the authority hierarchy, the types of technology used in production, and the degree to which rules and policies constrain individual behaviours influence climate (Chen et al, 1998; Payne & Pugh, 1976). The structural approach attributes the meaning that individuals attach to events, practices and procedures primarily to the events themselves. Accordingly, climates differ from organisation to organisation as a function of the difference in organisational structure.

The second approach is termed the selection-attraction-attrition (SAA) approach (Schneider & Reichers, 1983). This approach suggests that organisational processes, such as selection into the organisation, the individual processes, such as attraction to the organisation and attrition from the organisation, combine to produce relatively homogeneous membership in any organisation (Schneider, 1990; Schneider & Reichers, 1983). Thus members of an organisation have similar perceptions and attach similar

meanings to organisational events because they themselves are in some way similar to one another.

According to this approach, individuals are attracted to jobs and organisations which fit their personalities (Covin & Slevin, 1997; Holland, 1973), in which they can implement their self-concepts (Covin & Slevin, 1997; Super, 1953), and from which they can obtain outcomes they desire, particularly need satisfaction (Vroom, 1964; Wanous, 1980). Thus this approach attributes the meaning that individuals attach to events primarily to qualities of the individual. It also suggests that climates differ across organisations as a function of the different types of people who have become members of them. Consequently, the people who remain in an organisation will come to find themselves working with colleagues much like themselves because the "fit" is better. This has been referred to as the homogeneity hypothesis (Schneider, 1987). In general, Schneider suggests that the interactions between people with similar attitudes, values and personalities defines the nature of the organisation in terms of its culture, climate, structure, and work processes (Schneider, Gunnarson & Niles-Jolly, 1994).

A third approach is the symbolic interactionist approach which draws heavily on Mead's (1934) work on meaning and self. It accounts for the difference in climates in groups in the same organisation, and makes no distinction between individuals and the work contexts in which they find themselves. In other words, individuals affect the organisation just as the organisation affects individuals. Moreover, the meaning which individuals attach to events differs both in the context of the event and individuals' personality structure. This approach emphasises the development of consistency and compatibility between organisational and individual objectives.

The newcomer socialisation and organisational entry literature contains many parallels to Mead's (1934) conception of how identity with the organisation is formed and how individuals come to attach meaning to events (Schneider, 1990; Schneider & Reichers, 1983).

The literature on newcomer socialisation is relevant to the emergence of climate because it stresses the establishment of a "situational identity" in the workplace (Katz, 1980), the changes that occur in the newcomers social selves in response to the disconfirmation of

many of their expectations about organisational life (Denison, 1996; Schein, 1971; Wanous, 1980), the sense-making activities in which newcomers engage, in an attempt to incorporate the many new stimuli to which they are exposed into their personality structures (Louis, 1980) and the importance of social roles and group assimilation processes (Green, Orris & Johnson, 1973).

Considering Mead's (1934) work together with the newcomer socialisation literature, and the previously discussed work of Moran and Volkwein (1992), it can be seen that the symbolic interactionist approach maintains that people in communicative interactions with one another respond to, define and interpret elements of various situations in distinctive ways which are influenced by the interaction of personal and situational variables. These characteristic modes of interpretation and definition can form distinct "subgroup climates" in organisations.

As Powell and Butterfield (1978) have noted, perceptions of organisational events are significantly affected by subsystem membership, that is department, work group, hierarchical level and/or reference group. Thus while consistency in organisational structure and similarities between members of an organisation may combine to diminish individual differences and produce a coherent organisational climate, work group subclimates in the same organisation can vary as a function of unique interaction patterns within groups (Powell & Butterfield, 1978).

Lewin (1951) suggested other factors which can influence organisational climate. Among them are the history of the climate (length, type, direction of change), the constraints imposed by the formal organisational system and the task and members' needs, values and initial expectations. This is still cited as relevant in recent research (Denison, 1996; Moran & Volkwein, 1992)

However, the most important and dramatic determinant of climate seems to be the leadership style utilised by managers or by informal leaders (Brown & Leigh, 1996; Lewin, 1951). The emphasis leaders place on adherence to rules, the kinds of goals and standards they set and perhaps most importantly, the nature of their informal relationships and communications with their people, have a huge impact on the climate (Lewin, 1951). In support of this view, Litwin and Stringer (1968) conclude that based on their own

research, management or leadership style represents the single most important determinant of organisational climate. This is supported by Brown and Leigh (1996), Moran and Volkwein (1992) and Schneider (1990).

3.6 THEORETICAL MODELS AND RESEARCH ON ORGANISATIONAL CLIMATE

A comprehensive review of studies relating to organisational climate was conducted by Forehand and Gilmer (1964) and supported by Schneider et al, (1994). They defined organisational climate as a set of characteristics that describes an organisation and distinguishes it from other organisations. In addition, they suggested that organisational climate is relatively enduring over time, and influences the behaviour of people in the organisation. They suggested five organisational variables as being relevant to the study of organisational climate, namely the size of the organisation, the organisational structure, the systems complexity of the organisation, the type of leadership style in use in the organisation, and the degree to which organisational goals were, in fact, motivating behaviour in the organisation. Forehand and Gilmer (1964) emphasised the need to take these variables into account in future climate studies in order to examine possible interactions between these variables and climate variables.

Tagiuri and Litwin (1968) edited a volume of essays which remains one of the most comprehensive discussions of organisational climate. Their definition of organisational climate differs slightly from that of Forehand and Gilmer (1964). They define organisational climate as a relatively enduring quality of the internal environment of an organisation that is experienced by its members, influences their behaviour and can be described in terms of the values of a particular set of characteristics (or attributes) of the organisation. Tagiuri and Litwin (1968) emphasised a focus on the individual which was at variance with Forehand and Gilmer's (1964) focus on the organisation. Tagiuri and Litwin (1968) regard climate as a unitary concept which reflects a very specific configuration of situational variables. While individual components of climate may vary, its general meaning to the individual may remain the same. In addition to being relatively enduring, it is perceptually external to the individual, although he/she does interpret climate in terms of his/her own value systems. In the course of arriving at these

definitions, much research was undertaken, and many instruments for measuring climate developed.

Prior to, and after the review of Forehand and Gilmer (1964), two studies were conducted which set the stage for much future climate research. Each of these studies occurred in a different setting and each had a slightly different emphasis. The research of Halpin and Croft (1962) emphasised the development of a particular instrument which could distinguish climates among elementary schools. The research of Litwin and Stringer (1968), on the other hand was directed more towards the investigation of the relationships between motivation among organisational members and particular leadership styles. The work of Halpin and Croft (1962), Litwin and Stringer (1968) and Likert (1967) forms the foundation on which most climate studies are conducted. Each of these will be discussed in order to gain a better understanding of the origins of organisational climate research. This is in keeping with Rotter's (1990) advice on theoretical models and theory. He maintains that the value of a construct or concept is enhanced if it is imbedded in a broader theory of behaviour. According to him, if psychology is to advance in its understanding of human behaviour, it needs to build on past research and researchers should avoid using new terms for old concepts thereby ignoring the research theory originally accumulated. 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. The above advice has directed the researcher focus on some of the more classical literature before integrating it with later studies in an attempt to ensure that the constructs and concepts, in this research, are well founded and that the research is based on tried and tested theory as well as the more recent literature.

3.6.1 The work of Halpin and Croft

Utilising a general systems approach to distinguish between "open" and "closed" organisations, Halpin and Croft (1962) developed an instrument which could distinguish between these two types of organisations. This instrument, termed the Organisational Climate Description Questionnaire (OCDQ), measured eight dimensions of organisational climate. One dimension, leadership style, was identified as the seventh dimension. In a general vein, thrust is evidenced by a desire to get the organisation moving towards new goals and programmes.

While characterised by close supervision and direction, this dimension does not necessarily have a negative connotation. The eighth dimension identified was consideration, which refers to more humanistic behaviour by the leader.

A factor analysis of the results obtained by administering the OCDQ to a group of schools revealed that six of these eight dimensions could be integrated into three general factors. The first of these, termed “social needs”, was characterised by high loadings on the dimensions “consideration” and “intimacy”. The second, “esprit”, was characterised by high loadings climate. These were firstly, disengagement, which is the tendency of organisational members to become separated and alienated from the goals of the particular group or organisation of which they are a part, and secondly, hindrance, which is the feeling that the leader or manager is providing the organisational member with too much “busy work”. This results in organisational members’ inability to complete work which they consider to be of a professional nature. Thirdly, esprit, the feeling of wellbeing among organisational members was identified. This dimension is closely related to Maslow’s (1962) “self-actualisation” concept and Herzberg’s (1966) “motivators” concept. It refers to the degree to which an organisational members feel that they are accomplishing something constructive on the job. Fourthly, there is intimacy, which is the feeling that organisational members enjoy a good working relationship with their peers, and fifthly, aloofness which is the feeling that the leader prefers formal and impersonal relations with employees was identified. The sixth dimension identified was production emphasis, which is the emphasis placed by the leader on measurable output. This output is usually achieved by close supervision and direction. Thrust, which is the emphasis placed on organisational movement on “esprit” and “thrust”. The third, “social control”, was identified through examination of the high loadings of the dimensions “aloofness” and “production emphasis” (Halpin & Croft, 1962).

3.6.2 The work of Litwin and Stringer

Litwin and Stringer (1968) began their work with a goal different to that of Halpin and Croft (1962). Instead of emphasising the development of a particular instrument, Litwin and Stringer were interested in the degree to which different climates could cause different motivational forces to become activated among organisational members. Those climates,

in turn, were caused by particular styles of leadership. Using the motivational theories of the time and Atkinson (1964) as a guide, Litwin and Stringer (1968) developed, by experimental means, several versions of an organisational climate measure. Versions of the measure were administered to groups of MBA students from various backgrounds and the results were factor analysed to extract appropriate combinations of variables which could then be incorporated into an improved measure. This resulting version of Litwin and Stringer's (1968) climate instrument contained nine scales, each of which measured a specific dimension of organisational climate. These scales were firstly, structure, which is the degree to which an organisation is "rules oriented", and secondly, responsibility, which is the degree to which organisational members experience autonomy in controlling their own jobs. The third scale was reward, which is the feeling that positive rewards, as opposed to negative sanctions, are emphasised and clearly related to achievement. Risk, which is the belief that the job provides a challenge and that the organisation as a whole is willing to experiment was identified as the fourth scale. Warmth, which is the degree to which informality is stressed among group members, was identified as the fifth scale. The sixth scale identified was support, which is a feeling that mutually supporting relationships are emphasised throughout the hierarchy of the organisation. The seventh scale identified was standards, which is defined as the degree to which high performance goals and objectives are stressed in the organisation. Conflict, defined as the desire on the part of organisational members to get problems out into the open rather than keeping them hidden, was identified as the eighth scale, while the ninth scale identified was identity, defined as the feeling by organisational members that they share common goals and aspirations (Litwin & Stringer, 1968).

Litwin and Stringer (1968) also propose four summary scales, namely structure, challenge, reward and support, and social inclusion. They further suggest that managers studying their own climates, will learn to appreciate the subtle causal relationships between their own managerial behaviours and their employees' motivated behaviour.

A significant aspect of Litwin and Stringer's (1968) research was their investigation of how leadership styles impacted upon climate. Three simulated business organisations were experimentally set up by researchers. Each organisation was characterised by a specific leadership style, and the results of the research indicated that climate and leadership are related concepts and that under a more participative leadership style, the

climate was more favourable. In this sense, the work of Litwin and Stringer (1968) is similar to that of Likert (1967) and was later also supported and further developed by Kopelman et al, (1990) and Denison (1996).

3.6.3 The work of Likert

Likert (1967) tabulated organisational and performance characteristics as being representative of four management systems. System 1, namely the “exploitive authoritative” system, is characterised by little communication, no teamwork, centralised decision making, and opposition to the goals of the organisation on the part of employees. The characteristics of System 2, which is the “benevolent authoritative” system, includes limited communication, virtually no teamwork, centralised decision making and partial resistance to the goals. System 3, namely the “consultative” system, is characterised by more communication than in the System 2 situation, a moderate amount of teamwork and more decision making at lower levels.

According to Likert (1967), the ideal system of management, is known as System 4 or the “participative” system. This approach emphasises maximal interaction and communication between participants at all levels in the organisation. This view is supported by Denison (1996), Kopelman et al, (1990) and Schneider (1990).

Robinson, Athanasiou and Head (1969) modified the Likert Organisation Characteristics Scale, developing a scale which measured six dimensions, namely leadership, motivation, communication, decisions, goals and control. Elements of these six dimensions are also found in Locke's (1997) model of work motivation on which this research is primarily based.

3.7 THEORIES OF MOTIVATION

In the previous analysis of the main determinants of individual behaviour, two main determinants emerged, namely the person himself, and his/her environment. Thus, with regard to organisations, most theories of motivation concentrate either on the psychology

of the individual in the organisation, or conversely, on the role of the organisation itself to explain motivation, by referring to the influence of the “climate” of the organisation.

Generally, the theories can therefore be divided into three categories, namely theories of individual behaviour, management theories and organisational theories.

3.7.1 Theories of individual behaviour

For centuries mankind has attempted to explain human behaviour and has postulated that it is the result of various causes, such as preordained divine intervention, unpredictable fate, conscious volition, instinctive impulses, unconscious motivation and environmental influences.

Some of the main theories of human behaviour will be briefly discussed in order to depict the transition from when humans were viewed as the sole cause of their activity, to when situational factors were considered more seriously. The main determinants of individual behaviour will be discussed.

3.7.1.1 The theory of psychological hedonism or conscious volition

At about the time of the Industrial Revolution, psychological hedonism was espoused by rationalists like Helvétius, Locke, Bentham and other social philosophers. They maintained that human behaviour was the result of a person’s deliberate choice (Atkinson, 1964; Cofer & Appley, 1964).

At any moment in time, people was confronted by a set of alternatives which they scanned in order to find the one that maximised pleasure or profit and minimised pain or loss. They would then choose the alternative that yielded the best return, and act upon it (Atkinson, 1964; Cofer & Appley, 1964; Schneider, 1990).

3.7.1.2 *The theory of the impulsive nature of consciousness*

While not rejecting the notion of hedonism, psychologists like James, Freud and McDougall argued that a more comprehensive explanation of behaviour was necessary than simply assuming that people are rational beings pursuing their own best interests. They posited that two additional variables were crucial to a human being's understanding of behaviour, namely instinct and unconscious motivation. McDougall (1908) defined an instinct as an inherited or innate psychological disposition which determines its possessor to perceive or pay attention to objects of a certain class, to experience an emotional excitement of a particular manner or at least to experience an impulse to such an action. However, while McDougall saw instinct as purposive and goal directed, other instinct theorists, like James (1890) defined the concept more in terms of blind and mechanical action. James (1890) included in his list of instincts locomotion, curiosity, sociability, love, fear, jealousy and sympathy. Each person was thought by James and McDougall to have such instincts to a greater or lesser degree and these instincts were thought to be prime determinants of behaviour. According to them, individuals were seen as possessing automatic predispositions to behave in certain ways, depending on internal and external cues.

James (1890) described behaviour as being basically impulsive, evoked as the predictable response to a given sensation. He explained how an impulsive action was often accompanied by an antagonistic impulse, whereupon the consciousness was aroused and assumed the role of a "selecting agency" between the rival impulses. Behaviour would then be triggered off as one of the impulses was unblocked while the other was repressed. James described the selection as follows: "the item emphasised is always in close connection with some interest felt by consciousness to be paramount at the time" (James in Atkinson, 1964, p 23).

James differed from his predecessors, who had originally proposed that conscious volition was the main determinant of individual behaviour, by stating that "consciousness is in its very nature impulsive" (James in Atkinson, 1964, p 26). This opened the way to probing situational factors that influenced human's behaviour.

Maslow (1962) later referred to humans' impulses as their unsatisfied needs, which triggered their response (behaviour) to attain a goal (satisfaction of the need). In 1962, Combs developed this concept further (Combs, Richards & Richards, 1976). This will be discussed later in this chapter.

While the notion of unconscious motivation is implicit in the writings of James, it was Freud (1938) who most ardently advocated the existence of such a phenomenon.

3.7.1.3 The theory of psycho-analysis and unconscious motives

The study of human behaviour was taken a large step forward towards being recognised as a science when Freud (1938) introduced a major critical revision of the hedonistic action principle. Using the empirical foundation, Freud discovered that there were many unconscious psychological processes that directed human behaviour.

From his observations, Freud (1938) explained social behaviour in terms of the level of personality development and the forces at work in the personality of each individual. He referred to the source of all human motivation as the libido and said that experiences during childhood were strong determinants of subsequent adult social behaviour. For Freud, all human behaviour could be analysed according to the pleasure principle whereby a stimulus which created a need in the individual was satisfied by a certain mode of behaviour (Freud, 1938).

Much later, in 1973, Pritchard and Karasick (1973) proposed that there was an interaction effect between the individual's personality needs, organisational climate, job satisfaction and performance. This concept has since been developed by theorists like Schneider (1975, 1990), Moran & Volkwein (1992) and Denison (1996). These views are discussed throughout this chapter.

3.7.1.4 The role theory

In contrast to psychoanalytic theory, role theory does not consider any individualised, within-the-person determinants of social behaviour. Concepts such as personality, attitudes and motivation are not employed. Instead, an attempt is made to explain behaviour solely in light of the positions held and in terms of the roles, role expectations and demands, role skills and reference groups operating on the participants in a social interaction (Wrightsman, 1977). This theory attempted to explain the influence of situational factors, like role expectations and social norms, on humans' behaviour. In an organisation it is true that people often behave according to the position they hold, although "within-the-person" determinants also have to be considered, in conjunction with situational variables.

3.7.1.5 The stimulus-response and social learning theories

"In 1961 Kimble tried to explain the influence of both personality and environment upon a person's behaviour". He defined a "stimulus" as "an external or internal event that brings about an alteration in the behaviour of the person" (Andreassi, 2000; Kimble, 1961; Wrightsman, 1977, p 19). He called this alteration in a person's behaviour the "response" and stated that "if a response leads to a favourable outcome for the person, a state of reinforcement then exists, that is, the person has been rewarded for his response" (Kimble, 1961; Wrightsman, 1977, p 19). This concept of reinforcement, and the degree of reinforcement associated with the response, is important for predicting the probable re-occurrence of a person's behaviour when subjected to a specific stimulus (Andreassi, 2000; Kimble, 1961; Wrightsman, 1977). Complex behaviour is explained as being merely a chain of simpler stimulus-response associations (Kimble, 1961; Wrightsman, 1977). The stimulus-response theory originated with the field of learning (Kimble, 1961; Wrightsman, 1977). It proposed that since learning was based on the relationship between structured stimuli evoking predictable responses (with imitation and reinforcement used to maintain the learning process), most human behaviour was in fact learned.

There seems to be general agreement among social scientists that learning can be defined as a relatively permanent change in behaviour that potentially results from reinforced

practice or experience. This definition states that there is change in behaviour potentially and not necessarily in behaviour itself. The reason for this distinction rests on the fact that humans can observe other people responding to their environments, see the consequences which accrue to them, and be vicariously conditioned. Bandura (1969) describes this imitative learning and says that while behaviour can be acquired by observing, reading, or other vicarious methods, “performance of observationally learned responses will depend to a great extent upon the nature of the reinforcing consequences to the model or to the observer” (Bandura, 1969, p 128).

According to Luthans (1973) and Mace, Lalli, Shea, Lalli, West, Roberts and Nevin (1990) learning is the acquisition of knowledge, and performance is the translation of knowledge into practice. The primary effect of reinforcement is to strengthen and intensify certain aspects of enduring behaviour. Behaviour that has become highly differentiated (shaped) can be understood and accounted for only in terms of the history of reinforcement of that behaviour (Morse, 1966). Reinforcement generates a reproducible behaviour process in time. A response occurs and is followed by a reinforcer, and further responses occur with a characteristic temporal patterning. When a response is reinforced it subsequently occurs more frequently than before it was reinforced. Reinforcement may be assumed to have a characteristic and reproducible effect on a particular behaviour, and will usually enhance and intensify that behaviour (Mace et al, 1990; Skinner, 1938; 1953).

Before discussing how the general laws or principle of reinforcement can be used to predict and influence behaviour, it is necessary to differentiate between two types of behaviour. One kind is known as voluntary or operant behaviour, and the other as reflex or respondent behaviour. Respondent behaviour takes in all responses of human beings that are elicited by special stimulus changes in the environment. Operant behaviour includes a greater amount of activity. It takes in all responses of a person that may at some time be said to have an effect upon or do something to the person's outside world (Keller, 1969). Operant behaviour operates in this world either directly or indirectly. The process of learning or acquiring reflex behaviour is different from the processes of learning or acquiring voluntary behaviour. The two basic and distinct learning processes are known as classical conditioning and operant conditioning.

Many theorists used the stimulus-response theory to explain how an adults' behaviour was often a re-enactment of their parents' behaviour, which they had observed as children (Wrightman, 1977). A social-exchange theory, based on stimulus-response principles was later developed (Wrightman, 1977). This theory explained that a participant would only continue interacting with another as long as the rewards were greater than the costs. This social-exchange theory is the basis of the "inducement-contribution theory" or "social contract" (Wrightman, 1997) applied in many modern organisations today.

The importance of reward as an organisational climate dimension is discussed later in this study. The arousal of achievement motivation depends to a largely on material and psychological inducements.

3.7.1.6 Gestalt theory, functionalism and cognitive theory

The German word *Gestalt* means "entirety", and was used by Fritz Perls (Quick, 1976) to refer to the whole person. Because the Gestalt approach centres around the basic assumption that "the whole is greater than the sum of the parts", it is diametrically opposed to the stimulus-response theories discussed in the previous section.

The Gestaltists deem the analysis of behaviour into units of specific stimulus-response associations to negate the very essence of behaviour and to ignore the totality of human experience (Quick, 1976). To the Gestaltists, human behaviour is integrated, purposeful and goal oriented, and human responses are at all times interrelated with one another, moving people towards the goals they are striving to achieve.

The Gestaltists therefore do not view behaviour as a series of passive reactions as the stimulus-response theorists appear to (Quick, 1976). Also, whereas the latter focus on peripheral processes, such as the actions of receptors and muscle responses, and view the brain as a passive communication centre, the Gestaltists assume that the brain gives a cognitive structure to sensations and perceptions by organising and interpreting them, resulting in appropriate behaviour (Quick, 1976).

According to Schneider (1975), the basis of the climate function can be traced to two different schools of psychology namely Gestalt and functionalism. As implied by Quick (1976), the Gestalt school argues that the perceiver has no choice but is actually driven to find order in the world. Nature has order, and the perceiver has to find that order through the process of closure.

The closure principle suggests that given a limited amount of information to which people ascribe order, the totality they may create represents more than the simple sum of the limited information perceived. Given a set of cues about the world with some perceived relationship, that is, there is sufficient information for order to be perceived, a whole or total concept is formed. (Schneider, 1975).

Mullins (1996) discusses Gestalt theory in terms of its instant and spontaneous assumptions that we cannot stop ourselves making about our environment. Gestalt theory also stresses the drive to behave on the basis of this apprehended order and in a manner that suits the environment in which the perceivers find themselves (Schneider, 1975; Kozlowski & Doherty, 1989). As discussed earlier in this chapter, the earliest reported incident of the phenomenon was detailed in the work of Lewin et al, (1939). In their experimentally created social climates they found that the behaviour of the boys in the study varied according to the social climate created by their leaders, namely authoritarian, democratic or laissez-faire climates.

Functionalism provides a framework in which individuals can seek order in the environment. This allows them to function adaptively. Individuals have a fundamental need to seek information about the status of their behaviour in terms of the environment in which they operate and “they seek information so that they can adapt to, or be in homeostatic balance, with their environment” (Schneider, 1975, p 450). Theorists such as Frederickson, Jenson and Beaton (1972), Fleischman (1953) and Litwin and Stringer (1968) support this view of functionalism. Schneider (1990) refined his view of climate to include a “sense of imperative” for individuals.

Cognitive theories saw motivation as a sort of “hedonism of the future”. The basic tenet of this theory is that a major determinant of human behaviour is the beliefs, expectations and

anticipations individuals have of future events. Behaviour is thus seen as purposeful and goal directed, and based on conscious intentions.

Two of the most prominent early researchers in this field were Edward Tolman and Kurt Lewin. While Tolman (1932) studied animal behaviour and Lewin (1938) human behaviour, both adopted the position that organisms make conscious decisions about future behaviour based on cues from their environment. Such a theory is largely ahistorical in nature, as opposed to the historical notion inherent in drive theory. Tolman (1932) argued, for example, that learning resulted more from changes in beliefs about the environment than from changes in the strengths of past habits. Cognitive theorists did not entirely reject the concept that past events may be important for present behaviour. However, Lewin (1938), whose work is characterised by an ahistorical approach, noted that the historical and ahistorical approaches were in some ways complementary. Past occurrences could have an impact on present behaviour to the extent that they modified present conditions.

Similar in essence to the Gestalt theory, the field theory was developed by Lewin (1951). Lewin began to stress the principle of contemporaneity, which is that the only determinants of behaviour at a given time are the properties of people and their psychological environment at that time (Atkinson, 1964). His conclusion was phrased for psychology in the programmatic equation of $B = f(P,E)$.

Behaviour is therefore the function of or immediate relationship between people (considering heredity, abilities, attitudes, personality and health) and their environment (considering factors such as the presence of others, the extent to which people's goals are being fulfilled or blocked and the attitudes of those with whom people are interacting) (Atkinson, 1964). This theory was developed further by Kopelman et al, (1990) and will be discussed later in this chapter.

In general, cognitive theories, or expectancy/valence theories, as they later become known, view motivational force as a multiplicative function of two key variables, namely expectancies and valences. Lewin (1938) and Tolman (1959) regarded "expectancies" as beliefs of individuals that particular actions on their part would lead to certain outcomes. "Valence" denoted the amount of positive or negative value an individual placed on outcomes. Individuals were viewed as engaging in some form of choice behaviour where

they first determined the potential outcomes of various acts of behaviour and the value they attached to each of these outcomes. Tolman (1959) refers to this as a “belief-value matrix”.

3.7.1.7 The individual's need for structure

Many theorists have proposed that the individual has various needs. Freud (1938) identified two needs, the desire for life and death, whereas Combs et al, (1976) spoke of as many as 40 needs. In many theories, motivation is perceived as a process with three distinct phases, namely the need or motive, the response or behaviour directed at the need and the goal attained which satisfies the need. Individual's behaviour at a particular moment is usually determined by their strongest need (Combs et al, 1976).

Maslow (1954) developed a framework to explain the strength of various needs and ranked humans' five needs into the following “hierarchy of needs”. Physiological needs are the basic human needs to sustain life itself, such as food, water, oxygen, sleep and sex. They tend to have the highest strength until they are somewhat satisfied. Safety needs are concerned with self-preservation which is the need to be free of the fear of physical danger and deprivation of basic physiological needs. Social needs encompass affiliation which is the need to belong and to be accepted by various groups. Esteem needs centre around the need for self-respect, self-esteem and recognition and respect from others, while self-actualisation needs are concerned with humans' desire to maximise their potential. Although this need for self-fulfillment appears to be ranked as the last need, it can often become more important to humans in a particular situation than all the other needs.

Therefore, although Maslow (1954) created a hierarchy whereby individuals would systematically satisfy their needs from the most basic to the most complex, it was not his intent to say that his hierarchy applied universally. There were numerous exceptions to this typical pattern.

In 1976 Combs consolidated the 40 needs he had spoken of earlier into humans' one basic need which is to maintain and enhance organisation of both their physical and perceived

(or phenomenal) person. This he defined as humans' basic need for adequacy (Combs et al, 1976).

This striving of humans to enhance their own self-concept and to cope more adequately with life could be criticised as being a selfish approach to life. However, Combs et al, (1976) explain that because humans are not an isolated organisation, the achievement of personal adequacy requires the adequacy of a larger organisation as well. They are of the opinion that to maintain and enhance one's own organisation requires of everyone that they seek even greater adequacy of the systems of which they are part (Combs et al, 1976).

Both these need theories are extremely valid and explain motivated individual behaviour. However, they do not fully describe motivation in the organisation because they do not develop the effect that environmental factors can have upon the individual. Hence, these theories are considered to be only one of the inputs in the organisational climate concept.

3.7.1.8 Motivation – Herzberg's two-factor theory and related models

One of the earliest researchers in the area of job redesign as it affected motivation was Frederick Herzberg (Herzberg, Mausner & Snyderman, 1959). Herzberg and his associates began their initial work on factors affecting work motivation in the mid-1950s. Their first effort entailed a thorough review of existing research to that date on the subject (Herzberg, Mausner, Peterson & Capwell, 1957). Based on this review, Herzberg derived the initial framework for his theory of motivation. The theory, and the supporting data, were first published in 1959 (Herzberg et al, 1959) and were subsequently amplified and developed in a later book (Herzberg, 1966).

Based on his survey, Herzberg discovered that employees tended to describe satisfying experiences in terms of factors that were intrinsic to the content of the job itself. These factors were called "motivators" and included such variables as achievement, recognition, the work itself, responsibility, advancement and growth. Conversely, dissatisfying experiences, called "hygiene" factors, largely resulted from extrinsic, nonjob-related factors, such as company policies, salary, co-worker relations and supervisory style.

Based on these results, Herzberg argued that eliminating the causes of dissatisfaction (through hygiene factors) would not result in a state of satisfaction. Instead, it would result in a neutral state. Satisfaction (and motivation) would occur only as a result of the use of motivators (Herzberg, 1966).

The implication of this model of employee motivation is that motivation can be increased through basic changes in the nature of an employee's job resulting in job enrichment. Thus jobs should be redesigned to allow for increased challenge and responsibility, opportunities for advancement and personal growth and recognition.

Herzberg differentiated between what he described as the older and less effective job redesign efforts, known as job enlargement, and the newer concept of job enrichment (Bellot & Tutor, 1990; Paul, Robertson & Herzberg, 1969). The term "job enrichment," as used by Herzberg, means a horizontal expansion of employees' jobs, giving them more of the same kinds of activities but not vertical expansion of employees' jobs, requiring an increase in the skills repertoire which ostensibly leads to increased opportunities. As Paul et al, (1969) described it, job enrichment seeks to improve efficiency and human satisfaction by means of building into people's jobs, quite specifically, a greater scope for personal achievement and recognition, more challenging and responsible work, and more opportunity for individual advancement and growth.

Since its inception, Herzberg's theory has been subject to several troubling criticisms (Bellot & Tutor, 1990). For example, King (1970) noted that the model itself has five different theoretical interpretations and that the available research evidence is not consistent with any of these interpretations. This suggests that Herzberg failed to provide an unambiguous statement of the model. Secondly, the model ignores individual differences and assumes that job enrichment benefits all employees. Finally, research has also failed to support the existence of two independent factors, namely motivators and hygiene factors (Bellot & Tutor, 1990; King, 1970).

One of the most significant contributions of Herzberg's work was the tremendous impact it had on stimulating thought, research and experimentation on the topic of motivation at work (Bellot & Tutor, 1990). Before 1959, little research had been conducted in the area of work motivation (with the notable exception of Viteles, 1953 and Maier, 1955.

Maslow's work on the need hierarchy theory and Murray (1938) and McClelland, and Atkinson's (1966) work on achievement motivation theory was largely concerned with laboratory-based findings or clinical observations, and neither had seriously addressed the problems of the workplace at that time. Herzberg (1966) filled this void by specifically focusing on the need for increased understanding of the role of motivation in work organisations. Moreover, he did so in a systematic manner and in language that was easily understood by managers. He advanced a theory that was simple to grasp, based on empirical data, and offered specific action recommendations for managers to improve employee motivational levels. In doing so, he encouraged organisations to closely examine a number of possible misconceptions about motivation. For example, Herzberg argued that money should not necessarily be viewed as the most potent force on the job. He stated that other "context" factors in addition to money which surround an employee's job (such as fringe benefits and supervisory style) should not be expected to markedly affect motivation. He advanced a strong case that managers should instead focus on a series of "content" factors (such as opportunities for achievement, recognition and advancement) that have an important bearing on behaviour. According to Herzberg, it is these content factors, and not money or other context factors, that are primarily related to work motivation. These contributions are often overlooked in the heated debates on the validity of the empirical data behind the theoretical formulations.

However, many research articles have been generated as a result of the so-called "Herzberg controversy". Some of these articles (eg Bockman, 1971; Whitset & Winslow, 1967) strongly support Herzberg's position, while others (eg House & Wigdor, 1967; Vroom, 1964; Bellot & Tutor, 1990) seriously question the research methodology underlying the theory.

In addition to Herzberg's model, several other early models of job design can be identified. These are the requisite task attributes model, the sociotechnical systems model, activation theory and achievement motivation theory. While a detailed examination of these models is beyond the scope of this research, a brief review of how they differ in their approach to the motivational properties of tasks will be conducted.

The requisite task attributes model, proposed by Turner and Lawrence (1965) argued that an enriched job, say a job characterised by variety, autonomy and responsibility would

lead to increased attendance and job satisfaction. The model is similar to Herzberg's in that it viewed job enrichment as a motivating variable. It differed from Herzberg's in that Turner and Lawrence (1965) included absenteeism as a dependent variable. Moreover, they acknowledged the existence of two sets of important moderators in the job scope-outcome relationship. Firstly, it was found in their study that workers from urban settings were more satisfied with low-scope jobs than workers from rural settings. Secondly, it was found that situational factors such as supervisory style or co-worker relations also moderated the impact of job scope on satisfaction and absenteeism. This acknowledgement of the role of individual and situational variables represents a significant contribution to the understanding of the ways in which job redesign affects employee attitudes and behaviour. A second and popular model, advanced by Davis and Trist (1974), is known as the sociotechnical systems model. This model suggests that an appropriate starting point for understanding job design is to consider the psychological requirements of tasks in order for them to be motivating. These principles include the need for a job to provide a reasonably demanding content, an opportunity to learn, some degree of autonomy or discretion in decisions affecting one's job, social support and recognition, and a feeling that one's job leads to a desirable future.

Based on these principles, job design principles were derived which suggest that enriched jobs meet these psychological requirements. Thus enriched jobs would be expected to lead to such outcomes as high job performance and low labour stoppages. An important aspect of the sociotechnical model is that it clearly acknowledges the role of the social context (or organisational system) in which job redesign attempts are made. The model argues that such changes cannot be successfully implemented without acknowledging and taking into account various social and organisational factors that also influence people's desire to perform on the job (eg reward system, work group norms and supervisory relations). Hence the sociotechnical systems approach attempts to be a systematic approach to work design.

Activation theory focuses on the physiological processes involved in job redesign (Andreassi, 2000; Scott, 1966). Activation, defined as the degree of excitation of the brainstem reticular formation, was found in laboratory experiments to have a curvilinear relationship to performance. Research demonstrated that performance suffers at very low or very high levels of activation. Hence jobs that are dull or repetitive may lead to low

levels of performance because they fail to activate. More enriched jobs, on the other hand should lead to a state of activation with a resulting increase in performance. While many questions remain about the empirical support for activation theory, it does suggest how job design can affect employees physiologically (Andressi, 2000).

The achievement motivation model proposed by Murray (1938) and refined by McClelland and Atkinson (1966) also examines the process by which changes in the job situation influence behaviour. The focus of this approach, however, is on employee personality, specifically, an employee's need for achievement. In essence, achievement motivation theory posits that employees with a high need for achievement will be more likely to respond favourably to enriched jobs than will employees with a low need for achievement. Enriched jobs cue or stimulate the achievement motive, typically leading to higher levels of performance, involvement and satisfaction. For low-need achievers, however, an enriched job may be threatening, or low-need achievers may feel overchallenged. As a result, they may experience increased frustration, anxiety and lower performance (Murray, 1938). There appears to be an increased interest in recent research on achievement, especially in entrepreneurial organisations (Chen et al, 1998; Covin & Slevin, 1997; Kreuger & Dickson, 1994).

3.7.1.9 Valence-expectancy theory

Vroom (1964) perceived motivation in much the same way as the psychological hedonists had over a century before. He described motivation as a process which governed choices, made by a person from alternative forms of voluntary activity.

The preference of an individual for a particular outcome was defined as a "valence" and the probability that a particular action would achieve a certain outcome was termed "expectancy". Vroom (1964) believed that the action of an individual would correspond to the strongest force, which would be the product of the outcome's valence, times the strength that the expectancy would occur. Having defined his concepts of valence, expectancy and force, Vroom (1964) then attempted to measure valence and expectancy and manipulate them via various situational variables, in order to discover to what extent each motivated people to act.

In their evaluation of Vroom's theory, Litwin and Stringer (1968) said the following: "Vroom's (1964) model, like many psychological theories, acknowledges the importance of situational variables, but does not provide a format by which such variables can be measured and mapped. Nor is there any way of relating the situational variables to sociological and organisational concepts of the situation" (Litwin & Stringer, 1968, p 31).

Three assumptions about motivation that appear in Vroom's (1964) conclusions are, firstly, that people prefer tasks and jobs which they believe to require the use of their abilities; secondly, that people prefer consistent information about their abilities as opposed to inconsistent information; and thirdly, that people prefer receiving information to the effect that they possess valued abilities compared with information that they do not possess valued abilities.

Vroom's (1964) concepts of achievement, feedback and reward, as well as that of expectancy, will feature in the discussion later on in chapter 4 when they are integrated with Locke's (1997) model in order to construct the organisational climate questionnaires.

The previous section on determinants of individual behaviour revealed the importance of both people and their environment in behaviour (Schneider 1990). Schein (1970, p. 77) is of the same opinion when he states the following: "Ultimately the relationship between the individual and the organisation is interactive, unfolding through mutual influence and mutual bargaining, to establish a workable psychological dynamic if we look only to organisational conditions and practices. The two interact in a complex fashion, requiring us to develop theories and research approaches which can deal with systems and interdependent phenomena."

When discussing people's motivated behaviour, Litwin and Stringer (1968, p. 7) stated the following: "To most people the word motivation suggests energetic behaviour directed toward some goal. Underlying this energetic behaviour, it is assumed, there is some kind of need, want, or desire."

3.7.2 Managerial approaches to motivation at work

Despite the fact that large-scale, complex organisations have existed for several hundreds of years, managerial attention to the role of motivation in such organisations is a much more recent phenomenon. Before the Industrial Revolution, the major form of “motivation” took the form of fear of financial, social or physical punishment. However, as manufacturing processes became more complex, large-scale factories emerged which destroyed many of the social and exchange relationships which had existed under the “home industries” or “putting out” system of small manufacturing. These traditional patterns of behaviour between workers and their “patron” were replaced by the more sterile and tenuous relationship between employees and their company. Thus the Industrial Revolution was not only a revolution in a production sense but also in the social sense (Gibson et al, 1994; Schneider, 1990; Steers & Porter, 1979).

The genesis of this social revolution can be traced to several factors. Firstly, the increased capital investment necessary for factory operation required a high degree of efficiency in order to maintain an adequate return on investment. This meant that an organisation had to have an efficient work force. Secondly, and somewhat relatedly, the sheer size of these new operations increased the degree of impersonalisation in superior-subordinate relationships, necessitating new forms of supervising people. Thirdly, and partly as justification for the new depersonalised factory system, the concept of social Darwinism came into vogue. In brief, this philosophy argued that no person held responsibility for other people and that naturally superior people were destined to rise in society, while naturally inferior ones would eventually be selected out of it. In other words, it was “every man for himself” in the workplace (Gibson et al, 1994; Steers & Porter, 1979).

These new social forces brought about the need for a fairly well-defined philosophy of management. Many of the more intrinsic motivational factors of the home industry system were replaced by more extrinsic factors. Workers or, more specifically, “good” workers were seen as pursuing their own best economic self-interests. The end result of this new approach in management was what has been termed the “traditional” model of motivation (Gibson et al, 1994; Steers & Porter, 1979).

3.7.2.1 The traditional model

This model is best characterised by the writings of Taylor (1911). Far from being exploitative in intent, Taylor viewed scientific management as an economic boon to both the worker and to management. Taylor (1911) saw the problem of inefficient production as a problem primarily with management, not workers. It was management's responsibility to find suitable people for a job and then to train them in the most efficient methods for their work. The workers having been well trained, management's next responsibility was to install a wage incentive system whereby workers could maximise their income by doing exactly what management told them to do and doing it as rapidly as possible. Thus, in theory, scientific management represented a joint venture of management and workers to their mutual benefit.

3.7.2.2 The human relations model

Beginning in the late 1920s, there was a drive to discover why the traditional model was inadequate for motivating people. The earliest such work, carried out by Mayo (1933, 1945) and Roethlisberger and Dickson (1939), pointed the way to what was to become the human relations school of management by arguing that it was necessary to consider the "whole person" on the job. These researchers posited that the increased routinisation of tasks brought about by the Industrial Revolution had served to drastically reduce the possibilities of finding satisfaction in the task itself. It was believed that, because of this change, workers began seeking satisfaction elsewhere. Based on this early research, some managers began replacing many of the traditional assumptions with a new set of propositions concerning the nature of human beings. Bendix (1956, p. 294) summarised this evolution in managerial thinking by noting that the "failure to treat workers as human beings came to be regarded as the cause of low morale, poor craftsmanship, unresponsiveness and confusion."

The new assumptions concerning the "best" method of motivating workers were characterised by a strong social emphasis. It was argued that management had a responsibility to make employees feel useful and important on the job, to provide recognition, and generally to facilitate the satisfaction of workers' social needs. Attention

was shifted away from the study of human-machine relations towards a more thorough understanding of interpersonal and group relations at work. Behavioural research into factors affecting motivation began in earnest, and morale surveys came into vogue in an attempt to measure and maintain job satisfaction. However, as pointed out by Miles (1965), the basic goal of management under this strategy remained much the same as it had been under the traditional model. Both strategies were aimed at securing employee compliance with managerial authority.

3.7.2.3 Human resources models

The assumptions of the human resources model have been challenged, not only for being an oversimplified and incomplete statement of human behaviour at work, but also for being as manipulative as the traditional model. These models were proposed under various titles, including McGregor's (1960) "Theory Y", Likert's (1967) "System 4", Schein's (1972) "Complex Man" and Miles's (1965) "Human Resources model". The latter term is viewed as being more descriptive of the underlying philosophy inherent in modern approaches.

Human resources models generally view humans as being motivated by a complex set of interrelated factors such as money, the need for affiliation, the need for achievement and the desire for meaningful work. It is assumed that different employees often seek quite different goals in a job and have a diversity of talent to offer. Under this conceptualisation, employees are regarded as reservoirs of potential talent and management's responsibility is to learn how best to tap into such resources (Covin & Slevin, 1997; Sexton, 2001; Steers & Porter, 1979).

Inherent in such a philosophy are some basic assumptions about the nature of people. Firstly, it is assumed that people want to contribute on the job. In this sense, employees are viewed as being somewhat "premotivated" to perform. Secondly, it is assumed that work does not necessarily have to be distasteful. Many of the current efforts at job enrichment and job redesign are aimed at increasing the potential meaningfulness of work by adding greater amounts to task variety, autonomy and responsibility. Thirdly, it is argued that employees are quite capable of making significant and rational decisions

affecting their work, and that allowing greater latitude in employee decision making is actually in the best interest of the organisation. Finally, it is assumed that this increased self-control and direction allowed on the job, plus the completion of more meaningful tasks, can largely determine the level of satisfaction on the job (Judge, Locke & Durham, 1997; Steers & Porter, 1979).

Kopelman et al (1990) provide a linear model of organisational functioning (fig 3.2) which demonstrates the role of culture and climate as they are ultimately linked to organisational productivity. Kopelman et al's (1990) model starts with societal and organisational culture as setting the parameters of the human resources practices. It is the human resources management practices which in turn engender the organisational climate, which produces individuals' cognitive and affective states (work motivation and job satisfaction). The aggregation of individual perceptions determines the salient features of organisational behaviour and in sum makes up organisational productivity. Although the criterion of interest in this case is productivity, the model has utility for explanatory purposes with climate being depicted as an intervening variable. This model uses the role of the organisation's human resources management practices as a situational variable that will ultimately affect the productivity of the organisation. Kopelman et al's(1990) description of organisational climate reflects both individual and organisational characteristics. Similarly, salient organisational behaviours such as attachment, performance and citizenship are seen as intervening between the organisation's climate and the ultimate outcomes. Attachment will affect such factors as absenteeism and turnover, leading to an increase in training, separation and replacement costs. In the financial services industry, the quality of service provision is also likely to be affected.

Performance relates to the manner in which the formal requirements of the job are attended to, and it is here that citizenship or presocial organisational behaviours have an important role to play. These refer to "constructive or co-operative gestures that are not mandatory, without which attachment, performance and ultimately productivity will slowly deteriorate" (Brief & Motowidlo, cited in Kopelman et al, 1990, p. 301). Schneider et al (1994) claim that organisational citizenship behaviour is essential in creating a climate that allows for organisational success. Perceptions of fairness and trust, norms of helpfulness and cooperation and fair reward systems based on a broad range of contributions are seen as essential in creating a good climate.

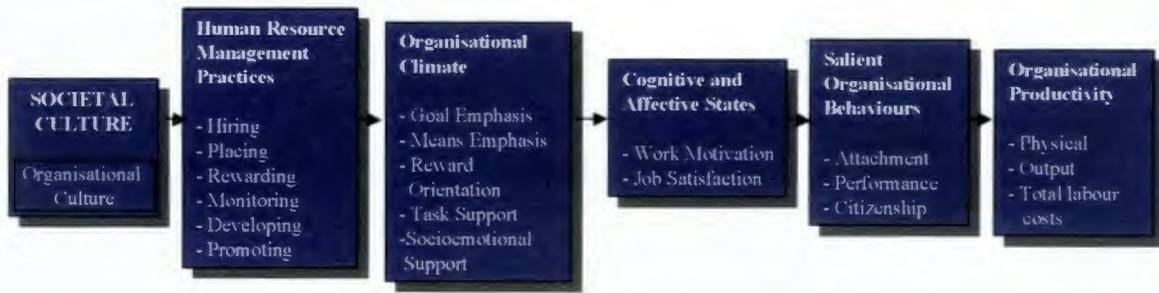


Figure 3.2: A Model of Climate, Culture and Productivity (Adapted from Kopelman et al, (1990))

Modelling the way climate affects the organisation's outcomes through the behaviour of employees has its antecedents in the work of Likert (1961) who discussed climate in terms of an intervening variable. The role of climate in the provision of high-quality service draws on the models provided by Likert (1961), James and Jones (1976), Kopelman et al (1990), and others. Likert's model used causal variables which included only those that were under direct management control, intervening variables that reflected the organisational climate such as performance goals, loyalties attitudes, perceptions and motivation, and end result variables which are dependent variables that include productivity measures, costs, service and quality.

Certain implied managerial strategies follow naturally from this set of assumptions. In general, these approaches would hold that it is management's responsibility to first understand the complex nature of motivational patterns. Based upon such knowledge, management should attempt to determine how best to use the potential resources available to them through their work force. It should assist employees in meeting some of their own personal goals within the organisational context. Moreover, such a philosophy implies a greater degree of participation by employees in relevant decision-making activities, as well as increased autonomy over task accomplishment. Thus, in contrast to the traditional and human relations models, management's task is seen not so much as one of manipulating employees to accept managerial authority as it is of setting up conditions so that employees can meet their own goals at the same time as meeting the organisation's goals.

3.7.2.4 Leadership and organisational climate

Related to the human resources models is the concept of leadership. The effect of managerial actions and leadership factors on the climate of the organisation has been known since the studies of Litwin and Stringer (1968), McGregor (1987), Kozlowski and Doherty (1989). Brown and Leigh (1996) argued for supportive management where subordinates may try and fail without any fear of reprisals. This is where employees are allowed to experiment with new methods bringing creativity to workplace problems. The level of control and freedom and a sense of security that this supporting style of management engenders is more likely to produce a high level of job commitment and motivation (Argyris, 1972; Kahn, 1990). The Brown and Leigh (1996) study clearly demonstrates the positive relationship between supportive management and clear work goals as being crucial to producing greater job effort, commitment and performance. They conclude that the study demonstrated an important series of linkages between work and psychological climate and between job involvement and work performance, and indicated that organisational environment is perceived as being psychologically safe and meaningful and is directly related to job involvement and indirectly to effort and work performance (Brown and Leigh, 1996, p. 365).

Two dimensions of leadership or supervision can be distinguished, namely employee-centredness and job-centredness (Bowers, Franklin & Recorella, 1975). Job-centredness includes leadership behaviours such as goal emphasis and work facilitation.

Leaders who are employee-centred, however, aim to provide support and interaction. They will be considerate and create an environment of psychological support, warmth, friendliness and helpfulness (Brown, 1996; Halpin & Winer, 1957; Judge et al, 1997). McGregor (1960) viewed employee-centred warmth and support as a necessary condition in Theory Y management. Likert (1961) suggested that the most important prerequisite for the establishment of his “ideal” organisational system was the creation of supportive relationships.

Brown and Leigh (1996), King (1970) and Pelz (1952) suggested that job satisfaction and group morale are higher under permissive supervision rather than under restrictive

supervision. The productivity of work groups, however, does not differ under the two methods of supervision (Tannenbaum, Weschler & Massarik, 1961).

An explanation of the latter finding has been that the quantity of output tends to be high under a participative form of leadership while the quality of output is high under a directive form of leadership because of the higher levels of motivation and job satisfaction reported under that style of leadership (Anderson & Fiedler, 1964).

Two general conclusions can be drawn from research on an effective style of leadership. Firstly, a choice should not be made between different styles but supervisors should be both employee-centred and production-centred (Blake & Mouton, 1970; Brown & Leigh, 1996). Secondly, the manager should be careful to choose a leadership style that is consistent with the climate of the organisation. An example of this would be that if, generally, the manager makes all important decisions without involving subordinates, it would be a mistake to let them participate without very good reasons (Chen et al, 1998; Covin & Slevin, 1997; Cummings, 1983).

It appears that there must be a relationship between the leadership style in an organisation and the climate which prevails in it. This is because managers assign responsibility, set goals and administer the reward system. They are therefore able to stimulate different types of climate (Anderson & Fielder, 1964; Blake & Mouton, 1970; Brown & Leigh, 1996; Kopelman et al, 1990 and Nasser, 1975).

3.7.3 Organisational effectiveness theories

Together with structure, technology, external environment, managerial policies and practices are all important influences on climate. These relationships are schematically represented in figure 3.3.

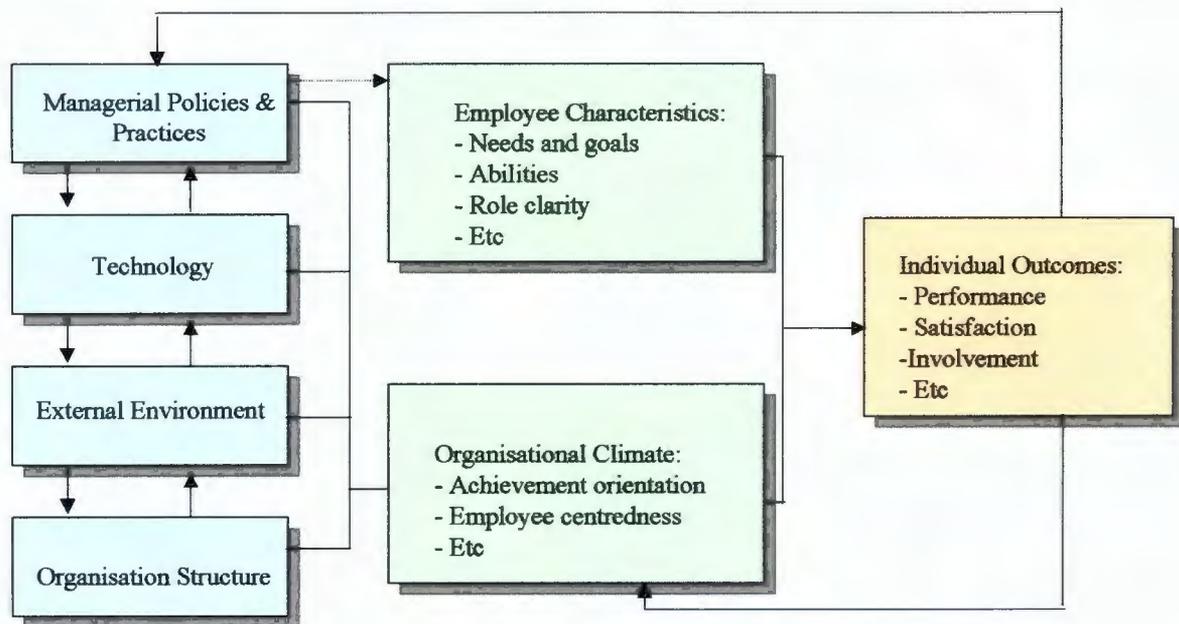


Figure 3.3: A Partial Model of the Determinants of Effectiveness-related Individual Outcomes (Adapted from Hellriegel & Slocum, 1974; James & Jones, 1974)

Note: The dotted line from managerial policies and practices to employee characteristics denotes the influence of management on such characteristics through employee selection and training.

The emerging climate, represents the arena in which employee performance decisions are made. Where climate is conducive to the needs of individuals, for example, where it is employee-centred and achievement-oriented, goal-directed behaviour is expected to be high. Conversely, where the emerging climate is in opposition to personal goals, needs and motives, one can expect both performance and satisfaction to be diminished. Ultimate behaviours or outcomes are determined by the interaction of individual needs and the perceived organisational environment. The resulting level of performance and satisfaction then feeds back into the system to contribute not only to the climate of the particular work environment but also to possible changes in managerial policies and practices (Fisher & Locke, 1992; Hellriegel & Slocum, 1974; James & Jones, 1974).

Following this viewpoint, structure, technology, external environment and other organisational characteristics affect ultimate outcomes such as performance and satisfaction largely to the extent that they contribute to an appropriate climate. Climate is

thus seen as an intervening variable. This intervening nature of climate may explain many of the weak or contradictory findings that result when the structure-performance or environment-performance relationships are examined irrespective of climate.

Firstly, because climate is generally regarded as existing at an individual or group level as opposed to an organisation-wide level, outcome measures must also be considered at an individual or group level. Thus instead of talking about climate leading to organisational effectiveness, it is probably more appropriate to talk in terms of individual or group-related facets of effectiveness like job satisfaction, employee performance and organisational commitment (Covin & Slevin, 1997; Fisher & Locke, 1992; Hellriegel & Slocum, 1974; James & Jones, 1974).

Secondly, the available information suggests that there is not a best, or most suitable, climate. Instead, management must determine what their goals are and attempt to create a climate that is appropriate both for these goals and for their employees' goals and objectives. If performance is the desired outcome, an achievement-oriented climate may be more suitable, while an affiliation-oriented climate may be more suitable if job satisfaction is the desired outcome (Chen et al, 1998; Hellriegel & Slocum, 1974; James & Jones, 1974; Kopelman et al, 1990; Litwin & Stringer, 1968).

Thirdly, it should be noted that the relationships depicted in figure 3.3 should hold only to the extent that employees have control over the attainment of the outcome variables. Where machines control productivity, for example, climate would not be expected to play as large a role in performance, although it most certainly would relate to resulting job attitudes and withdrawal behaviour (Eisenberger & Cameron, 1996; Fisher & Locke, 1992).

Consistent with the framework presented above, investigations of organisational climate have adopted one of three approaches. Firstly, some studies examined the potential determinants of climate in organisations. Questions were raised about the causes of variations in climate dimensions across work environments. A second set of investigations looked at the various outcomes that resulted from variations in climate. Here particular interest was focused on how changes in climate affected employee performance and job attitudes. Finally, a third set of studies examined the intervening nature of climate as it

moderated the relationship between such organisational characteristics as structure and technology and resulting job performance and satisfaction (Hellriegel & Slocum, 1974; James & Jones, 1974). These approaches were then further developed and integrated with the work of other theorists such as Denison (1996) and Kopelman et al (1990).

3.7.3.1 Organisational determinants of climate

Figure 3.3 suggests that at least four sets of factors may influence the climate of a particular organisation or work group. In general, these factors originate either in the structure or technology of the organisation, its external tasks environment, or the policies and practices formulated by top management. The first set of variables which are thought to affect organisational climate is found in the structure of the organisation. When taken together, the available evidence indicates that the more “structure” an organisation has, that is, the greater the degree of centralisation, formulisation and rules orientation, the more rigid, closed and threatening the perceived environment will be (eg Marrow, Bowers & Seashore, 1967; Payne & Pheysey, 1971). It would appear that the more individual autonomy and discretion that is permitted and the more concern management show for their employees, the more “favourable” the work climate is. Moreover, this relationship is particularly evident in individual discretion in decision making. The results of several investigations indicate that achievement-oriented and trusting climates are highly influenced by the extent to which management allows subordinates to participate in the decisions affecting their jobs (Denison, 1996; Dieterly & Schneider, 1974; Lawler, Hall et al, 1974; Likert, 1961; Litwin & Stringer, 1968; Moran & Volkwein, 1992).

Other structural factors that can affect climate are organisation size and the position of one’s job in the hierarchy. For instance, one study in a school system found that smaller organisations were consistently associated with a more open, trusting, and dependent climate, although the larger and more bureaucratised organisations were perceived to be the opposite (George & Bishop, 1971). Moreover, several studies have found that the location of an employee’s job in the organisational hierarchy or in a particular department can to some degree affect perceptions of climate (Hall & Lawler, 1969; Schneider & Bartlett, 1968; Moran & Volkwein, 1992; Schneider & Hall, 1972). Thus, although research scientists in their section of an organisation may see the climate as open, flexible

and dynamic, accountants working for the same firm may view its climate as rigid, routinised and static. Such findings reinforce the notion that one organisation probably has several climates.

The nature of the job technology employed by an organisation has also been shown to influence climate. For example, a study by Burns and Stalker (1961) found that routine technologies such as assembly lines tended to create rules-oriented, rigid climates where trust and creativity were low. More dynamic or changing technologies such as aerospace engineering, on the other hand, led to more open communications, trust, creativity, and acceptance of personal responsibility for task accomplishment (Burns & Stalker, 1961; Litwin & Stringer, 1968). In dynamic organisations where the nature of the business is adapting and changing on a continuous basis and creativity is required, the climate is more supportive of experimentation and mistakes are viewed as learning opportunities (Brown & Leigh, 1996). This is also true in entrepreneurial organisations because they deal with conditions of uncertainty, risk and challenge, which are typical of the entrepreneurial situation (Bandura, 1997; Chen, et al, 1998; Krueger & Dickson, 1994).

Little is known about the impact of the external environment on internal organisational climate. It is expected, however, that external events or factors that have particular relevance for employees may indeed affect climate to some extent. For example, when economic conditions are severe and organisations are forced to retrench some of their employees, those who remain would probably be inclined to see the climate as a threatening one, with little warmth or support and no motivation to take moderate risks. Instead, job security would become paramount, and creativity and productivity would suffer as people wondered who would be the next to go. Support for such a view of environment as a determinant of climate is provided in a study by Golembiewski, Mungenvider, Blumberg, Carrigan and Mead (1971), who found that economic and market uncertainties had detrimental effects on the perceived openness of climate.

Finally, several investigators have indicated that the policies and practices of management can have a major bearing on climate. For example, it has been shown that managers who provide their subordinates with more feedback, autonomy and task identity contribute significantly to the creation of an achievement-oriented climate, where members feel more responsible for the attainment of organisational and group objectives (Denison, 1996;

Lawler, Hall & Oldham, 1974; Litwin & Stringer, 1968; Marrow et al, 1967; Schneider, 1990; Schneider & Bartlett, 1968). On the other hand, where management emphasised standardised procedures, rules and job specialisation, the resulting climate was not found to lead to the acceptance of responsibility, creativity or feelings of competence. It would appear that management behaviour towards employees, as reflected in the policies and practices that are implemented, does represent a major input into at least certain aspects of climate such as achievement orientation. Based on their own research, Litwin and Stringer (1968) concluded that management or leadership style represented the single most important determinant of organisational climate.

In summary, the available evidence is consistent with the model outlined in figure 3.3, particularly insofar as structure and management policies and practices are concerned. Such factors represent major determinants of climate in work settings and, as such, represent important areas of management concern. If climate is related to performance and job satisfaction, then it is incumbent upon managers to consider those variables that can affect climate if changes are to be made that will ultimately contribute to organisational goal attainment. It becomes apparent that effective managers must exhibit the capacity to recognise clearly the interrelationships between major sets of organisational variables such as structure and climate, and to be able to respond to the particular needs of a given organisation if they are to contribute to organisational success.

3.7.3.2 Outcomes of climate

The consequences or outcomes of variations in organisational climate will be considered. The two most widely investigated outcomes in this regard are job satisfaction and job performance.

Available evidence indicates that a clear positive relationship exists between climate and job satisfaction. In particular, it has been found that more consultative, open, employee-centered climates are generally associated with more positive job attitudes (Fredrickson, 1966; Friedlander & Margulies, 1969; Furnham & Drakeley, 1993; Kaczra & Kirk, 1968; LaFollette & Sims, 1975; Schneider, 1990; Schneider et al, 1996). Such findings have emerged from a wide range of samples in a variety of institutional areas. Although

the magnitude of the relationships between climate and satisfaction is relatively small which indicates that other factors also contribute significantly to overall satisfaction, the findings are consistently in the predicted direction. It therefore appears that satisfaction on the job results, at least to some extent, from the manner in which managers show concern for and seek advice and participation from their subordinates. When employees feel that they are an integral part of the organisation and that their superiors take a personal interest in their welfare, they will experience higher degrees of job satisfaction.

The relationship between climate and job performance appears to be somewhat more complex. In an investigation of this relationship, Litwin and Stringer (1968) concluded that authoritarian climates in which decision making is centralised and employee behaviour is governed largely by rules and standardised procedures, led not only to low productivity but also resulted in low satisfaction, creativity and negative attitudes towards the work group. An affiliative climate, on the other hand, in which good interpersonal relations between employees were stressed, generally led to high job satisfaction, positive attitudes towards the work group, and moderate creative behaviour but job performance still remained low. Only in the achievement-oriented climate, where emphasis was placed on goal attainment, were both creative behaviour and productivity high. The achievement climate also led to high job satisfaction, positive group attitudes and high achievement motivation levels. Findings by Schneider (1990), Schneider et al (1990); Steers (1975, 1976) are consistent with these findings.

It has also been shown that employee-centred climates, with open communications, mutual support and decentralised decision making, generally lead to increased employee performance, reduced turnover, lower manufacturing costs and reduced training time (Fredrickson, 1966; Friedlander & Greenberg, 1971; Hand, Richards, & Slocum, 1973; Marrow et al, 1967; Schneider et al, 1996). When these findings are compared with those reviewed above, it appears that the most favourable climate for both production and satisfaction is generally one that emphasises both employee achievement and employee consideration. One way for managers to facilitate effectiveness is to bring about a climate that stresses the importance of goal attainment while at the same time encouraging mutual support, cooperation and participation in the activities that contribute to goal attainment.

Although creating an achievement-oriented, employee-centred climate may facilitate the desired outcomes, it cannot guarantee them. It is also important to look at how the emerging climate interacts with the personal characteristics of employees, for example, their needs, abilities and goals, as they jointly affect performance and satisfaction. If employees are genuinely not motivated to perform perhaps because they see no relationship between performance and rewards, or if they lack the abilities to accomplish their tasks, the impact of climate on performance would be lessened. However, when the climate is such that it stimulates the achievement motive and provides a vehicle for the satisfaction of a variety of important employee needs, then the contribution of climate to performance and satisfaction would be expected to be substantial (Downey, Hellriegel & Slocum, 1975; Pritchard & Karasick, 1973; Schneider, 1990; Schneider & Bartlett, 1968; Schneider et al, 1996; Steers, 1976).

In summary, climate does indeed represent an important influence on performance and satisfaction. This relationship is apparently enhanced by the creation of a climate that emphasises achievement and consideration for employees. Although research generally confirms the relationship between variations in climate and both performance and satisfaction, a few studies have indicated that climate has a much more profound influence on satisfaction than on performance (LaFollette & Sims, 1975; Lawler et al, 1974; Pritchard & Karasick, 1973). Moreover, initial findings suggest that some personal characteristics (eg individual need strengths) interact with certain climate dimensions to jointly affect various outcomes. These findings suggest that personal needs, goals and values must be consistent with or at least compatible with the prevailing work environment if desired outcomes are to be maximised.

3.7.3.3 Climate as an intervening variable

The third part of the model is the intervening nature of organisational climate. Indirect evidence has demonstrated that several organisational factors, such as structure and managerial style have an impact on climate and that climate, in turn, influences resulting satisfaction and performance. In addition to this indirect evidence, two investigations were conducted that specifically examined the potential intervening nature of climate. In one study, managerial policies and practices were altered, primarily by replacing top

management in a small manufacturing firm, resulting in significant changes in climate (Marrowet al, 1967; Morse & Lorsch, 1970; Thomas & Mathieu, 1994). The new management, which was described as being more people-oriented, created a climate in which employees felt more important in and responsible for their actions. The new management style was also seen as being more supportive of employees and more participative in decisions affecting employees' jobs. As a result of such changes in climate, performance increased while manufacturing costs, training time and turnover all declined.

In the second study, the focus was on how climate served to mediate the impact of both structure and management style on performance and satisfaction (Lawler et al, 1974; Locke & Henne, 1986). In general, it was found that climate was a strong mediator in the relationship between management style and the outcome variables. Style influenced climate which, in turn, influenced performance and satisfaction. Climate also appeared to moderate the impact of organisational structure on the same two outcome variables, although the magnitude of this second relationship was not as high as that concerning of management style.

In general, the available evidence tends to support the proposed model of the role of climate in organisational dynamics. As shown in figure 3.3, one may conclude that various organisational and environmental characteristics influence the emerging climate of a particular organisation and that this climate, together with employee characteristics, influences performance and satisfaction. These outcomes, thus, contribute to possible changes in the existing climate and in managerial practices in the form of a feedback loop. Moreover, it would appear that the most desirable climate from the standpoint of meeting both achievement and employee consideration is a participative one. Such a climate represents an exchange relationship between employees and their employer where both work together to satisfy mutual objectives in the long run (Lawler et al, 1974; Schneider, 1990; Schneider et al, 1996).

3.7.3.4 Popular organisational theories

The cognitive or economic behaviour theories, contingency theory, Likert and System Four, Immaturity - Maturity continuum and Theory Y, Theory X will be discussed

a *Cognitive or Economic Behaviour Theories*

Bandura and Cervone (1986), Cervone, Jiwani and Wood (1991) and Cyert and March (1964) March and Simon (1958) viewed organisations as systems for making decisions, and assumed human to be rational and logical. These theories focused on organisational processes related to decision making and organisational choice, such as resolution of conflict, uncertainty avoidance, searching for problems and organisational learning and adaptation.

According to Litwin and Stringer (1968, p. 34): such theories deal tangentially with what might be considered climate. Uncertainty, for example, is a highly subjective concept, and ideas of 'bounded rationality' begin to approach a perceptual definition of the work environment. But uncertainty and bounded rationality are defined in economic terms, and their effect on individual behaviour and decision-making has been studied only in very limited fashion." Brockner & Wiesenfeld (1996) developed this theory in their attempt to explain reactions to decisions.

b *The contingency theory*

Brown and Leigh (1996), Campion, Medsker and Higgs (1993) and Lawrence and Lorsch (1972) studied the type of interdependence between individuals and groups that existed in an organisation. Success in an organisation also depended on how differentiation (specialisation) and integration (coordination) were handled. Every environment contained certainty or uncertainty and diversity or homogeneity.

This led to their contingency theory, whereby key organisational factors, such as interdependence, differentiation and integration, contributed to effective performance when

they met the specific demands of an organisation's environment. They stated that "the key factors which distinguished effective and less effective organisations in any one of these environments were the behaviours used typically to resolve conflicts and reach decisions" (Lawrence & Lorsch, 1972, p. 47).

Lawrence and Lorsch (1972) distinguished eight structural dimensions, describing actual characteristics of formal organisations, which were widely used to characterise the situational influences on motivated behaviour. However, these have never been directly related to specific variations in human motivation. Also organisational influences, such as leadership and management assumptions, were not related to motivation and behaviour in their organisational theory.

c Likert and System 4

Likert (1967) has been called "the father of participative management" because of his system in which people who would be affected by a decision are invited to share in the decision-making process. Likert like Crowne and Rosse (1995) believed that not only would better decisions emanate from participation, but that people would be more highly committed to carrying them out. In this way he felt that employees could realise their personal goals by working for organisational objectives.

The most effective organisation, in Likert's view, is what he calls the participative group or System 4.

Argyris (as cited by Hersey & Blanchard, 1972) examined industrial organisations to determine what effect management practices had on individual behaviour and personal growth in the work environment. According to him seven changes took place in the personality of individuals as they developed in maturity. These he listed in an "immaturity-maturity continuum" as depicted in figure 3.4.

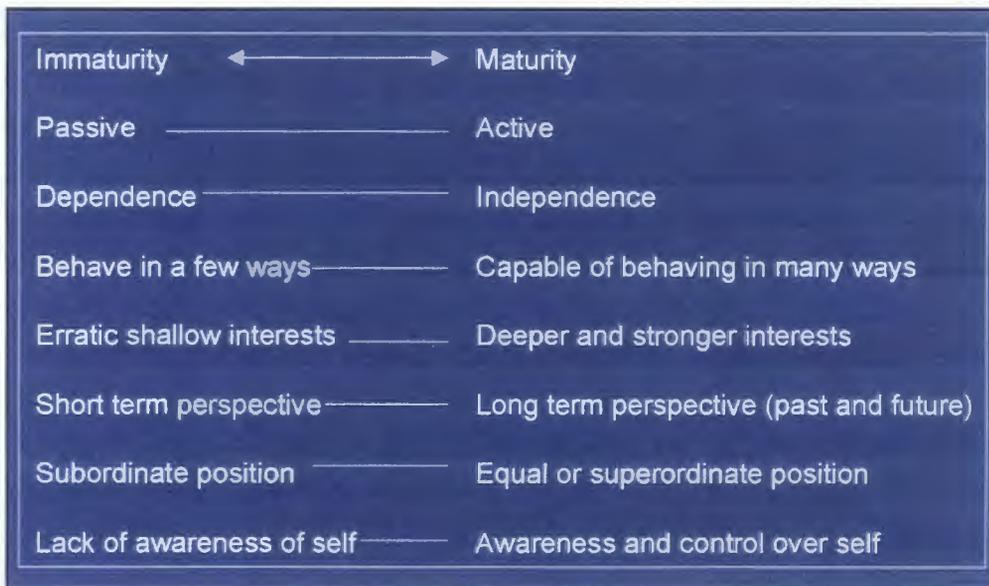


Figure 3.4: Immaturity–Maturity Continuum (Argyris, as cited by Hersey & Blanchard, 1972)

Argyris (as cited by Hersey & Blanchard, 1972) then explained that worker apathy and lack of effort were to the result of workers being kept from maturing by the management practices utilised in their organisations. Workers are given minimal control over their environment and are encouraged to be passive, dependent and subordinate. This results in immature behaviour.

Organisations tried to “fit the individual to the job” and designed management practices around four concepts namely task specialisation, chain of command, unity of direction and span of control. This resulted in management who have Theory X assumptions about work and restrict initiative and creativity. Theory X and Theory Y are depicted in table 3.2.

TABLE 3.2
ASSUMPTIONS ABOUT THE NATURE OF HUMANS WHICH UNDERPIN
MCGREGOR'S (1960) THEORY X AND THEORY Y

Theory X	Theory Y
1. Work is inherently distasteful to most people.	1. Work is as natural as play, if the conditions are favourable.
2. Most people are not ambitious, have little desire for responsibility, and prefer to be directed.	2. Self-control is often indispensable in achieving organisational goals.
3. Most people have little capacity for creativity in solving organisational problems.	3. The capacity for creativity in solving organisational problems is widely distributed in the population.
4. Motivation occurs only at the physiological and safety levels.	4. Motivation occurs at the social, esteem, and self-actualisation levels, as well as physiological and security levels.
5. Most people must be closely controlled and often coerced to achieve organisational objectives.	5. People can be self-directed and creative at work if properly motivated.

Argyris (as cited by Hersey & Blanchard, 1972) proposed that management, based on the assumptions of Theory Y, would be more profitable for the individual and the organisation. He upheld that giving people the opportunity to grow and mature on the job helps them satisfy more than just physiological and safety needs, because it motivates them and allows them to use more of their potential in accomplishing organisational goals (Locke, Alavi & Wagner, 1997; Trice & Beyer, 1993).

With this theory of personal development interfacing with management, Argyris was indicating the need for organisational climate, where the motivation of workers was

influenced by the formal system, management style, and other environmental factors. This is similar to the views of Kopelman et al (1990), Locke et al (1997) and Trice and Beyer (1993).

No single theory is appropriate for predicting or explaining all kinds of human behaviour and psychologists generally accept psychologists that behaviour is complex, purposive and involves an interrelationship between people and their environment. However, the emphasis on various determinants such as historical versus contemporary causation, internal versus situational factors, the unit of analysis, and assumptions about human nature, remains controversial and, to a degree, still subjective.

Increasingly more researchers of human behaviour began to realise that humans' behaviour was a response to their needs, which arose because of both internal forces and environmental influences.

3.8 OTHER DIMENSIONS OF AND APPROACHES TO ORGANISATIONAL CLIMATE

Various other dimensions of and approaches to organisational climate have been put forward, particularly on issues pertaining to the measurement of organisational climate.

3.8.1 The work of Campbell

Certain recurring themes emerged in an examination of the various climate instruments from which Campbell (1970) was able to identify four dimensions common to most studies of organisational climate conducted up to that time. These dimensions of organisational climate generally resulted from factor analysing results yielded from administering whatever measurement instrument was used in a particular study. These dimensions were "individual autonomy," roughly defined as how firmly one feels that one is one's own boss, "degree of structure" a dimension which reflects the degree to which job objectives and job technology are established by superiors, "reward orientation," a rather loose dimension which broadly refers to a feeling that rewards are coupled with successful

performance, and "consideration, warmth, and support", a catch-all category under which are assumed various types of superior-subordinate relationships (Campbell, 1970).

3.8.2 The work of James and Jones

Approaching organisational climate from a more psychological orientation, James and Jones (1974), resisted any attempts to formulate an overall definition of organisational climate, believing that the concept needed to be defined on the basis of the type of measuring techniques in use by particular scholars. Concerned with the way in which climate had previously been measured, James and Jones (1974), identified various "schools" of measurement which illustrated the different approaches to climate research.

3.8.2.1 Multiple measurement-organisational attribute approach

First was the "multiple measurement-organisational attribute approach". The emphasis of research which fell into this category was exemplified by Forehand and Gilmer's (1964) definition of organisational climate. That is, organisational climate was taken to refer to a broad configuration of organisational variables, such as size and structure, which, in combination, reflected the climate of the organisation.

3.8.2.2 Perceptual measurement-organisational attributes approach

Somewhat different from the latter "school" of measurement was the "perceptual measurement-organisational attribute approach". Unlike the first category of climate research, this approach emphasised how individuals perceived particular configurations of organisational variables. These perceptions were used to identify the climate of an organisation. An example of this approach to organisational climate research is the work of Pritchard and Karasick (1973).

These scholars investigated the relationships between organisational climate and the variables "job satisfaction" and "job performance". They found that climates high in

achievement motivation and low in decision centralisation tended to promote increased job satisfaction and higher performance levels among managers. One important criticism of the “perceptual measurement-organisational attribute” approach made by James and Jones (1974) was that it tends to confuse units and levels of analysis to a point where one is never entirely sure at what level climate is actually being measured.

3.8.2.3 Perceptual measurement-individual attribute approach

A third approach to measuring organisational climate identified by James and Jones (1974) is the “perceptual measurement-individual attribute approach”. This approach tends to view climate purely as an individual phenomenon which does not need to be shared among organisational members to be considered as representing the “climate” of that organisation. One criticism of the approach is generally referred to as “the redundancy question”. In other words, a confusion of results obtained in measuring climate may occur when similar measuring instruments are used to measure conceptually different constructs. This problem has been particularly acute when job satisfaction is related to organisational climate at the individual level of analysis.

3.8.2.4 Psychological climate

As a result of the confusion which had developed over the years regarding the manner in which organisational climate was measured, James and Jones (1974) recommended that a new branch of climate research be developed. This branch was termed “psychological climate” and would be used when individuals were the units of analysis. The purpose of this distinction was to reconceptualise and divide a complex field into more manageable proportions.

3.8.2.5 Group climate

In the later investigation of the nature of the climate concept, Howe (1977) suggested that another term (“group climate”) be used when organisational climate perceptions are

consensual among group members but not across groups in the same organisation. He contributed to the clarity of the concept of climate with this distinction.

3.8.3 The work of Schneider and Snyder

In addition to the work of James and Jones (1974) and Hellriegel and Slocum (1974), several critiques of the concept of a more general nature appeared during this period. In one of the most extensive reviews of the theoretical basis of organisational climate, Schneider and Snyder (1975) identified four basic methodological questions. These were the level of abstraction at which the research is conducted (which deals with questions on whether the research dealt with macro- or micro- perceptions), the level of affect (which deals with questions on whether evaluative or descriptive perceptions are sought by the researcher), level of analysis (which questions whether the individual or the organisation is the unit of analysis) and level of choice (which questions precisely what climate, individual or organisational is being studied).

Schneider and Snyder (1975) pointed out that a major weakness of previous climate research was its reliance on individual perceptions and the transference of these individual perceptions to organisational levels.

3.9 ORGANISATIONAL CLIMATE MEASUREMENT

Some of the organisational climate measurement instruments used in organisations will now be discussed. James and Jones (1976) developed the items for their questionnaire after an extensive review of the literature. From the literature they identified 35 concepts related to organisational climate. Eleven concepts related to job and role characteristics, eight related to leadership and characteristics, four to work-group characteristics and 12 comprising subsystem and organisational level characteristics. Many of these had been shown to be internally consistent, psychologically meaningful measures of the work environment. For each of these concepts, between two and seven items were generated. This procedure produced a 145-item questionnaire. Responses to each individual item

consisted of a stem with a variable scaled response of either three or five. Thirty-five *a priori* composite variables were produced by summing across the relevant item responses.

This was done to support their choice of climate composites, as they called them, and the individual question items or scales that comprised each composite. In 1989, James and James reported that the items and scales that comprised the dimensions of climate that had shown factorial invariance were developed using interviews, observations and literature reviews. They outlined a number of measures for the job or role, leader orientation, workgroup environment and variables that relate to the overall organisational climate.

Schneider argues that neither interviews nor questionnaires are necessarily preferable to each other in collecting data, but are useful for different purposes. The qualitative information yielded from interviews is particularly useful for providing managers with "the precise practices and procedures that inhibit service delivery, rather than merely identifying the fact that there are some inhibitory practices and procedures" (1990, p. 404). This stands in the way of change agents dealing with the manifestations of particular climate in particular settings. Low levels of supervisory support, for instance, do not reveal precisely what needs to be changed. Schneider (1990) proposes that intermediate positions may be useful and that one alternative would be to have a survey containing items assessing generic themes that could be used across settings, but for each setting the generic items could be supplemented by tailor-made items. The latter items would require some in-depth exploration of issues in a specific organisation to identify the ways in which generic concepts become manifest there (Schneider, 1990 p. 404)

This discussion reaffirms that there is still much work to be done in the area of developing appropriate climate instruments. Current instruments include Patterson et al's (1996) Business Organisation Climate Index which consists of 28 item scales, only eight of which were used because of the length. Kozlowski and Doherty's (1989) instrument uses 55 measures consisting of 11 subscales that overlap with those of Jones and James (1979). Joyce and Slocum (1982) used the same measure as Pritchard and Karasick (1973) with 10 dimensions that were factor analysed and reduced to six. Drexler's (1977) survey of operations was based upon Taylor and Bowers (1973) instrument, which was a composite of several other instruments. Likert's (1967) profile of organisational characteristics and Pritchard and Karasick's (1973) instrument were both based upon Campbell, Dunnette,

Lawley and Weick (1970) using 11 of their original 22 measures. James and Jones (1976) developed their psychological climate questionnaire (PCQ) which used 35 *a priori* scales derived from the literature, to that point. This questionnaire was administered to a large US Navy sample as discussed above and the results were then factor analysed. The components that resulted were then compared with other samples to derive the generalised dimensions.

Ryder and Southey (1990) used the James and Jones (1979) questionnaire as the basis for their instrument which they applied to employees in a large public building construction and maintenance authority in Australia. Modifications to the original instrument were threefold, consisting of modifications to the wording, scaling and presentation format. Items were reworded to remove culturally specific terminology, to enable the use of nonsexist language, and to make the items applicable to nonmilitary employees. Ryder and Southey judged the scaling of the original instrument to be unsatisfactory. The original instrument employed between three- and five- scale responses that listed either descriptive attributes on a continuous scale, or were presented in a Likert format. Ryder and Southey employed a consistent seven-point anchored scale format across all 144 items of their questionnaire. Again between two and seven items were used to produce each of 35 composite climate variables. They reported that the instrument, so presented, required less time to complete than did the original Jones and James version.

The definitions and theoretical positions on climate have varied considerably among the individual theorists. This has also been the case in the dimensions of climate and its measurement. Denison (1996) argues that developing a universal set of dimensions was often the central issue of the climate researchers so that comparative studies could be made possible in different organisational settings. He compared this approach with that of the culture research that used a post-modern perspective which examined the qualitative aspects of individual social contexts where each culture that was examined was regarded as unique and was not expected to have generalisable qualities which had become central to the climate research.

It is possible that the dependence on this use of climate surveys as the research method of choice led those working in the climate area to seek generalisable qualities across settings. Jones and Jams (1979) argued that one of the assumptions of the climate literature is that a

relatively limited number of dimensions could characterise a wide cross-section of social settings.

3.10 JOB SATISFACTION, ORGANISATIONAL CLIMATE MEASUREMENT AND PAY SATISFACTION IN RELATION TO DISCREPANCY THEORY

In researching the effects of organisational climate on job satisfaction, Pritchard and Karasick (1973) state that their research suggests that job satisfaction, is related to climate factors as also indicated in the previous section. In most of the definitions of the concept "climate", the element of employee perception is introduced. Guion (1973) puts forward the view, that climate is operationally defined as the perceived climate, and most measures of the perceived climate are in fact based on job satisfaction. If climate is correlated to job satisfaction there is an obvious distinction between the concepts "climate" and "culture", as previously defined. Resnick (1981) contends that there is a considerable amount of truth in the assertion that measures of job satisfaction and organisational climate have a number of content areas in common.

Smith, Kendall and Hulin (1969) suggests that job satisfaction, has five dimensions namely satisfaction with work, satisfaction with supervision, satisfaction with co-workers, satisfaction with pay and satisfaction with promotional opportunities. These are very similar to the dimensions of climate, which indicates that the two concepts, like motivation and climate, are interrelated.

According to Porter (1961), job satisfaction is the difference between feelings of how much satisfaction there is now and how much there should be. Discrepancy theory, as defined by Locke (1969, 1976 & 1984) incorporates contributions from two-factor theory (Herzberg, Mausner & Snyderman, 1959), need theories (Alderfer, 1969; Maslow, 1953), intrinsic motivation theories (Deci, 1972, 1975; Hackman & Oldham, 1976, 1980), and equity theory (Adams, 1963, 1965). In discrepancy theory, the process of satisfaction results from the distance between two perceptions concerning aspects of the job which an individual values. This evaluation depends on the individual's own needs, values, beliefs, expectations, aspirations and desires (ie the factors corresponding to the contributions from

the above-mentioned theories). According to the principle of discrepancy, the process of satisfaction corresponds to the degree of congruence perceived by a person between what each aspect of work should be and what it actually is. For Locke (1976, p. 1300), job satisfaction is "a pleasurable or positive emotional state resulting from the appraisal of one's job or job experiences".

The process of social comparison (Festinger, 1954) constitutes a major determinant of job satisfaction in compensation studies. Lawler (1971) proposed the possibility of integrating this contribution into discrepancy theory with regard to the case of pay satisfaction. Thus, the concept of social comparison, which underlies equity theory (Adams, 1963, 1965) and relative deprivation theory (Crosby, 1976, 1984) can be found in Lawler's discrepancy theory, with the advantage of proposing a more precise explanation of the process that leads to satisfaction. Lawler (1971) adopts the unidimensional vision of pay satisfaction which is limited to attitudes solely in relation to the amount of salary received. As opposed to the recommendations of Dyer and Theriault (1976), Heneman (1985), Heneman and Schwab (1985), and Miceli and Lane (1991) consider pay satisfaction as a multidimensional concept. The latter perspective represents two major contributions to research, firstly, on interactions between compensation and satisfaction in relation to the various elements of compensation such as fixed pay or benefits, and secondly, takes into consideration the effect of organisational justice (Greenburg, 1987, 1990), which, in distinguishing distributive justice from procedural justice, indicates that the individual can also experience feelings of pay administration satisfaction. Locke (1969) also supports the discrepancy definition by his belief that only unfulfilled desires can cause dissatisfaction, and that satisfaction is the result of the match between the way things are now and the way individuals would like them to be. Downs (1977, p. 364) maintains that in discrepancy theories, the degree of satisfaction is the "difference between the outcomes which a person actually receives and those outcomes which he feels that he should receive or those which he expected to receive". Swan and Futrell (1975) indicate that as the worker's job expectations move closer to what is experienced, job satisfaction increases. Here again, the closing of the discrepancy between what is and what should be is a key issue in creating a satisfied individual.

Job satisfaction is created in this framework by the organisation and the individual working to match the understanding and expectations of the individual with the goals,

demands and outcomes of the organisation (Swan & Futrell, 1975). Feedback is a useful, perhaps essential, process for the organisation and its management to use with employees to reduce the discrepancy (Greenburg, 1990; Miceli & Lane, 1991; Swan & Futrell, 1975).

Schneider (1975) criticised the whole idea of an omnibus theory of climate and in particular the indiscriminate use of the term "organisational climate". He proposed that the term be used only to refer to an area of research rather than to a construct with a limited number of dimensions. From a review of early climate studies, Schneider concluded that some dependent variable had implicitly driven the research on the climate construct. Many of the studies have looked at climate as a particular facet of organisational life, rather than a general omnibus measure. These studies included those of theorists such as, Lewin et al (1939) who examined leadership style and social climate. Fleischman's (1953) whose investigation looked at the climate for leadership whereas Argyris (1958) was concerned about the right type of climate, and McGregor (1960) looked at climate from the leadership perspective. Litwin and Stringer (1968) were studying a climate for motivation, Schneider and Bartlett (1968) were exploring the climate for new employees and Taylor and Bowers (1973) dealt with creativity. Schneider (1973) was concerned about psychological success whilst Renwick (1975) looked at conflict resolution and Schneider (1990) studied service climate.

Organisations may have many climates, including a climate of creativity, for leadership, for safety, for achievement, and/or for service. Any one research effort probably cannot focus on all of these but the effort should be clear about its focus (Schneider, Parkington & Buxton, 1980, p. 255).

Schneider (1975) believed that the salience of a particular dimension could only be found in the context of a particular criterion of interest. Schneider and Reichers (1983) further reinforced this view by strongly advocating that examining organisational climate without attaching a referent is meaningless.

Jones and James (1979) responded to Schneider's criticism, by arguing that the call for criterion-based climate studies did not rule out the possibility of a relatively small set of dimensions still describing a wide range of environments. They postulated that a

particular dimension may be related to the same criterion under consideration but be negatively related to another criterion, and not related at all to others. James and Jones (1989) argued for the concept of a generalisable psychological climate, first developed by Lazarus (1982, 1984), as a general higher order factor integrating the meanings behind the psychological climate of an organisation.

Stated simply, people respond to work environments in terms of how they perceive them, and a key substantive concern in perception is the degree to which individuals perceive themselves as benefiting personally as opposed to being personally harmed (hindered) by their environment (James & James, 1989).

They found strong support for this notion in their research and demonstrated the theorised relationship between the dimensions of climate as a generic concept and the underlying factors that make up the individual dimensions.

Psychologists explain the behaviour of people through the use of both nomothetic (group) and idiographic (individual) means (Mullins, 1996). A fundamental question inherent in organisational climate research is "What is the appropriate level of analysis; the organisation, the department or subunit, the workgroup or the individual?" Many researchers have conceptualised climate as an individual and psychological variable. However, the difficulty has been justifying the extrapolation of results from one level of analysis, ie the individual, to the broader context of the workgroup, the department or the total organisation (Guion, 1973). A number of researchers (Glick, 1980, 1985; Glick & Roberts, 1984; Mossholder & Bedeian, 1983) have addressed the cross level interference problems together with the unit of analysis issue. When Cameron (1983) discussed organisational effectiveness, he also confirmed that a major problem for these types of studies is the primary level of analysis.

3.11 CRITIQUE OF THE CONCEPT OF CLIMATE

Criticisms of the concept of climate do exist. Hellriegel and Slocum (1974) identify three sources of concern about climate. First, if climate is a perceptual measure, then there are potentially as many climates as there are people in the organisation. Secondly, Hellriegel

and Slocum (1974, p. 256) state that Guion (1973) criticised climate by stating that "for too many in the field, there seems to be real confusion over whether 'climate' refers to attributes of organisations or attributes of people". Finally, a criticism which concerns some is the possible overlap and redundancy between job satisfaction and climate as organisational variables (Hellriegel & Slocum, 1974).

Through an extensive review of the literature, Hellriegel and Slocum (1974) concluded that, at a conceptual level, the organisational climate construct has relatively well-defined boundaries and suggests considerable potential for describing and understanding the behaviour of individuals within organisations. However, the movement from the conceptual level to the measurement of climate continues to pose problems and ambiguities yet to be resolved. Further, the attributes of climate proposed by Tagiuri and Litwin (1968) tend to specify and delimit the scope of climate into a more specific concept. Even stronger support for climate as a distinct concept in organisations was forwarded by Joyce and Slocum (1984) in their study on collective climates in organisations. They conclude that at the individual level, climate has been rather widely agreed to be a summary perception of the organisation's work environment. Their research led them to conclude that a collective climate was a distinct construct and was related to job satisfaction and job performance.

It has been claimed that the Litwin and Stringer (1968) measures may be largely people-oriented (Sims & La Follette, 1975) and job satisfaction and climate perceptions may be measuring the same construct (Guion, 1973). This line of argument is based on the emphasis Litwin and Stringer (1968) placed on perceptions which may make organisational climate a subjective matter in which individuals will colour their perceptions according to their prevalent needs, biases and prejudices.

Guzzo (1982), Cummings, (1983), Noord (1983) and Keeley (1978) all use single indicators that are extrapolated to assess the whole organisation. The extrapolation of results from the individual to the group level allows climate researchers to analyse and draw conclusions about the running of the total organisation and for groups of people in the organisation in terms of whatever effectiveness parameter is being investigated. Generally, researchers have sought to do this by calculating the average (usually a mean) of results for a particular climate survey and then sought to discover the extent to which

the results mapped into the structure and effectiveness of the organisation. There has been considerable discussion in the literature about the extent to which this practice is justified and in what context (Denison, 1996; Glick, 1988; James, Joyce & Slocum, 1988; and Patterson et al, 1996).

In Argyris (1958), Forehand and Gilmer (1964) and Litwin and Stringer (1968), the unit of theory was focused upon the organisation as the natural unit for climate research. Another group of these earlier theorists concentrated upon group or subunit, notably Hellriegel and Slocum (1974), Powell and Butterfield (1978) and Howe (1977). James and Jones (1974) used the term "psychological climate" to embrace both individual and, when aggregated, organisational level units of analysis, although later they (eg, James et al, 1988) tended to use the term "organisational climate" to refer to those aggregated individual psychological climate scores.

Glick (1988) stated that organisational climate "is an organisation attribute that may be estimated with a central tendency, but the central tendency is not the organisation itself" (Glick, 1988, p. 135). Whilst there are inherent difficulties with the aggregation of data sets and disagreements about the dimensionality of organisational climate, that is, dimensions of psychological climate may not be appropriate to organisational climate, it can still be estimated by aggregating individual psychological climate scores. Glick (1988) proposed that organisational climate as defined by James et al (1988) be renamed "aggregate psychological climate". His overall conception of the construct regards climate as a broad class of organisational variables used to describe the context for individual members within an organisation's formal and informal policy and procedures. The dimensions are as yet still not fully resolved, and whilst climate is an emergent organisational level process, it cannot entirely be decomposed to individual level cognition. Glick's (1988) summation draws upon and supports the work of other theorists such as Schneider and Reichers (1983), Powell and Butterfield (1978), Campbell et al (1970) and Glick (1985).

The multiple level of units of theory is important because they may differ in their empirical approach. Whereas the term "organisational climate" connotes an organisational unit level of analysis, it does not refer to the individual, department or workgroup. The debate on the unit of theory as the organisation is strengthened by the common practice of many researchers of using the aggregation of psychological climate (Gavin & Howe, 1975;

James, 1982; Jones & James, 1979; Schneider, 1975). In discussing the units of theory, Glick (1985) makes the point that psychological climate is very much linked to organisational climate, care needs to be taken and separate cross-level analysis should be used.

James and Jones(1976) discussed the difficulties inherent in using individuals' perceptions of organisational situations as the basis for higher-level analysis in some depth. The concern that emerged from their work was that perceptually based data carried the risk of reflecting individual characteristics rather than differences in the situations being studied. When, for instance, an organisation hired certain kinds of people into a particular group, the results of the study could be skewed. The process of aggregation, they argued, rested on a number of implicit assumptions.

The argument for aggregating perceptually based climate scores (ie, psychological climate scores) appears to rest heavily on three basic assumptions. Firstly, the psychological climate scores describe perceived situations; secondly, individuals who are exposed to the same set of situational conditions will describe these conditions in similar ways; and thirdly, aggregation will emphasise perceptual similarities and minimise individual differences (Jones & James, 1979).

Mossholder and Bedeian (1983) defended the use of aggregated psychological climate in assessing how individuals perceive an organisation. They postulated that while it appears to require an organisational unit of analysis, the actual units of analysis are both organisational because psychological climate represents individuals, in general, and the results may also be aggregated.

Schneider and Reichers (1983) discussed how climates form and why aggregation is a legitimate technique. They considered three approaches to the formation of climate, namely the structural perspective, selection, attraction and attribution and social interactionism. The structural perspective is seen as arising from the organisation's structural characteristics of the organisation. The selection, attraction and attrition approach in which individuals (based on the work of Bowers, 1973) create homogeneous organisational membership where there is similar to climate perceptions among individuals. The social interactionism approach is where individuals check, suspend,

regroup and transform their own perceptions in the light of their interactions. This approach seeks to explain differences in climate across workgroups in the same organisation which other approaches do not explain.

In the debate between Glick (1985) and James et al (1988), there is fundamental disagreement about the conceptualisation and measurement of organisational climate using psychological climate. James, Joyce & Slocum (1988) argue that psychological climate, with its parsimonious set of dimensions and the scores obtained, does represent shared meaning and perceptual agreement which can be aggregated to give an overall indicator of organisational climate. They further point out that the basic unit of theory for organisational climate (aggregated psychological climate) must be the individual because "it is individuals, and not organisations, that cognise" (James et al, 1988, p. 130). The aggregation of climate is appropriate because of the shared assignment of meaning that allows a higher order of analysis for groups, subsystems and organisations. It provides a mechanism for relating the construct of psychological climate at individual level of analysis to another form of the construct at the group, subsystem or organisational level yet the basic unit is psychological analysis. This is a crucial point for organisational research because it allows researchers the possibility of using aggregated psychological climate to describe organisations in psychological terms (James, 1982; Joyce & Slocum, 1979, 1984).

In the sampling process, in any organisation, in order to use aggregated psychological climate to predict organisational climate, there is a need to ensure that all members of the organisation, or a random stratified subsample of individuals covering all positions, are represented. Without such sampling procedures in place, James, Demaree and Wolf (1984) conclude that the use of aggregation is unjustified.

Patterson et al (1996) discuss the problems that Schneider and Reichers (1983) faced in which they could not account for differences that were found to exist across workgroups in the same organisation. This follows similar results found by Jones and James (1979) in their US Navy study and the variation Pritchard and Karasick (1973) found across regions. Schneider and Reichers (1983) address this problem using social interactionism, drawing on the work of Mead and Bulmer (1969) in the area of symbolic interactionism, and suggested that climate perceptions were a function of social interactions. As discussed

above, these social interactions can be examined by looking at how people interpret meaning in the social context.

According to Schneider and Reichers (1983), meaning (which includes perceptions, descriptions and evaluations) does not reside in any particular thing in itself; nor does it reside in the individual perceiver.

"Rather the meanings of things arise from the interactions among people. The actions of others act to define an event or procedure for the focal person. This is not meant to suggest that people simply apply the meanings given to them by others. Rather, individuals check, suspend, regroup and transform their own perceptions of events in light of the interactions they have with others in the setting". (Schneider & Reichers, 1983, p. 30).

Ashforth (1985) discusses the interactionist perspective and highlights the susceptibility of newcomers to influence outcomes in their desire to fit into a new setting. Social comparison theory explains that individuals compare their benefits to others whom they perceive to be similar to them (eg people in the same job). Normative social influence and the stake that group members have in maintaining the frame of reference of the prescribed behaviours, beliefs, and attitudes affect the development of organisational cultures. Patterson et al (1996) argue that these approaches should be seen as complementary rather than competing and that each may be useful for examining the various stages of development of a climate. Patterson et al (1996) rely upon the depiction by Ashforth (1985) of the aetiology (cause) of climates in the explication of the results, which were inconclusive from the social interactionist model perspective.

Another conceptual difficulty identified by Cameron (1983), is the converse of that described above, where an organisation's effectiveness is measured by single indicators of performance such as return on investment, overall performance rating and turnover. When organisational climate is represented by the aggregation of scores from individuals in the organisation, a score would exist for each individual and may be included in multivariate statistical analysis relating climate to other characteristics such as employee demographic variables. In such analysis, should researchers wish to also examine the relationship between these variables and a single indicator of performance, they are necessarily limited

to either dealing with aggregate scores across individuals, or must assign, for each individual, a score representing that single performance indicator. Both approaches have advantages and disadvantages.

3.12 CHAPTER SUMMARY

In chapter 3 an overview of organisational climate and the rationale for studying organisational climate were provided. A discussion on the differences and similarities of organisational climate and organisational culture followed. The definition of organisational climate and the creation of organisational climate was then explored. Theoretical models and research on organisational climate, as well as theories of individual behaviour, management theories and organisational effectiveness theories were reviewed. Organisational climate measurement and a critique of the concept of organisational climate were explored.

In chapter 4, this research will be integrated with Locke's (1997) model of work motivation and more recent research on organisational climate and work motivation with a view to extending Locke's (1997) model of work motivation by means of a questionnaire which will be developed, in order to explore the practical application of such a model.

CHAPTER 4

CONCEPTUALISATION AND OPERALISATION OF MOTIVATION

The aim of this chapter is to integrate Locke's (1997) model of work motivation and related literature with the literature presented in chapter 3 from a conceptualisation and operationalisation perspective, culminating in the construction of the organisational climate questionnaire (OCQ).

As discussed in chapter 3, during the 1960s and 1970s, significant advances were made in the systematic study of human motivation in the construction of sound, useful measuring instruments, and in the development of a systematic research-based theory of human motivation. Since then further developments in work motivation and organisational climate research, albeit primarily on the basis of the earlier studies, have taken place. Locke (1997) draws on this research in the construction of his work motivation model.

Locke's model (1997) was depicted in figure 2.8 and is adapted here in figure 4.1, based on the literature review conducted in chapter 3.

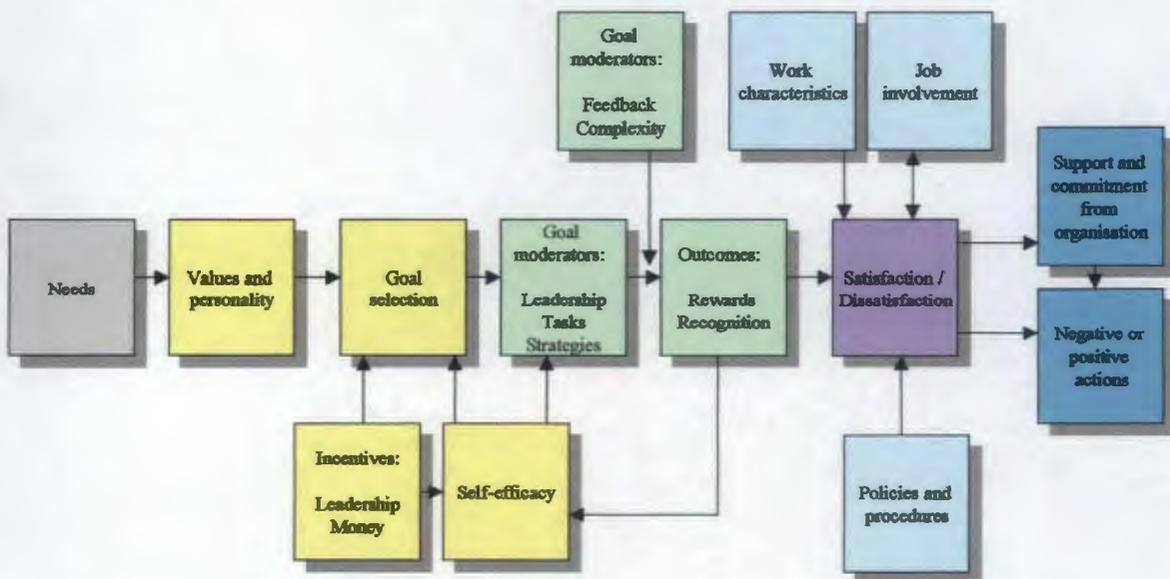


Figure 4.1: The Model of Work Motivation (Adapted from Locke, 1997)

An inspection of Locke's model reveals that there appear to be six primary elements of work motivation, namely actualisation of needs and personality, personal goal setting, goal support, goal-directed behaviour, goal achievement and quality of work life. These six elements in Locke's (1997) model of work motivation will form the core of the questionnaire which will be developed for the present study. The relationship between these elements is depicted in figure 4.2.

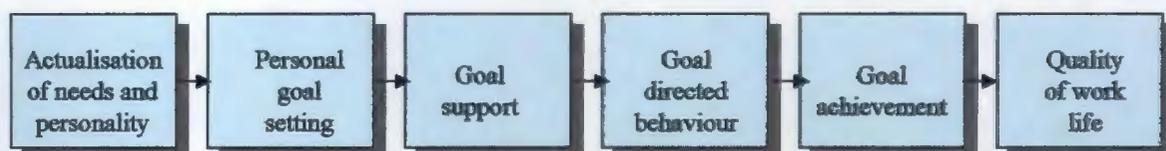


Figure 4.2: The Relationship Between the Six Elements Found in Locke's (1997) Model of Work Motivation

The model designed by the researcher and depicted in figure 4.3 illustrates the approach used to design the questionnaire.

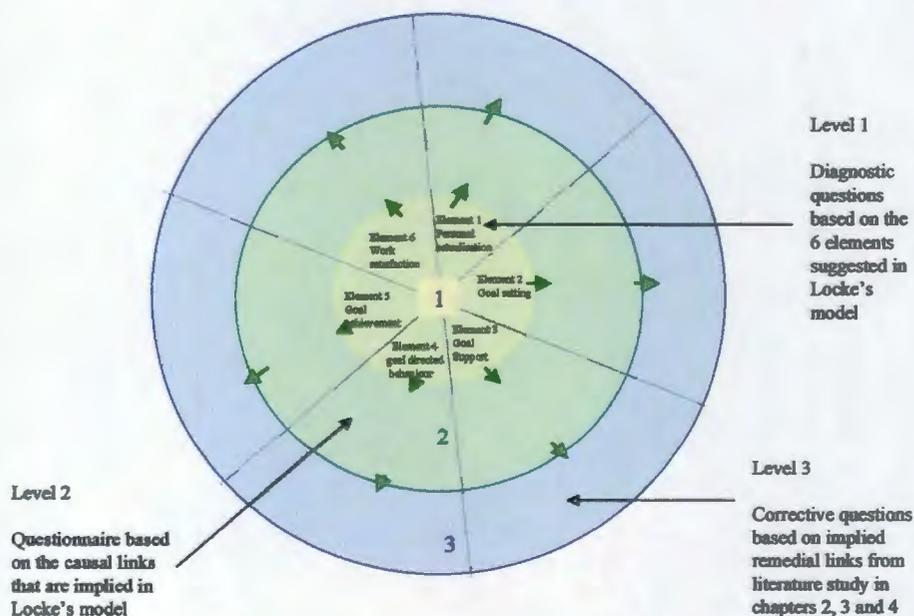


Figure 4.3: Approach Used to Design the Questionnaires

Locke (1997) suggests in his model of work motivation that there are six primary elements of work motivation. They are personal actualisation, goal setting, goal support, goal-

directed behaviour, goal achievement and work satisfaction. The first three elements appear to be associated with the individual and his/her belief system and appear to be intrinsic by nature. The other three elements appear to be associated with the organisation and appear to be linked to elements extrinsic to the individual.

These six elements are used as the core of the organisational climate questionnaire and diagnostic questions are developed in the context of these six elements in relation to the theory discussed in chapters 3 and 4. Locke suggests causal links (indicated by the dotted boxes in his model depicted in fig 2.8). These links are used to develop questions aimed at identifying the causes of what is diagnosed in the first tier of the questionnaire.

From the literature studied in chapters 2, 3 and 4 there appears to be evidence of some strategies and remedies that may be used to resolve issues of dissatisfaction in work motivation and organisational climate. There appear to be links to both the primary factors and the causal links suggested by Locke. Questions are developed to test this assumption and to develop the three-tiered questionnaire proposed by the researcher in an attempt to empirically investigate Locke's work motivation model.

Each of these elements (referred to as factors in the construction of the questionnaire) will be discussed and integrated with the previously discussed literature in order to construct the questionnaire to measure organisational climate at three levels of analysis. The first factor to be discussed is actualisation of needs and personality.

4.1 ACTUALISATION OF NEEDS AND PERSONALITY

The key to Locke's model (1997) of work motivation as depicted in figure 2.8 and figure 4.1, and highlighted in chapter 3 with particular reference to Atkinson's (1964) theory of motivation, is human needs.

4.1.1 Conceptualisation of actualisation of needs and personality

All adults have the potential to behave in a variety of ways (Locke, 1997). Whether or not they behave in these ways depends on the relative strength or readiness of the various motives a person has and the situational characteristics or stimuli presented by the situation. This largely determines what motives will be aroused and what kind of behaviour will be generated. In this context, humans' need for power, achievement and affiliation will be considered.

4.1.1.1 Need for power

If people spend their time thinking about the influence and control they have over others, and how they can use this influence, say, to win an argument, change other people's behaviour, or gain a position of authority and status, then according to Atkinson and Feather (1966) they have a high need for power (*n* Power). They derive satisfaction from controlling the means of influence over others.

4.1.1.2 Need for achievement

If people spend their time thinking about doing their job better, accomplishing something unusual and important or advancing their career, according to Atkinson and Feather (1966) they have says man has a high need for achievement (*n* Achievement) They are concerned with achievement and derive considerable satisfaction from striving for achievement. People with a strong need for achievement think not only about the achievement goals, but also how they can attain them, the obstacles or blocks they may encounter, and how they will feel if they succeed or fail.

4.1.1.3 Need for affiliation

If individuals spend their time thinking about the warm, friendly compassionate relationships they have, or would like to have, according to Atkinson and Feather (1966),

they have a need for affiliation (*n* Affiliation). Thoughts about restoring close relationships that have been disrupted, consoling or helping someone, or participating in friendly, compassionate activities such as, reunions and parties are regarded as evidence of affiliation motivation.

4.1.2 Operationalisation of actualisation of needs and personality

The theory discussed in the previous section will be analysed and used to construct the questions relating to the first variable, namely that of actualisation of needs and personality. This will be done according to three levels of analysis depicted in figure 4.2, namely diagnostic, causal and corrective.

The questions are depicted in table 4.1.

TABLE 4.1
ACTUALISATION OF NEEDS AND PERSONALITY

Assess the level to which you are personally satisfied with:					
LEVEL 1 (Diagnostic)		LEVEL 2 (Causal)		LEVEL 3 (Corrective)	
Items	Questions	Items	Questions	Items	Questions
1.1	The degree to which you are valued, respected and successful in your work	1.1.1	The extent to which your opinions and advice are accepted	1.1.1.1	Acknowledgement of your contributions
				1.1.1.2	Being given the opportunity to produce ideas
		1.1.2	Your work results, effectiveness and success	1.1.2.1	Encouragement to experience successes as well as failures
				1.1.2.2	Being allowed to learn from your mistakes
		1.1.3	The acceptance and trust	1.1.3.1	Acceptance by your

Assess the level to which you are personally satisfied with:					
LEVEL 1 (Diagnostic)		LEVEL 2 (Causal)		LEVEL 3 (Corrective)	
Items	Questions	Items	Questions	Items	Questions
		shown in you			peers without reserve
				1.1.3.2	Being given sufficient opportunities for social interaction with your peers

Table 4.1 summarises the questions relating to the first variable, namely the actualisation of needs and personality. Question 1.1 in level 1 is a diagnostic question consolidating the need for power, achievement and affiliation. Items 1.1.1 (a question on power), 1.1.2 (a question on achievement) and 1.1.3 (a question on affiliation) are questions designed to analyse the causal factors of the response in 1.1.

Related to the question on power (item 1.1.1 in level 2) are questions on effect (item 1.1.1.1) and opportunity (item 1.1.1.2) in level 3. These two questions are designed to further analyse the causal responses to the question on power in the level 2 questionnaire in order to suggest possible solutions.

Related to the question on achievement (item 1.1.2 in level 2) are questions on feeling (item 1.1.2.1) and learning (item 1.1.2.2) in level 3. These two questions are designed to further analyse the causal responses to the question on achievement in level 2 in order to suggest possible solutions.

Related to the question on affiliation (item 1.1.3 in level 2) are questions on acceptance (item 1.1.3.1) and opportunity (item 1.1.3.2) in level 3. These two questions are designed to further analyse the causal responses to the question on affiliation (item 1.1.3 in level 2) in order to suggest possible solutions.

This concludes the conceptualisation and operationalisation, in the context of the development of the organisational climate questionnaire, of the first factor identified by Locke, namely the actualisation of needs and personality. The next variable to be explored is the second variable, namely personal goal setting.

4.2 PERSONAL GOAL SETTING

The second variable suggested in Locke's (1997) model of work motivation, namely personal goal setting will, be discussed from a conceptualisation and operationalisation perspective.

4.2.1 Conceptualisation of personal goal setting

A complete statement of goal theory can be found in Locke and Latham (1990), Vroom (1964) and Locke, Motowidlo and Bobko (1986). Based on the earlier work of Mace (1935), Locke and Latham (1990) studied three attributes of performance goals, namely difficulty, specificity and incentives. Vroom (1964) studied goal expectancy while Locke et al (1986) researched goal ownership. Each of these will be discussed in the context of personal goal setting.

4.2.1.1 *Goal difficulty, specificity and incentives*

Goal difficulty could be interpreted as the challenge in an individual's work. Goal difficulty should not be confused with task difficulty (Campbell & Ilgen, 1976). There are competing theoretical predictions on how difficulty affects performance. According to Atkinson's (1958) theory, a curvilinear relationship is predicted between probability of success, with performance being the highest (especially if the need for achievement is high) at intermediate (0,50) probability levels, which also implies a moderate goal level.

In contrast to this, the valence-instrumentality-expectancy or VIE theory (Vroom, 1964), discussed in chapter 3, predicted a positive relationship between effort-performance expectancy and performance. Holding V and I constant, Locke and Latham initially found their results to be paradoxical in that they contradicted both theories. They found that the lower the average expectancy of success in reaching one's goal was (which meant the higher the actual goal level), the better the performance would be (Locke, 1968).

Goal specificity refers to the clarity of the goal or the degree to which the goal refers to an explicit versus a vague performance outcome. The typical vague goal which Locke and Latham (1990) used in their studies was one which they borrowed from Mace (1935), namely "do your best". This is a motivational instruction which people, including managers, routinely give to themselves and others. According to Locke and Latham (1990), people do not do their best when they are trying to do their best. The reason for this is that the goal is so vague that it is compatible with a wide variety of performance attainments. Although people trying to do their best typically outperform people trying for an easy goal, they routinely do less well than people who are trying for specific and difficult goals (Locke & Latham, 1990).

It is widely accepted (Locke, 1997) that there are three attributes to motivational action, namely direction, intensity (effort) and duration (persistence). Goals affect all three and as such are mediators of the effect of goals. Goal effects are also mediated by the task strategies people use. Self-efficacy affects effort, persistence and task strategies (Locke, 1997).

Goal directions, goal duration and goal intensity will be discussed in the context of goal specificity.

Goals direct attention and action towards performance outcomes relevant to the goal, and hence, away from other outcomes (Locke, 1997). For example, people trying for high quantity are likely to neglect quality (Bevelas & Lee, 1978), and vice versa. People who are highly committed to attaining difficult, individual goals are less likely to help others with their work since this may distract them from attaining their own goals (Wright, George, Farnsworth & McMahan, 1993).

People can successfully pursue more than one goal providing they can prioritise them according to importance. Performance is best for the goal with the highest priority (Edmister & Locke, 1987). Prioritising can be easier when one goal is difficult and the other is easy (Gilliland & Landis, 1992). When there are two or more goals in the absence of clear priorities, goal conflict may result. When people are pulled in two directions at once, performance on both goals suffers in comparison with people who are trying for only one goal or the other (Locke, Smith, Erez, Chah & Schooner, 1994). Goal differences can

also be a source of conflict between individuals (White & Neale, 1994). When the task requires coordination and cooperation among individuals, the most effective way to motivate high group performance is a combination of group goals and goals for each individual's contribution to the group (Crown & Rosse, 1995).

Setting goals in quantitative terms best attains specificity. If specific, challenging long term goals are set, people benefit from setting specific, proximal goals as a means to the end goals (Bandura & Simon, 1977).

Goal specificity by itself does not necessarily lead to high performance. If goals are specific and easy, performance will be low. However, goals which are specific do reduce the variance in performance compared with goals that are vague, because the performance attainments are more clearcut (Locke, Chah, Harrison & Lustgarden, 1989), assuming that performance is controllable. When specific goals are extremely difficult, variation is increased because some people are better able to attain high levels of performance than others.

Persistence (duration) is enhanced by goal difficulty (LaPorte & Nath, 1976), if individuals are free to decide how much time they wish to spend on the task, and there is commitment to the goal. In bargaining situations, people with difficult goals hold out longer to obtain the deal they want compared with those with easy goals (Neal & Bazerman, 1985). When time is not limited, there may be a partial trade-off between rate of work and duration of work. Self-efficacy enhances persistence and effort.

Goals arouse effort (intensity) in approximate proportion to the difficulty of the goal. Effort is typically revealed in terms of rate of work (Bryan & Locke, 1967). However, effort may also be revealed by direct measurements of physical exertion (Bandura & Cervone, 1986), physiological arousal (Gellatly & Meyer, 1992; Sales, 1970) and subjective effort indices (Brickner & Bukatko, 1987), although the latter is not always a reliable measure (Locke, 1997). Self-efficacy also enhances effort, especially when the individual is faced with obstacles (Bandura, 1986).

In the context of goal incentives, leadership, recognition, rewards, fear and hope will be discussed. According to Locke (1997), it is virtually axiomatic that if people are not really

trying for a goal, then the goal will not lead to improved performance. Thus the ultimate proof of commitment is action, although for practical reasons it is often useful to try to measure commitment before action takes place. Performance corresponds more closely to goals when commitment is high than when it is low. Commitment to high goals means trying not to fall short of them. Commitment to low goals, on the other hand, means not exceeding them, although such commitment can also be interpreted as performing at least up to that level. Commitment is harder to obtain and therefore especially critical when goals are difficult (Erez & Zidon, 1984; Hollenbeck & Klein, 1987). Commitment depends on the conviction that the goal is firstly, important, and secondly, possible to attain or approach (Hollenbeck, Williams & Klein, 1987). There are numerous ways to convince people that a goal is important. These include leadership, for example, the use of legitimate authority and providing a rationale for the goal. Others are role modelling, recognition and inspiration through vision (Kirkpatrick & Locke, 1996). Peer pressure, norms and role models (Earley & Erez, 1991; Earley & Kanfer, 1985) and group cohesion (Klein & Mulvey, 1995) as well as making commitments in public (Hollenbeck et al, 1987) and linking the goal to important personal values are also ways to convince people that the goal is important.

Leader confidence in new subordinates can have a significant effect on follower performance (Eden, 1990). To convince people that challenging goals are possible to achieve or at least approach, it is necessary to induce high efficacy. Bandura (1986, 1997) identifies four methods that can be used to do this.

Firstly, inactive mastery through training should be increased. Secondly, guided instruction and practice should take place. Thirdly, effective role models who are similar to the focal persons should be pointed out or the technique of self-modelling used. Fourthly, Bandura (1997) identified the need to persuade the focal persons that they are capable by giving plausible reasons why they can excel or show people how to interpret their physiological tension in a favourable way, for example, by saying and believing " I have lots of energy".

In the context of rewards, if money is valued, incentives can be used to gain commitment (Wright, 1989). However, in the bonus condition, in which subjects are paid only if they fully attain their goals, performance drops when goals are too hard to reach. People do not

like to be offered incentives which they cannot obtain. Thus to motivate high performance, the incentives must somehow be detached from full goal success. For example, pay could be based on a multitier or piece-rate system so that the more the people do the more they receive, regardless of whether or not they reach the most difficult goal level (Locke & Latham, 1990). Another potential problem with incentive plans is that a person learns on the job so that a difficult goal may soon become too easy and thereby undermine the desire for further improvement.

Related to the literature on the different motivation theories explored in chapter 3 is the concept of fear and hope that individuals have related to rewards.

People can be taught various metacognitive skills or thought control skills, such as how to interpret their past performance difficulties in a positive way so that the knowledge and skill are not fixed but acquirable (Locke, 1997). There is no simple relationship between effort or ability attributions as such and subsequent performance. What is critical is whether the attributions made raise or lower self-efficacy (Bandura, 1997). Mone and Baker (1992) and Thomas and Mathieu (1994) found that self-efficacy increases when past success is attributed to stable causes but does not increase if it is attributed to unstable causes. Conversely, self-efficacy decreases when failure is attributed to stable causes but not when it is attributed to unstable causes, the latter presumably being controllable.

Positive mood indications can also raise efficacy (Baron, 1990). People can be taught to think through detailed plans for implementing their goals (eg Gollwitzer, Heckhausen, & Ratajczak, 1990), a procedure which presumably increases their confidence in being able to attain them.

4.2.1.2 Goal expectancy

Goal expectancy can be interpreted as the expectation that people will achieve their goals. Goal-setting theory (Vroom, 1964) ties in with VIE theory in the realm of commitment in that people are most likely to commit themselves to goals which they think they can attain (in agreement with the social-cognitive theory, discussed in ch 3) and which are perceived as leading to the attainment of value outcomes (Hollenbeck & Klein, 1987), which implies

that the goals are important. People choose high goals when they believe that high performance is important and that they can achieve or approach it (Locke & Latham, 1990).

In this context, self-efficacy with the emphasis on effort, strategies and recognition, and locus of control will be explored.

In the context of goals and self-efficacy, goal theory can be integrated with social-cognitive theory (Bandura 1986, 1997). Especially pertinent is the concept of self-efficacy, which refers to the confidence that one can attain a certain performance level or result. Self-efficacy is related in meaning to the concept of expectancy in VIE theory (Vroom 1964) (which was discussed in ch 3) but is broader in scope.

Expectancy refers to effort-performance expectancy, whereas self-efficacy refers to one's confidence in attaining a given performance achievement, using not just effort but one's total capacity to orchestrate subskills, overcome setbacks, maintain cognitive self-control and solve problems (Locke, 1997).

If goals are assigned, they affect self-set goals and may also affect self-efficacy in that they express confidence in the subordinate. The goal a person sets or accepts has a direct effect on performance, and self-efficacy has a direct and indirect effect, the latter through its effect on goal choice (Earley & Lituchy, 1991).

Self-efficacy should not be confused with locus of control which is a trait rather than a state measure and focuses more on control over the outcomes of performance than performance itself (Bandura, 1997). The relationship between goal difficulty, self-efficacy and performance is shown in figure 4.4.

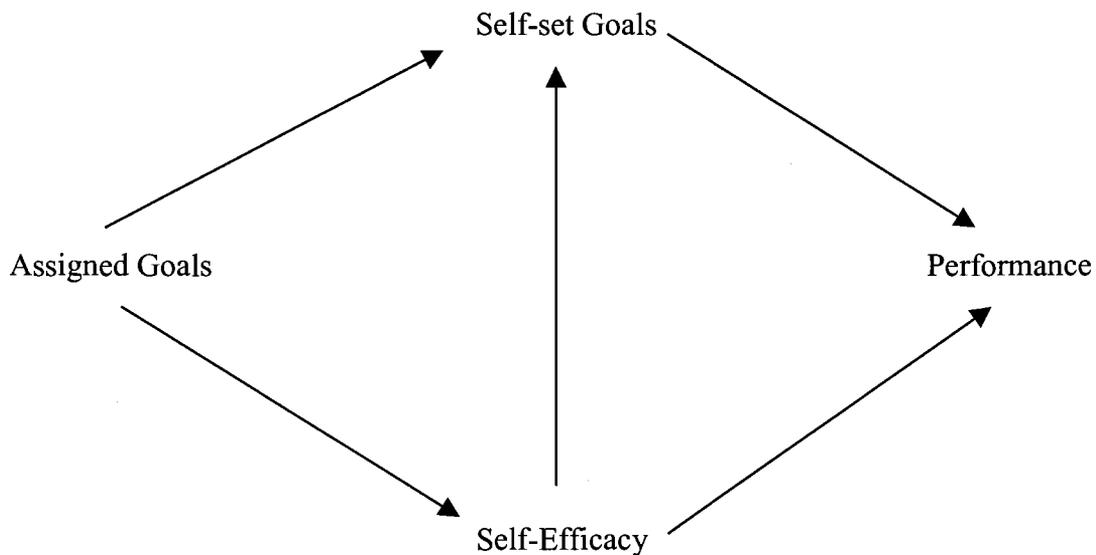


Figure 4.4: The Relationship Between Goals, Self-efficacy and Performance (Locke, 1997)

4.2.1.3 Goal ownership

In the context of goal ownership the effect of the capacity to set one's own work goals will be investigated. A benefit of using self-efficacy rather than expectancy measures in goal setting research is that self-efficacy is measured in terms of confidence in reaching each performance level across a range of performance levels, as opposed to any one performance level. Thus the referent is always held constant (Locke et al, 1986).

As highlighted in the discussion on management theory in chapter 3 and also in Locke's (1997) research, few issues in the history of psychology have been as controversial as that regarding the value of employee participation in decision making (Locke et al, 1997; Locke & Schweiger, 1979). The reason for this is that some have regarded participation as a moral imperative which must be used regardless of the consequences, whereas others view it as a scientific question. The scientific assumption is that participation enhances motivation, especially commitment, by giving subordinates a sense of "ownership" in the decisions that affect them.

Objective analyses, including meta-analyses of the participation literature, however, reveal that it is not a very robust phenomenon in terms of its effects on performance and attitudes (Locke et al, 1997), especially when r-r designs (ie those studies that correlate self-reports of participation with self-reports of performance or satisfaction and as a result may inflate correlations) are eliminated from the analyses (Wagner & Gooding, 1987). The results are no more consistent in the goal setting domain.

Participation has an extremely marginal effect on goal commitment and performance compared with simply telling people what goal to pursue (Locke et al, 1997; Locke & Latham, 1990). The exception is that if goals are assigned in a curt fashion in which no explanation of the rationale for the goals is given, commitment and performance do drop (Latham, Erez & Locke, 1988). Basically, assigned, participative (joint) and self- (delegated) goal setting are all effective compared with not setting specific goals (Locke & Latham, 1990), although most employees may be less likely to set extreme "stretch" goals for themselves as would charismatic leaders who may aspire their followers to perform beyond expectations (Bass, 1985). In the context of goal ownership in relation to personal goal setting, responsibility, opportunity and learning are considered.

As suggested in the literature research in chapter 3, job involvement is defined as the psychological identification with one's work and is highly correlated with both job satisfaction and organisational commitment. However, involvement, unlike commitment, which is related to subsequent action such as turnover, shows little relationship to actions on the job (Brown , 1996).

However, one study has shown it to be related to effort (Brown & Leigh, 1996). Thus involvement may best be viewed, in terms of its effects, primarily as a psychological expression or correlate of satisfaction. Locke (1976) argued that involvement was the result of viewing one's job as important, which can be tied to the values and personality people bring to the job (Brown, 1996), but that does not preclude its being affected by job experiences. In this context of responsibility relating to goal ownership to succeed, the opportunity to set one's own goals is important.

The real value of subordinate participation in decision making is not motivational or commitment enhancing but cognitive (or knowledge enhancing) (Locke, 1997). In other

words, by seeking subordinate input, supervisors or managers can gain knowledge that they would otherwise not have and thus be able to make higher quality decisions than they would be able to make alone. There is increasing evidence that subordinate knowledge and insight can be valuable for the purpose of developing better task strategies (Durham, Knight & Locke, 1997; Latham, Winters & Locke, 1994), assuming subordinates have or can discover relevant knowledge which the supervisor lacks (Scully, Kirkpatrick & Locke, 1995). Locke (1997) and associates have recently reconceptualised participation as a knowledge-exchange device.

4.2.2 Operationalisation of personal goal-setting

The literature in the previous section is analysed and questions constructed relating to the theory. Table 4.2 summarises the questions, and this is followed by a discussion.

TABLE 4.2
PERSONAL GOAL SETTING

2. To what extent are you satisfied with the goal-setting climate in terms of:					
LEVEL 1 (Diagnostic)		LEVEL 2 (Causal)		LEVEL 3 (Corrective)	
2.1	The challenge in your work	2.1.1	How clear and specific your goals are	2.1.1.1	How clear your priorities are
				2.1.1.2	Having enough time to do a good job
				2.1.1.3	The degree to which the workload is challenging and creative, but not stressful
		2.1.2	The existence of realistic rewards for achievement	2.1.2.1	Your leader encouraging you to achieve challenging goals
				2.1.2.2	Believing that you will be recognised for achieving your goals
				2.1.2.3	The rewards that you

 2. To what extent are you satisfied with the goal-setting climate in terms of:

LEVEL 1 (Diagnostic)	LEVEL 2 (Causal)	LEVEL 3 (Corrective)
		will receive for achieving more than the minimum in your work
		2.1.2.4 Recognition of previous successes as well as failures in your work
2.2 The expectation that you will achieve your work goals	2.2.1 Your personal abilities and motivation to achieve work goals	2.2.1.1 Being able to focus all your energy on achieving work goals
		2.2.1.2 The existence of sufficient methods and resources to do the job well
		2.2.1.3 Recognition of your efforts
	2.2.2 Being in control of your own goal achievement strategies	2.2.2.1 The existence of effective methods and resources to do your work
		2.2.2.2 Sufficient resources existing to do your work
2.3 Your capacity to set your own work goals	2.3.1 Taking personal responsibility for your work goals	2.3.1.1 Experiencing a reasonable probability of succeeding in your work
		2.3.1.2 Setting personal goals in your work
	2.3.2 Being allowed to learn from your mistakes as well as successes	2.3.2.1 Receiving sufficient positive feedback on your work
		2.3.2.2 Receiving realistic feedback on your failures

There are three diagnostic questions in level 1 which relate to personal goal setting. These questions were derived from the literature in the previous section. Question 2.1 relates to goal difficulty, question 2.2 to goal expectancy and question 2.3 to goal ownership.

In the context of goal difficulty (item 2.1 in level 1), two causal questions are suggested. A question on goal specificity (item 2.1.1 in level 2) and a question on goal incentives (item 2.1.2 in level 2) are constructed. Related to the causal question on goal specificity (item 2.1.1 in level 2), three questions in level 3 are suggested in order to further analyse the response to item 2.1.1 so that a possible solution to the causal responses may be sought. These questions relate to direction (item 2.1.1.1), duration (item 2.1.1.2) and intensity (item 2.1.1.3).

Related to the causal question on incentives (item 2.1.2 in level 2), four questions in level 3 are developed. These questions relate to leadership (item 2.1.2.1), recognition (item 2.1.2.2), rewards (item 2.1.2.3) and fear and hope (item 2.1.2.4). These questions are designed to suggest possible solutions to the causal question on goal incentives (item 2.1.2 in level 2).

In the context of goal expectancy (item 2.2 in level 1), two causal questions are suggested. A question on self-efficacy (item 2.2.1) and a question on internal locus of control (item 2.2.2 in level 2) are suggested to establish causal factors of goal expectancy. Related to self-efficacy (item 2.2.1 in level 2), three level 3 questions are suggested in order to suggest a possible solution to the causal factor. They are questions on effort (item 2.2.1.1), strategies (item 2.2.1.2) and recognition (item 2.2.1.3).

Related to internal locus of control (item 2.2.2 in level 2), two questions are suggested. They are questions on the qualitative aspects of locus of control (item 2.2.2.1) and the quantitative aspects of locus of control (item 2.2.2.2).

In the context of goal ownership (item 2.3 in level 1), two causal questions are suggested. A question on responsibility related to goal ownership (item 2.3.1 in level 2) and a question on learning related to goal ownership (item 2.3.2 in level 2) are suggested to establish causal factors of goal ownership (item 2.3 in level 1). Related to responsibility (item 2.3.1 in level 2), two level 3 questions are suggested in order to suggest possible

solutions or remedies to the causal factor in 2.3.1. They are questions on opportunity to succeed (item 2.3.1.1 in level 3) and opportunity to set goals (item 2.3.1.2 in level 3).

Related to learning (item 2.3.2) in the context of goal ownership (item 2.3), two questions are suggested. One question relates to the positive aspects, namely that of sufficient feedback (item 2.3.2.1) and the other to feedback on the negative aspects, namely realistic feedback on failure (item 2.3.2.2).

The concludes the conceptualisation and operationalisation, in the context of the development of the organisational climate questionnaire, of the second factor identified by Locke, namely that of personal goal setting. The next variable to be explored is the third variable, namely goal support.

4.3 GOAL SUPPORT

The third primary factor (variable) suggested in Locke's (1997) model of work motivation, namely goal support, will be discussed from a conceptual and operational perspective.

4.3.1 Conceptualisation of goal support

A large variable in work motivation is that of the support people receive to achieve their goal. In this context, group support and organisational support are discussed against the backdrop of the literature study presented in chapter 3.

4.3.1.1 Group support

The achievement of goals and organisational climate is affected by a number of factors. These include cooperation, task synergy, group rewards, task interdependence, information flow, goal conflicts, power blocks and commitment. Among these factors, goal diversity, conflicts and group participation also affect the achievement of goals and so too the organisational climate (Locke, 1997).

Goal setting has generally been studied at the individual level and is supported by the results of several hundred studies, conducted in both laboratory and field settings, using 88 different tasks and more than 40000 subjects in eight countries. These studies were conducted over employed time spans from minutes to years, involving many different measures of performance, including creativity (Shalley, 1991), and many forms of goals, such as assignment, self-set and participative goals (Locke & Latham, 1990).

However, goal-setting effects do not only apply at the individual level. Studies of group goal setting found that specific and difficult goals are superior to other types of goals, as in the case of individuals (O'Leary-Kelly, Mortocchio & Frainke, 1994). Group goals are most suitable on interdependent tasks (Mitchell & Silver, 1990). However, there are potentially complicating factors that can emerge at the group level (Locke, Durham, Poon & Weldon, in press).

These include cooperation versus conflict, communication and interpersonal influence, all of which can help or harm effectiveness, and the need to make all members committed. Individual goals may need to be set for each individual's contribution to the group to prevent loafing. In developing task strategies, it may be difficult for group members to decide who, if anyone has the relevant knowledge, especially since the most influential or dominant member is not necessarily the most able.

Goal setting is also effective at the organisational level. Organisational goal setting used to be called "management by objectives (MBO)" (Locke, 1997), although the term is rarely used today, despite the fact that virtually all organisations set goals of some type. Rodgers and Hunter (1991) reviewed 70 MBO studies and found that outcomes improved in 68 of them, although the MBO studies in question were typically conducted at the department or unit level rather than at the level of the entire organisation.

Rodgers and Hunter (1991) also found that a critical factor in the success of MBO programmes was commitment by top management. Commitment in this case meant personal participation in the MBO programme as opposed to delegating it to lower-level managers. Commitment to goals is also critical at the individual level.

4.3.1.2 Organisational support

In chapter 3, organisational support and leadership was investigated. When studying organisational climate and work motivation, it is also useful to integrate the literature studied in chapter 3 with the literature on self-regulation.

In work settings and many, although not all, laboratory studies, goals are assigned or set particularly with a supervisor or manager (Locke, 1997). There is substantial evidence that with or even without training, goals are or can be used by individuals to manage themselves. Frayne and Latham (1987) and Latham and Frayne (1989) used self-management training to help employees reduce their own absenteeism. Self-goal setting was one of several components in the training programme.

Other components include self-feedback, self-commitment and problem solving. Gist, Bavetta and Stevens (1990) and Gist, Stevens, and Bavetta (1991) successfully trained people to gain and retain salary negotiation skills. Here too, self-goal setting was one of the components. People in fact are continuously setting goals for themselves, including long-term goals. For example, in the AT&T 25-year managerial progress study (Howard & Bray, 1988) personal ambition predicted how many levels the managers would be promoted. The key component of the ambition measure was a one-item question asking the managers how many levels ahead they wanted to move (Howard & Bray, 1988). Incidentally, TAT measures in this study, after new data were added and scoring errors in the original analysis corrected, were only minimally related to managerial progress (Locke, 1997).

4.3.2 Operationalisation of goal support

The literature in the previous section and the literature study presented in chapter 3 were analysed in order to develop questions on goal support. The results are tabulated in table 4.3. The presentation of the table is followed by a discussion.

TABLE 4.3
GOAL SUPPORT

3. To what extent are you satisfied with the support you receive to do your work in terms of:							
LEVEL 1 (Diagnostic)		LEVEL 2 (Causal)		LEVEL 3 (Corrective)			
3.1	The extent to which you can depend on your colleagues to support you	3.1.1	The degree of co-operation which your colleagues give to you	3.1.1.1	The extent to which your work integrates with the work of others		
				3.1.1.2	The existence of group and individual incentives		
				3.1.1.3	Your work being dependent on or having an influence on the work of others		
				3.1.2	The quality, timeliness and accuracy of job-relevant information supplied to you by your colleagues	3.1.2.1	Your goals integrating positively with the goals of others
						3.1.2.2	Information not being used to gain control or influence others
						3.1.2.3	The reliability of information
		3.1.3	The degree to which colleagues are committed to your work	3.1.3.1	Everyone striving for the same results		
				3.1.3.2	Everybody taking part in the work		
				3.1.3.3	Few goal conflicts existing		
				3.1.3.4	The degree to which leaders are committed to actualising their verbal commitments		

3. To what extent are you satisfied with the support you receive to do your work in terms of:

LEVEL 1 (Diagnostic)	LEVEL 2 (Causal)	LEVEL 3 (Corrective)
3.2 The extent to which you know the company backs your work	3.2.1 The extent to which the organisation provides adequate expertise or specialised knowledge for you to do your work	3.2.1.1 The extent to which knowledge is shared across all business units and functions
		3.2.1.2 People being open to alternative viewpoints
		3.2.1.3 We (the employees) being skilled and knowledgeable
	3.2.2 The extent to which the organisation provides adequate direction and focus so that you can do your work well	3.2.2.1 Management who know where we are going in future
		3.2.2.2 The degree to which the organisation has a clear and attractive vision
		3.2.2.3 The organisation's value system being reliable and appealing
3.3 The extent to which you know your manager backs your work	3.3.1 The extent to which your manager provides adequate expertise or specialised knowledge for you to do your work	3.3.1.1 The degree to which knowledge is shared with you by your manager
		3.3.1.2 Your manager being open to alternative viewpoints
	3.3.2 The extent to which your manager provides adequate direction and focus so that you can do your work well	3.3.1.3 Your section being skilled and knowledgeable
		3.3.2.1 Your manager knows where you are going in future

3. To what extent are you satisfied with the support you receive to do your work in terms of:

LEVEL 1 (Diagnostic)	LEVEL 2 (Causal)	LEVEL 3 (Corrective)
		3.3.2.2 The degree to which your manager communicates a clear and attractive vision
		3.3.2.3 Your manager's value system being reliable and appealing

Table 4.3 summarises the questions related to goal support. There are two diagnostic questions related to goal support, namely a question on group support (item 3.1 in level 1) and organisational support (item 3.2 in level 1). Three level 2 questions are suggested in order to determine the causal factors of the response to the diagnostic question on group support (item 3.1). These questions are on cooperation (item 3.1.1), information (item 3.1.2) and commitment (item 3.1.3) in the context of group support.

In the context of cooperation (item 3.1.1), three questions are suggested in order to identify a possible solution to the causal response gained from item 3.1.1. These questions relate to task synergy (item 3.1.1.1), group rewards (item 3.1.1.2) and task inter-dependence (item 3.1.1.3).

In the context of information (item 3.1.2), three questions are suggested in order to identify a possible solution to the causal response gained from item 3.1.2. These questions relate to goal conflicts (item 3.1.2.1), power blocks (item 3.1.2.2) and unreliability (item 3.1.2.3).

In the context of commitment (item 3.1.3), three questions are suggested in order to identify a possible solution to the causal response gained from item 3.1.3. The questions relate to goal diversity (item 3.1.3.1), participation (item 3.1.3.2) and conflicting goals (item 3.1.3.3).

Two level 2 questions are suggested in order to determine the causal factors of the response to the diagnostic question on organisational support (item 3.2). These questions are on knowledge (item 3.2.1) and direction (item 3.2.2) related to organisational support.

In the context of knowledge (item 3.2.1), three questions are suggested in order to identify a possible solution to the causal response gained from item 3.2.1. The questions relate to institutional barriers (item 3.2.1.1), openness (item 3.2.1.2) and lack of skill (item 3.2.2.3).

In the context of direction (item 3.2.2), three questions are suggested in order to identify possible solutions to the causal response gained from item 3.2.2. The questions relate to management vision (item 3.2.2.1), organisational vision (item 3.2.2.2) and the organisational value system (item 3.2.2.3).

This concludes the operationalisation, in the context of the development of the organisational climate questionnaire, of the third factor identified by Locke, namely that of goal support. The next variable to be explored is the fourth variable, namely that of goal directed behaviour.

4.4 GOAL-DIRECTED BEHAVIOUR

The fourth factor/variable of Locke's work motivation model, namely goal-directed behaviour will be discussed from a conceptualisation and an operationalisation perspective.

4.4.1 Conceptualisation of goal-directed behaviour

Based on the work of Mace (1935), Locke (1968) suggested that goals could mediate the effects of incentives on performance. In 1991, Locke suggested that goals might also mediate the effects of needs and values, including personality, on performance. In that paper, Locke (1991), further indicated that self-efficacy (based on Bandura, 1986) should be an added mediator. He called this combination of goals and self-efficacy the "motivation hub" - the hub being where the action is. Locke argued that goals, assuming there was goal commitment, and self-efficacy, were the most immediate, situationally and task-specific, conscious, motivational determinants of action, and the mechanisms through which other incentives operated. These two variables represent what people are trying to do and whether they think they can do it. This model did not deal with subconscious

motivation which could affect action independently of these conscious determinants. The model assumed that ability, knowledge and skill were important but were not included since this was only a motivational model. Incidentally, the social psychology intention models, use intentions and self-efficacy or their equivalent as immediate predictors (Ajzen, 1991).

It is only in recent years, that the beginning of a real body of research relevant to the mediation issue has started to emerge. Previously, Locke (Locke & Latham, 1990) found that the effect of feedback or knowledge of results was mediated by goals. Also there was some evidence that to the extent that participation in decision making did influence the motivation to perform, it did so through its effects on goal commitment and/or self-efficacy (Latham et al, 1988). More recently it was found that job enrichment, that is, increased responsibility, was mediated through goals (Kirkpatrick, 1992), and that charismatic leadership, specifically leadership vision, was mediated through its effects on followers' performance goals and self-efficacy (Kirkpatrick & Locke, 1996). Other studies have found that the effects of assigned goals are mediated through self-set goals and self-efficacy (Locke, in press).

4.4.1.1 Leadership relationships in organisational context

In chapter 3, leadership in the context of organisational climate was studied. Leadership, however, cannot be viewed in isolation and it is therefore useful to take cognisance of the people being led. Given that a person experiences certain emotions and has different reactions to different leadership styles, it is useful to explore this in more depth.

The next question that must be addressed is that, given that a person experiences a certain emotion on the job, what happens? Industrial organisational psychologists have tried to show that job satisfaction was beneficial because it led to high productivity, but in study after study, this hypothesis has been shown to be false (Podsakoff & Williams, 1986). This does not mean that emotions have no relationship to action, but rather that the satisfaction-productivity hypothesis is oversimplified.

Emotions by their nature contain an implicit action tendency (Arnold, 1960). The tendency is to approach, protect or keep objects appraised as beneficial and to avoid objects appraised as harmful. But this is only a tendency of felt urge (Arnold, 1960).

People have the power to override their impulses and avoid things they like, for example, cigarettes, and to approach things they fear, for example, combat or statistics classes, when they are rationally convinced that such a course of action is to their ultimate benefit (Locke & Kristof, 1996). Humans like the lower animals are not preprogrammed to blindly follow their impulses. They have the power to think and decide whether or not to act in response to an emotion and, if they decide to act, they have the power to decide what action to take. Furthermore, there are many subtle variants on approach and avoidance which reflect the human capacity for creative thought.

There are six major classes of response to job satisfaction and/or dissatisfaction (Fisher & Locke, 1992). Of course, responses to dissatisfaction are more interesting and relevant because the usual response to satisfaction is to keep things as they were, although success or satiation can lead to the search for new challenges (Locke, 1997).

In line with the inherent action tendencies involved, people stay on the jobs they like and leave the ones they dislike. The most reliable effect of job dissatisfaction on action is turnover (Hom, Caranikas-Walker, Prussia & Griffeth, 1992). However, turnover is not automatic. If people make a decision to act on their dissatisfaction based on all factors they consider relevant, for example, financial condition or job alternatives, they form an intent to quit which is the more direct precursor to actually quitting (Hom et al, 1992). An intention or a determination to act in a certain way is the equivalent of a goal. Self-efficacy affects such determinations (Ajzen, 1991) as well as directly influencing actions such as job search (Bandura, 1997). Organisational commitment is often a better predictor of turnover than satisfaction, being logically closer in meaning to the intention to quit. Temporary avoidance is possible through absenteeism, although this choice may be constrained by organisational controls. Transfers may be requested if the problem is with the particular job rather than the company.

The work is only one, albeit the most central, aspect of a job (Locke, 1997). People may attempt to avoid doing the actual work by coming late, taking long breaks or doing things

other than the work, say, talking, reading or chatting on the phone. They may become passive and fail to show initiative. Farrell (1983) calls this neglect. On the other side of the coin, people may come early, work through lunch and take work home. Satisfaction is not the only factor here. People's work habits also depend on their values, personality and ambition as well as their enjoyment of the work. People who dislike their work do not always avoid it. For example, they may see the work as a stepping stone to promotion to a better job at a later date or they may view it as a point of honour to do a conscientious job. They may work hard because they need the money and do not want to be fired (Locke, 1997).

A satisfied employee is more likely to engage in organisational "citizenship" behaviours which better the organisation such as helping co-workers, paying attention to customers and passing on information (Organ, 1987).

When employees are unhappy, and especially when they perceive themselves to be the victim of disruptive or procedural injustice, there is a desire to remedy the situation (Locke, 1997). There are many possible ways to do this. The simplest is to complain to their manager or supervisor and attempt to convince their manager or supervisor to correct the problem. This failing, employees can appeal to higher levels of the organisation. This is made easier if the organisation has effective, formal "voice" mechanisms, for example, appeal or grievance procedures. When such procedures are in place, organisational turnover is lower (Spencer, 1986). Employees may also solve problems by changing themselves, for example, improving their education or training to increase their chances of promotion.

If attempts to improve the situation fail, employees may move to other, more extreme, categories of actions (Locke, 1997). One possibility is to become more aggressive. An example would be taking legal action, say, a lawsuit, an increasingly popular remedy in the USA (Locke, 1997). Lawsuits often have a joint purpose, namely to remedy the wrong or obtain compensation for it and punish the wrongdoer.

If employees decide that redress is impossible, an alternative is simply to get even (Locke, 1997). Depending on the employees' preferences and moral scruples, retaliatory action may involve theft, vandalism, sabotage, lying, leaking unsavoury information to the press,

giving away secrets to competitors, or undermining morale say, starting rumours and badmouthing managers.

Whereas vengeful actions are motivated by the desire to harm the organisation, defiant actions, such as disobeying orders, flouting rules and regulations, skipping meetings, failing to follow instructions, talking back and the like are more likely to be motivated by the desire to assert oneself, not be pushed around, or to get even on a more quid pro quo basis (Locke, 1997).

Sometimes no overt action is taken in response to job dissatisfaction (Locke, 1997). Employees may not know what to do or have the nerve to do it or may not think action is appropriate. Adjustment may involve changing their aspirations or values to match organisational realities, by, say, lowering their promotion or pay goals. It may also involve suppression of feelings or even psychological dissociation from the job, making it unimportant. In more extreme cases, it could mean alcohol and drug abuse to mask painful emotions. Those who can afford it may seek psychological counselling (Locke, 1997).

It should be stressed that all the actions noted may be taken for reasons other than job dissatisfaction (Locke, 1997). Employees may resign, not because they dislike the present job, but because another job is more in line with their long-term goals. Others may steal because they want unearned benefits, or may defy their manager or supervisor for reasons of poor mental health, for example, repressed anger at their father.

It remains, however, to explain, in those cases where dissatisfaction does lead to action, how employees choose among the various alternatives (Locke, 1997). According to Locke (1997), this issue has not been studied much to date, so what follows is somewhat speculative. It can be safely assumed that many factors come into play (Locke, 1997).

Moral values are one factor (Locke, 1997). One person will steal with little or no provocation while another will not, even under extreme provocation. Another factor is personality (Locke, 1997). An extrovert may be more likely to engage in organisational citizenship behaviour than an introvert. A person with high self-esteem may feel more deserving of satisfaction than one with low self-esteem and therefore be more prone to take action to attain it. At the task-specific level, people with high self-efficacy for a certain type of action, say, protesting to their manager, will be more likely to take that

action than individuals with low self-efficacy. An organisation which has a reputation for just dealings and well-publicised appeal mechanisms is likely to encourage more constructive protest than one with a reputation for cavalier or unjust treatment (Locke, 1997).

4.4.1.2 Task strategies

When a task is nonroutine, specific, difficult goals stimulate planning in general (Smith, Locke & Barry, 1990), and the search for specific goal relevant strategies (Audia, Kristof-Brown, Brown & Locke, 1996).

If effective task strategies are already known, based on previous experience or on recent training, then specific difficult goals increase the likelihood that such strategies will be used and performance is thus enhanced (Earley & Perry, 1987; Latham & Baldes, 1975).

This is not merely an issue of automatic activation, although this may occur if people are "primed" through training or instruction, but also of a deliberate choice to use the strategies that work best. When people have to discover appropriate or effective task strategies on their own, those who are able to discover effective strategies, and have specific difficult goals, perform best. This interaction, which is actually a moderator effect supplements or supersedes the main effects of goals and strategies (Chesney & Locke, 1991; Durham et al, 1997). There is often a time lag in the effect of goals on performance (Audia et al, 1996; De Shon & Alexander, 1996; Smith et al, 1990) which is a result of subjects having to discover suitable strategies. This is most likely to occur in complex tasks or tasks where there are multiple paths to the goal (Locke, 1997).

When subjects are given new complex tasks without training and are pressured with difficult goals and limited time, they often, but not always (Cervone et al, 1991) fail to develop effective strategies because of "tunnel" vision and unsystematic planning. They therefore perform no better or worse than a subject with "do your best" goals (DeShon & Alexander, 1996; Earley, Connolly & Ekegren, 1989). Cervone et al (1991) discovered that subjects with difficult goals who were dissatisfied with their progress actually worked harder and yet used poorer analytic strategies than subjects who were satisfied. De Shon

and Alexander (1996) found that increasing the time allowed for strategy discovery resulted in a subject with specific, difficult goals discovering better strategies and outperforming a subject with "do best" goals.

In addition to allowing more time for planning, a subject when given difficult goals on complex tasks, may benefit from initially being given learning goals rather than performance goals (Winters & Latham, 1996).

A person with high self-efficacy is more likely than a person with low self-efficacy to discover effective task strategies (Latham et al, 1994; Wood & Bandura, 1989). Selecting effective strategies, in turn, enhances self-efficacy (Locke, 1997).

4.4.1.3 Personal skills, ability and personality

The largest number of mediation studies to date have been done on personality (Locke, 1997). Although personality traits are not strongly related to work performance, meta-analysis indicates that there are consistent effects of some "big five" dimensions on work performance, especially conscientiousness (Barrick & Mount, 1991). Thus far, eight different studies have found that self-set goals and self-efficacy partially or fully mediated the effects of personality traits on performance (Locke, in press). For example, Lerner and Locke (1995) found that the effect of sports competitiveness on sit-up performance was completely mediated by those two variables. Similarly, Gellatly (1996) found that the effects of conscientiousness on the performance of an arithmetic task were fully mediated by expectancy, a self-efficacy measure and personal, self-set goals. This result is shown in figure 4.5.

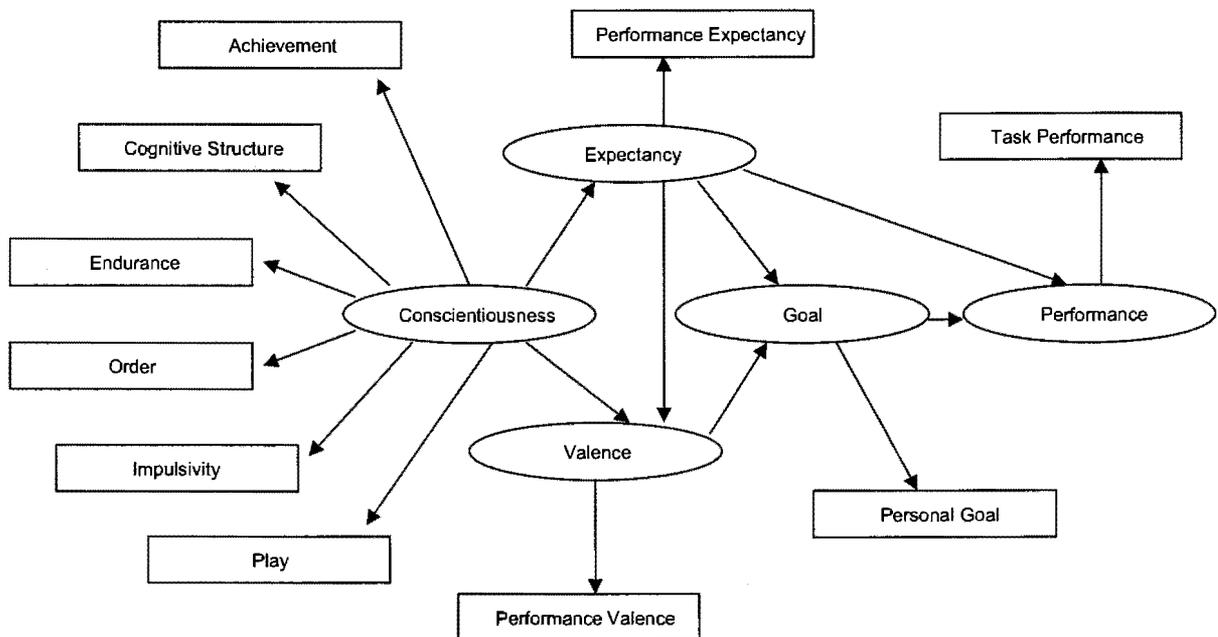


Figure 4.5: Mediation of the Relationship of Personality to Performance by Goals and Self-efficacy (From Gellatly, 1996; copyright by American Psychological Association)

The two laboratory studies (Locke, 1997) were complemented by a field study of sales representatives. Goals and goal commitment partially mediated the effects of conscientiousness and sales. Self-efficacy was not measured. In this example the need theories discussed in chapter 3, for example Maslow's (1962) need hierarchy theory, have not been included. According to Locke (1997), the reason for this is that although people are born with needs (Locke, McClelland & Knight, 1996), there is no evidence that they are born with any built-in need hierarchy or that one could use Maslow's theory to make any predictions about job performance (Locke, 1976; 1991). Although needs do motivate action, there are many steps between the existence of needs or the experience of need deprivation and action, including discovering what a person's needs are, discovering how to satisfy them, allocating priorities among them, finding the time and resources to satisfy them or anticipate them and taking specific actions in specific situations in order to fulfil them. Very little can be predicted from simply knowing that a person has a need or even that a need has been frustrated, because there are many possible reactions to need deprivation and many alternative paths to the satisfaction or attempted satisfaction of most needs (Locke, 1997).

Certainly it can be predicted that all surviving civilisations will find a way to produce and store food, but this is a long way from predicting what a given individual will do to obtain nourishment on a given day in a given circumstance (Locke, 1997).

4.4.2 Operationalisation of goal-directed behaviour

The literature in the previous section and the literature study presented in chapter 3 were analysed in order to develop questions on goal-directed behaviour. The results are tabulated in table 4.4. A discussion follows the presentation of the table.

TABLE 4.4
GOAL-DIRECTED BEHAVIOUR

4. In carrying out your job responsibilities, how satisfied are you with:				
LEVEL 1 (Diagnostic)	LEVEL 2 (Causal)		LEVEL 3 (Corrective)	
4.1 The leadership style and behaviour of your manager/supervisor	4.1.1	Knowing exactly what your manager wants from you	4.1.1.1	Experiencing sufficient freedom to choose
			4.1.1.2	Knowing the standards, expectations and performance requirements for your job
			4.1.2.1	Social and friendship activities within your group
	4.1.2	Experiencing a rewarding relationship with your manager	4.1.2.2	Having sufficient opportunity to make your contributions to decisions
			4.1.3.1	The example set by your manager
			4.1.3.2	Your manager's ability to get the best out of you
	4.1.3	Being developed by your manager	4.1.3.3	Being developed to your fullest potential
			4.2.1.1	Being able to do quality work
4.2	The existing work	4.2.1	The work methods	

 4. In carrying out your job responsibilities, how satisfied are you with:

LEVEL 1 (Diagnostic)	LEVEL 2 (Causal)	LEVEL 3 (Corrective)
methods and procedures which are available to you	and equipment which are available to you	4.2.1.2 Being able to meet the targets in your work
	4.2.2 The extent to which working procedures and rules assist you in your work	4.2.2.1 Working procedures and rules providing sufficient direction in your work
		4.2.2.2 Working procedures and rules providing sufficient freedom to do your work effectively
4.3 The degree to which your own skills and abilities have been developed and are applied in your work	4.3.1 The extent to which your work requires your skill and abilities	4.3.1.1 The extent to which your skills are fully applied in your work
		4.3.1.2 The extent to which your skills are suited to your work
	4.3.2 The degree to which your skills and abilities are developed	4.3.2.1 Being continuously trained and developed for your work
		4.3.2.2 The extent to which your manager coaches you to do your work
		4.3.2.3 Given an opportunity to experience and practise your newly learnt skills
4.4 The level and availability of the resources (time, equipment, people, money) to enable you to do your work	4.4.1 The people available to do your work	4.4.1.1 Having sufficient human resources to do the work
		4.4.1.2 The quality of human resources to do the work
		4.4.1.3 The appropriateness of human

 4. In carrying out your job responsibilities, how satisfied are you with:

LEVEL 1 (Diagnostic)	LEVEL 2 (Causal)	LEVEL 3 (Corrective)
		resources to do the work
	4.4.2 The equipment and technology available to do your work	4.4.2.1 Having sufficient technology and equipment to do the work
		4.4.2.2 The quality of technology and equipment to do the work
		4.4.2.3 The appropriateness of technology and equipment to do the work
	4.4.3 The extent to which monetary resources are applied fairly, equally and appropriately	4.4.3.1 Having sufficient monetary resources to do the work
		4.4.3.2 The quality of monetary resources to do the work
		4.4.3.3 The appropriateness of monetary resources to do the work

Table 4.4 summarises the questions related to goal-directed behaviour. There are four diagnostic questions related to goal-directed behaviour, namely questions on leadership (item 4.1 in level 1), task strategies (item 4.2 in level 1), personal skills and abilities (item 4.3 in level 1) and resources (item 4.4 in level 1).

Three level 2 questions are suggested in order to determine the causal factors of the response to the diagnostic question on leadership (item 4.1). These questions are on tasks (item 4.1.1), relationships (item 4.1.2) and development (item 4.1.3) in the context of leadership.

In the context of task (item 4.1.1), two questions are suggested in order to identify a possible solution to the causal response gained from item 4.1.1. These questions relate to coerciveness (item 4.1.1.1) and authority (item 4.1.1.2).

In the context of relationships (item 4.1.2), two questions are suggested in order to identify possible solutions to the causal response gained from item 4.1.2. These questions relate to affiliation (item 4.1.2.1) and democracy (item 4.1.2.2).

In the context of development (item 4.1.3), two questions are suggested in order to identify possible solutions to the causal response gained from item 4.1.3. These questions relate to pace-setting (item 4.1.3.1) and coaching (item 4.1.3.2).

Two level 2 questions are suggested in order to determine the causal factors of the response to the diagnostic question on task strategies (item 4.2). These questions are on work methods (item 4.2.1) and work procedures (item 4.2.2) in the context of task strategies.

In the context of work methods (item 4.2.1), two questions are suggested in order to identify a possible solution to the causal response gained from item 4.2.1. These questions relate to qualitative measures (item 4.2.1.1) and quantitative measures (item 4.2.1.2).

In the context of work procedures (item 4.2.2), two questions are suggested in order to identify a possible solution to the causal response gained from item 4.2.2. These questions relate to direction (item 4.2.2.1) and freedom (item 4.2.2.2).

Two level 2 questions are suggested in order to determine the causal factors of the response to the diagnostic question on personal skills and abilities (item 4.3). These questions are on optimisation of skill (item 4.3.1) and development of skill (item 4.3.2) in the context of personal skills and development.

In the context of optimisation of skill (item 4.3.1), two questions are suggested in order to identify a possible solution to the causal response gained from item 4.3.1. These questions relate to suboptimisation (item 4.3.1.1) and misoptimisation (item 4.3.1.2).

In the context of development of skill (item 4.3.2), three questions are suggested in order to identify a possible solution to the causal response gained from item 4.3.2. These questions relate to training (item 4.3.2.1), coaching (item 4.3.2.2) and opportunity (4.3.2.3).

Three level 2 questions are suggested in order to determine the causal factors of the response to the diagnostic question on resources (item 4.4). These questions are on human resources (item 4.4.1), technology resources (item 4.4.2) and financial resources (item 4.4.3).

In the context of each of the questions in level 2, three level 3 questions are suggested in order to identify possible solutions to the causal response gained from items 4.3.1 and 4.3.2. These questions relate to quantitative, qualitative and appropriateness aspects of each of the items in level 2.

This concludes the conceptualisation and operationalisation, in the context of the development of the organisational climate questionnaire, of the fourth factor identified by Locke, namely that of goal-directed behaviour. The next variable to be explored is the fifth variable, namely goal achievement.

4.5 GOAL ACHIEVEMENT

The fifth variable of Locke's (1997) work motivation model, namely goal achievement, will be discussed from a conceptualisation and operationalisation perspective.

4.5.1 Conceptualisation of goal achievement

The importance of goal achievement will be discussed in the context of success, rewards, incentives, opportunities, and task and goal difficulty.

It is well established that both individual and group incentive schemes, when properly designed, motivate higher productivity (Kopelman, 1986). However, Lee, Locke and Phan (1997) found that the effects of various types of money incentives, such as piece-rate versus bonus, were fully mediated by self-set goals and self-efficacy.

The incentives motivated performance through their effects on the goals the subjects set in response to them and their degree of confidence. Other researchers (Wright, 1989) have

also identified the mediation effects of incentives. The concept of feedback is related to this.

The concept of feedback has a long and somewhat contentious history in psychology (Kluger & DeNisi, 1996). To begin with, a distinction is made between instructive feedback, which tells people what they are doing wrong and/or how to improve, and knowledge of progress of score or results. Usually the first type is directly, although not inevitably, beneficial in that it provides task knowledge. Goals themselves may stimulate knowledge seeking, if relevant information is accessible (Kluger & DeNisi, 1996).

Knowledge of results or progress is a moderator of the effect of goals on subsequent performance. It is most effective, and usually only effective, if individuals have knowledge of their progress in relation to the goal (Erez, 1977; Locke & Latham, 1990). For example, individuals who are progressing at a slower rate than required to meet the goal, need to know this in order to be able to adjust their effort level or change their strategies.

Individual who are exceeding their goals, but only to meet it, need to know that they can continue as they were or even slow down. In the absence of such information, people have to rely on subjective judgments of the adequacy of their progress, and these are often inaccurate (Locke, 1997).

On the other side of the goal-feedback coin, goals mediate the effect of knowledge of results on subsequent performance. Feedback leads to the setting of high goals which is most likely to improve performance (Locke, Cartledge & Koeppel, 1968). Self-efficacy also plays a critical role. Individual who receive negative information on their progress are most likely to improve subsequently if they set high goals and have high efficacy (Bandura & Cervone, 1986; Locke & Latham, 1990).

Performance goals are simultaneously ends to aim for and standards by which to judge a person's performance (Bandura, 1986; Locke & Latham, 1990). These are not two separate estimates or motivational elements but two sides of the same coin. To commit to and aim for a goal means to consider the attainment of that goal to be desirable and the

failure to attain it undesirable. Therefore reaching the goal leads to satisfaction and not reaching it produces dissatisfaction (Lewin, 1958).

Given this, there must be a strong relationship between frequency of success in attaining goals and satisfaction with performance (Locke & Latham, 1990). However, a number of interesting theoretical puzzles arise here. For example, high goals lead to less performance satisfaction than easy ones (Locke, 1997). This may seem paradoxical, but figure 4.6 reveals the explanation.

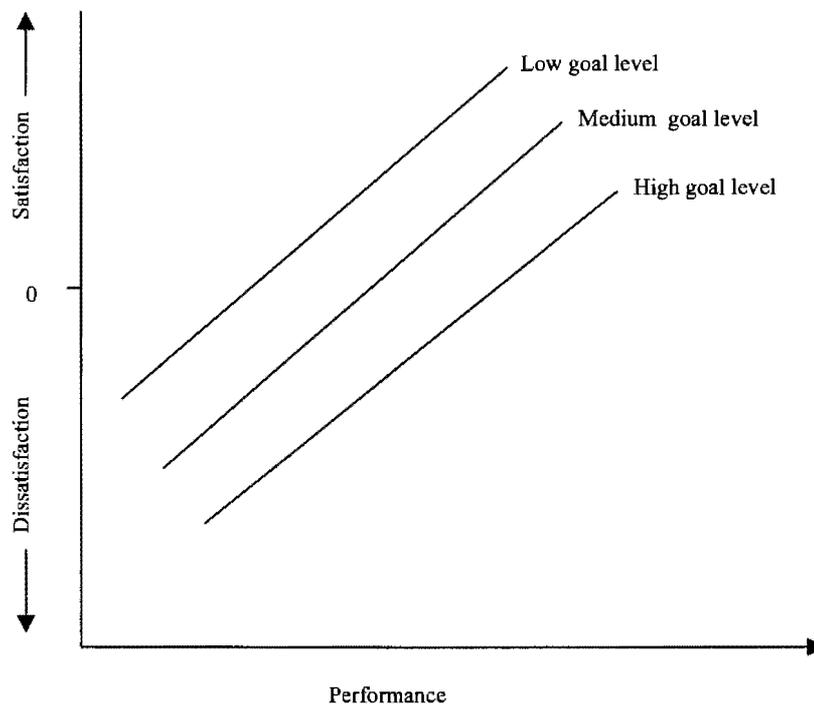


Figure 4.6: Relationship of Goal Level (Difficulty) and Performance to Satisfaction (Locke, 1997)

Easy goals are set in the satisfaction “bar” at a low level. Thus, attaining the goal is satisfying and attaining a performance level higher than the goal is even more satisfying. Difficult goals set the “bar” much higher. For people with high goals, reaching the easy goal level produces dissatisfaction, and reaching the difficult or hard goal level turns dissatisfaction into satisfaction, but not as much satisfaction as for the easy goal people who, if they perform at this level, have greatly exceeded their goals (for empirical data, see Mento, Locke, & Klein, 1992).

In view of this, one may ask why hard goals are more motivating than easy goals if they provide less performance satisfaction? The answer is implicit in the question. It is because people with high goals demand more of themselves in order to feel satisfied that they need to strive harder than people with easy goals (Locke, 1997).

The question arises here as to why everyone does not set easy goals and feel good with minimal effort. There are two answers to this. Firstly, in life, the greatest rewards, for example, best salaries, most challenging jobs, go to those who achieve the most (Locke, 1997). Thus in VIE theory terms, high goals are more instrumental than low ones (Mento et al, 1992). Secondly, people choose goals based, in part, on their self-concept or ideals for self, namely the kind of person they want to be. Thus the person would say: "Settling for less just isn't me" or "That's not how I see myself or my life". The two answers are not unrelated. The self-concept can involve specific outcomes which a person plans to achieve (Locke, 1997).

Satisfaction is not only a matter of the number of successes in relation to the goal and the level of the goal (Locke & Latham, 1990). Satisfaction can also be affected by more than one goal or standard, for example, the goal for this trial, and also progress in relation to an end goal and changes in standards over time. The trajectory of performance, that is whether or not it is improving, the importance of the goal or how it is tied into deeper values such as achievement and life success and important needs such as self-esteem can also affect satisfaction. The degree of deviation above or below the standard, and causal attributions, for example, whether success or failure was caused by an individual or someone else may similarly affect satisfaction. Thomas and Mathieu (1994), for example, found that satisfaction with success was experienced only if the success was attributed to the self.

Deci and Ryan (1985) have argued that money incentives undermine task interest. However, subsequent research has found their theory to be wanting in a number of respects (Bandura, 1986; 1997; Locke & Latham, 1990). Firstly, Deci and Ryan (1985) use their preferred measure of interest, namely the free time spent on the task after the incentives have been withdrawn. In business settings, however, the purpose of incentives is to motivate a person to work hard while the incentives are in effect (Locke, 1997). Secondly, studies have shown that the effect of incentives using the Deci experimental paradigm

depends on whether there is high initial interest in the task. If initial interest is high, incentives do not affect interest (Bandura, 1986). Thirdly, the effect of incentives depends on whether or not they are framed as payments for excellent performance. Such forms of payment can raise self-efficacy and subsequently enhance interest (Locke, 1997). Fourthly, an explanation for Deci and Ryan's (1985) original findings remains elusive. They theorise that incentive schemes lower interest because, or to the extent that, they undermine the needs for autonomy and competence, but mediator studies have not been conducted to verify this explanation using free time spent on the task as the criterion (Locke, 1997).

Bandura (1986; 1997), however, has shown that self-efficacy, which is closely related to the idea of competence but not part of Deci's model, is a critical element in the development of task interest.

A meta-analysis of the "Deci effect" (Eisenberger & Cameron, 1996), reveals that using free time spent on the task as the dependent variable, rewards only undermined motivation, in other words, reduced time spent on the task, with the rewards that were tangible, expected (announced in advance), and independent of performance, for example, pay for participation rather than for attainment. All other combinations had either no detrimental effect, for example, pay for attainment or a beneficial effect like verbal recognition or praise on subsequent interest. Using attitudes, for example, expressed in task interest as the dependent variable, revealed no detrimental effect of rewards and beneficial effects for verbal rewards and for tangible rewards based on normative attainments. These results indicate that rewards are not inherently demotivating even after they have been taken away (Eisenberger & Cameron, 1996).

There is a consistent, strong relationship between job satisfaction and organisational commitment, which involves the desire to remain with and accept the goals of the organisation (Locke & Latham, 1990). There is some debate over the issue of which causes which, but the main causal sequence appears to be: satisfaction – commitment, the argument being that people commit themselves to an organisation because they are getting what they want from it and presumably expect to do so in the future (Locke, 1997).

Ability, (also discussed briefly in ch 3) has a direct effect on performance, although this may be partly or wholly mediated by self-efficacy (Bandura, 1986; 1996). There is some, although not conclusive, evidence that ability and goals may interact to boost performance (Locke & Latham, 1990). In other words, high goals may enhance the benefits of high ability or vice versa.

Wood, Mento and Locke (1987) found that goal effects were greater on simple tasks than on complex ones. The reasons, as implied earlier, are that firstly, on complex tasks, and even some simple but multipath tasks (Audia et al, 1996), the issue of effective strategies is usually more critical than on simple tasks since there are many more possible paths to the goal, some of which work much better than others. Secondly, goals do not always lead a person to choose the best strategies, especially, as noted earlier, on new complex tasks for which there is no training and high pressure to perform.

4.5.2 Operationalisation of goal achievement

The literature in the previous section and the literature study presented in chapter 3 are analysed in order to develop questions on goal-directed behaviour. The results are tabulated in table 4.5. A discussion follows the presentation of the table.

TABLE 4.5
GOAL ACHIEVEMENT

5. In the achievement of your goals, how satisfied are you with:					
LEVEL 1 (Diagnostic)		LEVEL 2 (Causal)		LEVEL 3 (Corrective)	
5.1	Your success and the rewards you receive for goal attainment	5.1.1	The quality, timeliness and adequacy of feedback you receive	5.1.1.1	The extent to which feedback relates to the work done and provides more knowledge
				5.1.1.2	The opportunity to self-correct by using knowledge gained from feedback
				5.1.1.3	The relevancy of feedback to

 5. In the achievement of your goals, how satisfied are you with:

LEVEL 1 (Diagnostic)	LEVEL 2 (Causal)	LEVEL 3 (Corrective)
		goals and progress
	5.1.2 The fairness and consistency of rewards in relation to your effort	5.1.2.1 The relevancy of rewards to effort
		5.1.2.2 The appropriateness of rewards relative to work
		5.1.2.3 How timely and regular rewards are
		5.1.2.4 The relevance of the ways in which you are recognised for your effort
	5.1.3 The extent to which you perform at your personal best	5.1.3.1 How achievable and reasonable your goals are
		5.1.3.2 The importance of your goals to organisational success
	5.1.4 The opportunity you have to exchange information and knowledge about the work	5.1.4.1 Opportunities to learn from others
		5.1.4.2 Opportunities to exchange information
	5.1.5 How capable, trained and coached you are for the work you do	5.1.5.1 Your competence to perform the work
		5.1.5.2 The extent to which you are coached to perform the job
	5.1.6 The complexity, pressures and stress of your work	5.1.6.1 The extent to which your work is too complex relative to your abilities
		5.1.6.2 The extent to which your work is too simple relative to your abilities
		5.1.6.3 The extent to which your

5. In the achievement of your goals, how satisfied are you with:

LEVEL 1 (Diagnostic)	LEVEL 2 (Causal)	LEVEL 3 (Corrective)
		work load is too high relative to your capabilities
		5.1.6.4 The extent to which your work load is too little relative to your capabilities
		5.1.6.5 Excessive pressure and stress to do your job being present
		5.1.6.6 Too little pressure on doing your work

Table 4.5 summarises the questions related to goal achievement. There is one diagnostic question related to goal achievement, namely a question on success and rewards (item 5.1 in level 1).

Six level 2 questions are suggested in order to determine the causal factors of the response to the diagnostic question on success and rewards. These questions are on feedback (item 5.1.1), congruency of rewards (item 5.1.2), commitment (item 5.1.3), participation (item 5.1.4), ability (item 5.1.5) and task complexity (item 4.1.6) in the context of success and rewards.

In the context of feedback (item 5.1.1), three questions are suggested in order to identify a possible solution to the causal response gained from item 5.1.1. These questions relate to instructiveness (item 5.1.1.1), opportunity to learn (item 5.1.1.2) and progress indication (item 5.1.1.3).

In the context of congruency of rewards (item 5.1.2), four questions are suggested in order to identify a possible solution to the causal response gained from item 5.1.2. These questions relate to relevance (item 5.1.2.1), compensation (item 5.1.2.2), timeliness (item 5.1.2.3) and manner (item 5.1.2.4).

In the context of commitment (item 5.1.3), two questions are suggested in order to identify a possible solution to the causal response gained from 5.1.3. These questions relate to goal difficulty (item 5.1.3.1) and goal importance (item 5.1.3.2).

In the context of participation (item 5.1.4), two questions are suggested in order to identify possible solutions to the causal response gained from 5.1.4. These questions relate to knowledge transfer (item 5.1.4.1) and information (item 5.1.4.2).

In the context of ability (item 5.1.5), two questions are suggested in order to identify possible solutions to the causal response gained from item 5.1.5. These questions relate to competence (item 5.1.5.1) and coaching (item 5.1.5.2).

In the context of task complexity, six questions are suggested in order to identify possible solutions to the causal response gained from item 5.1.6. These questions relate to the task being too complex (item 5.1.6.1), the task being too simple (item 5.1.6.2), a high work load (item 5.1.6.3), a low work load (item 5.1.6.4), high pressure (item 5.1.6.5) and low pressure (item 5.1.6.6).

This concludes the conceptualisation and operationalisation, in the context of the development of the organisational climate questionnaire, of the fifth factor identified by Locke, namely goal achievement. The next variable to be explored is the sixth variable namely, quality of work life.

4.6 QUALITY OF WORK LIFE

The sixth factor / variable suggested by Locke (1997) in his work motivation model, namely quality of work will be discussed from a conceptualisation and operationalisation perspective.

4.6.1 Conceptualisation of quality of work life

Satisfaction with the job is not solely a function of perceived degree of success in meeting performance goals. Several other work motivation theories identify job values other than task success. In the context of quality of work life, values, scope and challenge, relationships with co-workers, policies and procedures, and care and security will be discussed.

4.6.1.1 Values

Goals are the specific form of values. For example, if people value ambition, they may set a goal in order to be promoted to the next position. If they value improvement in their knowledge or being a good student, they may set a goal to obtain a high score. Achieving specific goals is a means to attaining values. The same is true in the realm of moral values and virtues. The question on how a person attains the value of honesty may be answered by resolving to be honest in each and every situation one encounters - although there are exceptions, such as when one is confronted by a criminal (Locke & Woiceshyn, 1995).

Value judgments in terms of the role of emotions are important (Locke, 1997). Brain disorders and hormonal imbalances aside, emotions are the form in which people experience automatic, subconscious appraisals of objects, actions, events, ideas or actions according to the standard of their explicit or implicit values (Locke, 1976; Locke & Latham, 1990). The appraisal theory of emotions was first presented in philosophy by Rand (1964) although conceptualised earlier, and in psychology by Arnold (1960) and later by Lazarus (Lazarus & Folkman, 1984). Only Rand (1964) explicitly identified the fact that the appraisal process involves values, or more specifically, value judgments.

Emotions also involve stored conceptual and perceptual knowledge, for example before individuals can fear a bear they have to perceive that it exists and has the potential to harm them (Locke, 1997). Every emotion is the result of a particular type of value appraisal, for example, guilt when people have violated a moral value, anxiety when there is a future threat to their well-being, anger when someone took an action he/she should not have taken, love when some object or person is an important value, and so forth. The emotion

of satisfaction is the result of the appraisal, for example, they got or have what they wanted. All emotions are a form of implicit psychological measurement, namely this object, event or person to some degree furthers or threatens his/her values, including the value he/she places on himself/herself (Locke, 1997).

4.6.1.2 Scope and challenge

Hackman and Oldham's (1980) job characteristics theory asserts that work attributes such as variety, feedback, personal importance of the work, autonomy and responsibility, and identity, say when completing a whole piece of work, foster job satisfaction.

The integrating theme across these attributes can be called job scope or job challenge. There is strong evidence supporting the relationship of the above dimensions to job satisfaction (Locke & Henne, 1986; Stone, 1986). The relationship tends to be stronger for those who place greater value on growth (Oldham, 1996).

4.6.1.3 Relationships with co-workers

There is a consistent, strong relationship between job satisfaction and organisational commitment, which involves the desire to remain with and accept the goals of the organisation (Locke & Latham, 1990). In the context of the literature study in chapter 3, it is important to integrate the content with some of the other causal factors of job satisfaction, more specifically that of personal dispositions or traits, which are related to relationships between co-workers.

The traits of positive and negative affectivity have been the most frequently discussed dispositional traits, especially the latter (Watson & Clark, 1984). Negative affectivity has been treated as being equivalent to neuroticism. Positive affectivity is less clearly understood, but has sometimes been viewed as extroversion and at other times as positive mood on a mood scale such as the a positive and negative affectivity scale (PANAS) (Watson, Clark & Tellegen, 1988).

Judge, Locke and Durham (1997) conceptualised positive affectivity as involving such traits as self-esteem, generalised (not task-specific) efficacy, locus of control and optimism. In their study of dispositions in relation to job attitudes, they measured these and other dispositions such as, neuroticism, trust in others and a benevolent versus malevolent world view using both self-reports and reports of significant others. They found that a bipolar factor focused around the theme of self-esteem, generalised (not task-specific) efficacy and internal locus of control versus neuroticism and had strong direct and indirect effects on job satisfaction in two cultures.

The indirect effect was through the relation of dispositions to the perception of job attributes. Those with high self-esteem were more likely to see the job as possessing Hackman and Oldham's (1980) core work attributes, for example, variety and autonomy than those with low self-esteem. Trust in others' and a person's world view had no effect on job or life satisfaction over and above that attributable to self-esteem. It is worth considering, in this context, whether people's views of others and the world are shaped fundamentally by their view of themselves (Locke, 1997).

The question to answer is whether people who like themselves and have confidence in their ability to function in the world thereby assume, at least in a free country, that the world is a benevolent place where values are achievable and that other people are a source of pleasure rather than a threat, or whether people who believe they are unworthy and inefficacious, thereby conclude that the world is a dangerous place and that other people will hurt them (Locke, 1997).

4.6.1.4 Policies and procedures

Key to any financial organisation and the management thereof are policies and procedures (Roux, 1996). The impact and success of these are influenced by the fairness and application thereof. A meta-analysis by Brockner and Wiesenfeld (1996) revealed that distributive and procedural justice have an interactive effect on satisfaction. This is shown in figure 4.7.

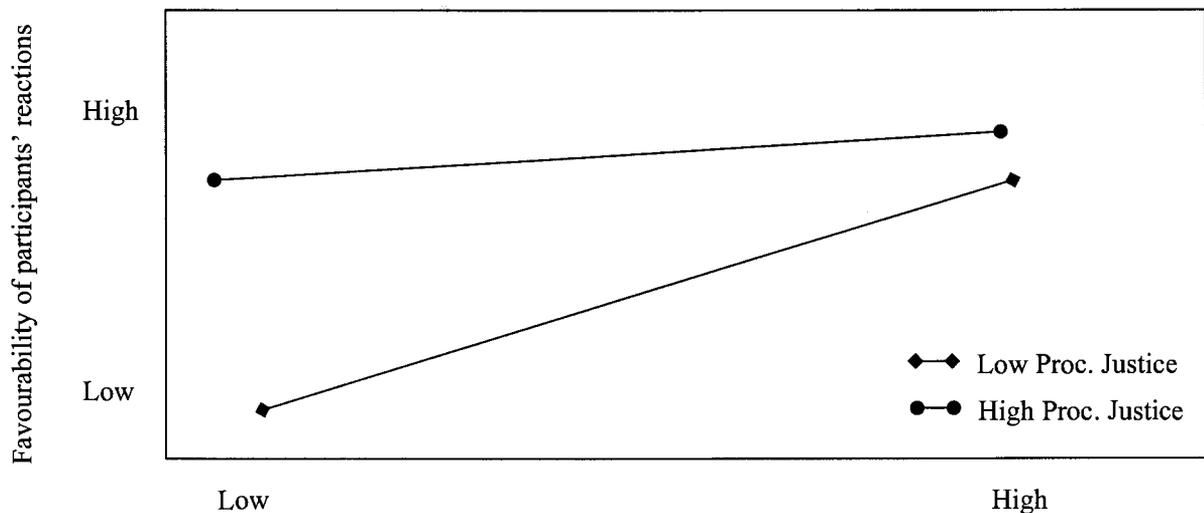


Figure 4.7: Relationship of Outcome Favourability and Procedural Justice to Participant Reactions (Brockner & Wiesenfeld, 1996)

The key result is that a person is most dissatisfied when both distributive and procedural justice are low. If distributive justice is high, a person is not affected by procedural issues and, if procedural justice is high, a person is not upset by distributive problems. The interesting point is that high procedural justice can compensate for low distributive justice, but not vice versa (Locke, 1997). This is consistent with the equity theory (Adams, 1965).

Equity relates to the value of fairness and justice, especially in administering rewards. Adam's (1965) theory of equity focuses on the effect of distributive justice, specifically the ratio of the focal person's outputs, for example, wages, to inputs, performance compared with the ratios comparison of others. People feel dissatisfied when they believe that rewards have been distributed unjustly (Adams, 1965).

In recent years, another justice theory has gained popularity (Locke, 1997). This theory focuses on procedural justice (Greenberg, 1987; 1993) which is the degree to which people think the process by which decisions were made and the way in which organisational members interact with them is fair. Perceptions of procedural fairness are based on criteria such as nonbias, accuracy, consistency, trust and feedback (Tyler, 1989; Tyler & Lind, 1992). There is strong evidence that perceptions of procedural justice influence job satisfaction (McFarlin & Sweeney, 1992)

Although virtually everyone claims to value fairness and justice, different people and cultures may have different conceptions of what fairness comprises, and this is a source of organisational conflict. Union-management conflict is an example of this (Locke, 1997).

4.6.1.5 Care, security and employee wellbeing

Theories of person-job “fit” are compatible with VIE theory (Vroom, 1964) and Locke’s (1976) theory in asserting that jobs that match the employee’s values are most likely to bring satisfaction (Kristof, 1996). Job attributes such as competent and honest leadership, considerate supervision, job security, fringe benefits, congenial and competent co-workers, pleasant surroundings, good equipment, convenient location and safety are commonly held values, which when attained, contribute to job satisfaction (Locke, 1997).

Moods are enduring emotional states. Clearly, they may be an aspect of dispositions (Williams, 1990). For example, neuroticism entails enduring negative emotions as one of its defining components. Unless a person receives counselling or medication, such moods can last indefinitely or recur in frequent cycles. Moods, however, can also result from such enduring life circumstances as health, finances, family and work (Williams, 1990). An enduring work situation would involve job conditions which one likes, namely a competent, honest and inspiring manager or supervisor and challenging work, or dislikes, such as an unpleasant, inconsiderate manager or supervisor whom one cannot avoid and work that has no personal meaning or interest. These types of moods would change either when the job situation changed or the person developed a different way of appraising it, namely: “My manager or supervisor is a jerk so I’ll just try to ignore him”. Shorter-term moods can result from single events which produce conflict that is not resolved, for example, an argument with one’s spouse that ends in an impasse or harsh words (Locke, 1997).

Stress is a particular type of value appraisal, focused on the emotion of anxiety (Locke, 1997). Thus stress results from the experience of threat (Lazarus & Folkman, 1984; Locke & Taylor, 1990). Threat is experienced when an important value is at stake and people have low-efficacy, that is when they lack confidence in their ability to control the external situation and/or their negative thoughts about it (Bandura, 1986; 1997).

The most common causes of stress on the job seem to be time pressure and lack of job security (Sandman, 1992), indicating that individuals can distinguish between not getting what they want and being threatened with conditions they cannot control.

There are other factors affecting satisfaction which do not fall clearly under the mantle of any particular theory (Locke, 1997). Since VIE theory (Vroom, 1964) does not specify any particular value content but contends that satisfaction occurs when people see their actions and choices as instrumental in attaining their values, it can accommodate any content. VIE theory can be viewed as a type of consciously calculated, as opposed to automatic, subconscious, appraisal. Simply interpreted it could mean that if people get what they want, they are happy. There are, of course, limits to this principle. People who seek irrational values, say, dope addiction, do not attain happiness (Locke, 1976).

4.6.2 Operationalisation of quality of work life

The literature in the previous section is analysed together with the literature from chapter 3 and questions constructed relating to the theory. Table 4.5 summarises the questions, and this is followed by a discussion.

TABLE 4.6
QUALITY OF WORK LIFE

6. To what extent are you satisfied with the following general aspects of your working life:					
LEVEL 1 (Diagnostic)		LEVEL 2 (Causal)		LEVEL 3 (Corrective)	
6.1	The values and ethical system within which you have to do your work	6.1.1	The degree to which exposed (talked about) values are congruent with the general behaviour of people in the company	6.1.1.1	The value "ethics" is congruent with how people behave in the organisation
				6.1.1.2	The value "truth" is congruent with how people behave in the organisation
				6.1.1.3	The value "integrity" is congruent with how people

 6. To what extent are you satisfied with the following general aspects of your working life:

LEVEL 1 (Diagnostic)	LEVEL 2 (Causal)	LEVEL 3 (Corrective)
		<p>behave in the organisation</p> <p>6.1.1.4 The value “honesty” is congruent with how people behave in the organisation</p> <p>6.1.1.5 The value “transparency and openness” is congruent with how people behave in the organisation</p>
	<p>6.1.2 The degree to which values and ethical practices within which you work, are congruent with your own beliefs and norms</p>	<p>6.1.2.1 The value “ethics” is congruent with how your job results have to be achieved</p> <p>6.1.2.2 The value “truth” is congruent with how your job results have to be achieved</p> <p>6.1.2.3 The value “integrity” is congruent with how your job results have to be achieved</p> <p>6.1.2.4 The value “honesty” is congruent with how your job results have to be achieved</p> <p>6.1.2.5 The value “transparency and openness” is congruent with how your job results have to be achieved</p>
<p>6.2 The scope and challenge within your work</p>	<p>6.2.1 The scope and impact of your work</p>	<p>6.2.1.1 The diversity of your responsibility</p> <p>6.2.1.2 How much responsibility you have</p>

 6. To what extent are you satisfied with the following general aspects of your working life:

LEVEL 1 (Diagnostic)	LEVEL 2 (Causal)	LEVEL 3 (Corrective)
		6.2.1.3 How well your job meets your career goals and expectations
	6.2.2 The innate challenge and variety of your work	6.2.2.1 The variety and interest within your work
		6.2.2.2 The contribution which your work makes to the organisation's success
		6.2.2.3 The authority which you exercise
6.3 Being able to build and maintain good relationships with co-workers	6.3.1 The support, co-operation and friendship of other employees	6.3.1.1 The degree to which trust exists between you and other co-workers
		6.3.1.2 How well co-workers communicate with you
	6.3.2 Team work in general	6.3.2.1 How effectively your team functions with other groups in the organisation
		6.3.2.2 How effectively the members of your team work together
		6.3.2.3 The effectiveness of your team
6.4 The degree to which policies and procedures (rules, rewards, recognition, working procedures) are experienced as relevant and effective	6.4.1 The degree to which you are rewarded relative to what you contribute to the organisation	6.4.1.1 Being rewarded sufficiently and fairly
		6.4.1.2 Being given sufficient recognition for your effort

 6. To what extent are you satisfied with the following general aspects of your working life:

LEVEL 1 (Diagnostic)	LEVEL 2 (Causal)	LEVEL 3 (Corrective)
	6.4.2 The degree to which policies and procedures (rules, rewards, recognition, working procedures) are generally fair and justly applied to you	6.4.2.1 Fair and just application of policies 6.4.2.2 Policy application is efficient and quick 6.4.2.3 Policies are applied consistently and soundly
	6.4.3 The extent to which your personal job performance is assessed fairly and in a participative manner	6.4.3.1 The extent to which you are allowed to provide evidence before your performance is assessed 6.4.3.2 The extent to which you are allowed to participate in assessing your own performance 6.4.3.3 How able you are to correct performance deficiencies prior to being assessed 6.4.3.4 The degree to which your performance management process is linked to your development plan
6.5 Being cared for and working in a safe and secure environment	6.5.1 Being cared for and respected by the company	6.5.1.1 Being cared for when you need help 6.5.1.2 Being respected and awarded human dignity
	6.5.2 The security of your job and tenure in the company	6.5.2.1 The degree to which you feel safe in the company 6.5.2.2 The security of your job and tenure

6. To what extent are you satisfied with the following general aspects of your working life:

LEVEL 1 (Diagnostic)	LEVEL 2 (Causal)	LEVEL 3 (Corrective)
		6.5.2.3 The social security benefits such as retirement, medical aid and risk
		6.5.2.4 The degree to which agendas are transparent and believable
	6.5.3 The degree to which your social, psychological, physical and spiritual needs are satisfied	6.5.3.1 The degree to which your social needs are respected
		6.5.3.2 The degree to which your psychological needs are well balanced and satisfied
		6.5.3.3 The degree to which your physical needs are satisfied
		6.5.3.4 The degree to which your spiritual needs are satisfied

Table 4.6 summarises the questions related to care and security. There are five diagnostic questions related to care and security, namely questions on values (item 6.1), scope and challenge (item 6.2), relationships with co-workers (item 6.3), policies and procedures (item 6.4) and care, security and wellbeing (item 6.5).

Two level 2 questions are suggested in order to determine the causal factors of the response to the diagnostic question on values. These questions are on systemic values (item 6.1.1) and personal values (item 6.1.2).

In the context of systemic values (item 6.1.1), five questions are suggested in order to identify possible solutions to the causal responses gained from item 6.1.1. These questions relate to five values identified by the organisation being surveyed. They are the values that the organisation has established, and may be changed according to requirements of the organisation being surveyed. For the purposes of this research, the values selected were

ethics (item 6.1.1.1), truth (item 6.1.1.2), integrity (item 6.1.1.3), honesty (item 6.1.1.4) and transparency (6.1.1.5).

In the context of personal values (item 6.1.2), as in the case of 6.1.1, five questions are suggested in order to identify possible solutions to the causal responses gained from item 6.1.1. These questions relate to five values identified by the organisation being surveyed. They are the values that the organisation has established, and may be changed according to the requirements of the organisation being surveyed. For the purposes of this research, the values selected were ethics (item 6.1.2.1), truth (item 6.1.2.2), integrity (item 6.1.2.3), honesty (item 6.1.2.4) and transparency (6.1.2.5).

Two level 2 questions are suggested in order to determine the causal factors of the response to the diagnostic question on scope and challenge. These questions are on scope of work (item 6.2.1) and challenge of work (item 6.2.2).

In the context of scope of work (item 6.2.1), three questions are suggested in order to identify possible solutions to the causal responses gained from item 6.2.1. These questions relate to diversity (item 6.2.1.1), responsibility (item 6.2.1.2) and career expectation (6.2.1.3).

In the context of challenge of work (item 6.2.2), three questions are suggested in order to identify possible solutions to the causal responses gained from 6.2.2. These questions relate to variety (item 6.2.2.1), empowerment (item 6.2.2.2) and stature (item 6.2.2.3).

Two level 2 questions are suggested in order to determine the causal factors of the response to the diagnostic question on relationships with co-workers (item 6.3). These questions are on interpersonal relationships (item 6.3.1) and team/group work (item 6.3.2).

In the context of personal relationships (item 6.3.1), two questions are suggested in order to identify possible solutions to the causal responses gained from item 6.3.1. These questions relate to trust (item 6.3.1.1) and communication (item 6.3.1.2).

In the context of team/group work (item 6.3.2), three questions are suggested in order to identify possible solutions to the causal responses gained from item 6.3.2. These questions

relate to interteam relationship (item 6.3.2.1), intrateam relationships (item 6.3.2.2) and team effectiveness (item 6.3.2.3).

Three level 2 questions are suggested in order to determine the causal factors of the response to the diagnostic question on policies and procedures (item 6.4). These questions are on distributive justice (item 6.4.1), procedural justice (item 6.4.2) and performance management (item 6.4.3).

In the context of distributive justice (item 6.4.1), two questions are suggested in order to identify possible solutions to the causal responses gained from item 6.4.1. These questions relate to rewards (item 6.4.1.1) and recognition (item 6.4.1.2).

In the context of procedural justice (item 6.4.2), three questions are suggested in order to identify possible solutions to the causal responses gained from item 6.4.2. These questions relate to fairness (item 6.4.2.1), timeliness (item 6.4.2.2) and consistency (item 6.4.2.3).

In the context of performance management (item 6.4.3), four questions are suggested in order to identify possible solutions to the causal responses gained from item 6.4.3. These questions relate to evidentiary control (item 6.4.3.1), decision control (item 6.4.3.2) self-correction (item 6.4.3.3) and process (item 6.4.3.4).

Three level 2 questions are suggested in order to determine the causal factors of the response to the diagnostic question on care, security and wellbeing (item 6.5). These questions are on care (item 6.5.1), security (item 6.5.2) and wellbeing (item 6.5.3).

In the context of care (item 6.5.1), two questions are suggested in order to identify possible solutions to the causal responses gained from item 6.5.1. These questions relate to personal aspects (item 6.5.1.1), and diversity/respect (item 6.5.1.2).

In the context of security (item 6.5.2), four questions are suggested in order to identify possible solutions to the causal responses gained from item 6.5.2. These questions relate to physical security (item 6.5.2.1), tenure and job security (item 6.5.2.2), benefits (item 6.5.2.3) and psychological security (item 6.5.2.4).

In the context of wellbeing (item 6.5.3), four questions are suggested in order to identify possible solutions to the causal responses gained from item 6.5.3. These questions relate to social needs (item 6.5.3.1), psychological needs (item 6.5.3.2), physical needs (item 6.5.3.3) and spiritual needs (item 6.5.3.4).

This concludes the conceptualisation and operationalisation, in the context of the development of the organisational climate questionnaire, of the sixth factor identified by Locke, namely quality of work life.

4.7 CHAPTER SUMMARY

Locke's (1997) model of work motivation and other relevant theory were integrated and analysed in order to construct an organisational climate questionnaire, which is diagnostic, causal and corrective. This was done in an attempt to empirically investigate Locke's (1997) model of work motivation using a questionnaire specifically constructed for this purpose. Each of the six elements identified by Locke (1997) in his work motivation model were discussed and integrated with one another and the literature in chapters 2, 3 and 4 in order to construct the questionnaire. An empirical study follows in chapter 5.

CHAPTER 5

EMPIRICAL STUDY

The aim of this chapter is to discuss the empirical research and statistical processes used. This refers to phase 2 and steps 1 to 7 of the research methodology.

5.1 THE THEORETICAL BACKGROUND TO, RATIONALE FOR THE DESIGN AND CONSTRUCTION OF THE ORGANISATIONAL CLIMATE QUESTIONNAIRE

The Organisational Climate Questionnaire (OCQ) was specifically designed for this research as a means of exploring the extension and practical application of Locke's model of work motivation and provides diagnostic, causal and corrective information. This will be elaborated on, firstly, by contextualising it in terms of the theory, and secondly, by exploring the rationale for the questionnaire.

5.1.1 Theoretical background to the OCQ

The OCQ is primarily based on Locke's (1997) model of work motivation and integrated with other theories on work motivation and organisational climate, drawing from sources from the early 1930s up to the more recent studies. An overview of these theories was provided in chapters 3 and 4. Locke's (1997) work motivation model was explored in chapters 2 and 4 in which it forms the core of the conceptual framework for this research.

The essence of the OCQ is that it is based on a thorough, entirely empirically tested and fully integrated model of work motivation developed by Locke (1997), representing an integration of eight pronounced approaches to work motivation, namely goal-setting theory, social cognitive theory, personality theory, valence-instrumentality-expectancy theory, attribution theory, equity theory, procedural theory and job characteristics theory, which have been proposed in the behavioural discipline (Locke, 1997). This theory of work motivation and organisational climate is explored in chapters 2, 3 and 4.

5.1.2 Rationale for the design of the questionnaire

The OCQ was designed to be a questionnaire of continuous climate assessment and specific management intervention. This study was conducted in order to explore the need for an integrated, empirically tested and systematic method of assessing and intervening in the process whereby a climate of individual work motivation develops and is perpetuated in an organisation, thus researching the extension and practical application of an existing model of work motivation for use in the financial service industry.

When utilised, the OCQ is a procedure which allows the user organisation to extract data in a highly economical fashion by means of successive layering of questionnaire tiers, which are formulated at a deeper level of analysis, based on responses to earlier extractions.

The questionnaire results enable the user organisation to identify what is wrong (diagnostic), why (causes) and how to correct the deficiencies (corrective). In addition, the results will propose a specific linear process to be followed in intervention. This addresses the typical criticism against conventional climate measuring which tends to produce a jumbled “shopping basket” of complaints and grievances with no indication of the constructs or priorities involved. It also provides managers with a way of operationalising the theory Locke (1997) suggests in this work motivation model.

5.1.3 Description of the OCQ

A three-tiered OCQ questionnaire was designed as the basis of data gathering. OCQ-Tier1 is diagnostic, OCQ-Tier2 is causal and OCQ-Tier3 is corrective.

OCQ-Tier1 consists of 17 items and addresses the primary six elements of Locke’s (1997) model. Each of these elements was discussed in chapter 4 both from a conceptualisation and an operationalisation perspective. These six elements are

- (1) actualisation of needs and personality
- (2) personal goal setting

- (3) goal support
- (4) goal-directed behaviour
- (5) goal achievement
- (6) quality of work life

Based on the reactions gained from these 17 items, the OCQ-Tier2 is used to specifically address issues identified as problem areas in OCQ-Tier1. The issues included in OCQ-Tier2 are causally linked to the top six primary elements (in OCQ-Tier1).

Based on the specific causes identified in the secondary questionnaire (OCQ-Tier2), the tertiary questionnaire (OCQ-Tier3) is specifically used to explore possible solutions to the causes identified in the secondary questionnaire (OCQ-Tier2).

In practice, the questionnaire will be used only in those areas and in those business units where specific problems are identified. The procedure is therefore economical in terms of time spent dealing with answering questions and is also very specific in terms of diagnostic search and location activities.

However, in this research, all three tiers were administered in their entirety in order to statistically analyse and test the procedure.

A generic format for OCQ-Tier1, OCQ-Tier2 and OCQ-Tier3 was used because the questionnaire needed to be applicable to all employees and business units/profit centres in the financial services arena. Organisational climate is viewed as a dynamic interaction between the individual, the group and organisational activities, and the language usage and application were developed to be consistent with this. The language for the questionnaire is English. The norm in South African financial services institutions is that English is the spoken and written language for business communication.

In the financial services industry, the level of education of employees is 12 or more years of formal schooling and it is therefore assumed that all respondents have at least this level of education.

A five-point Likert type response format was used. The Likert-type scale begins with a series of statements, each of which expresses an attitude that is either clearly favourable or clearly unfavourable. Items are selected on the basis of the response of the people to whom they are administered in the process of questionnaire administration. Likert scales call for a graded response to each statement (Likert, 1967). The response is usually expressed in terms of the following five categories: "strongly disagree", "disagree", "undecided", "agree" and "strongly agree" (or variations thereof). To score the scale, the response options are credited 1, 2, 3, 4, or 5 from the unfavourable to the favourable end. For example, "strongly agree" with a favourable statement would receive a score of 5, as would "strongly disagree" with an unfavourable statement. The sum of the item credits represents the individual's total score, which is interpreted in terms of empirically established norms (Likert, 1967). In this instance, a star rating system was used where one star (★) equates to the numerical value 1, two stars (★★) to the numerical value 2, three stars (★★★) to the numerical value 3, four stars (★★★★) to the numerical value 4 and five stars (★★★★★) to the numerical number 5.

5.2 SAMPLE

The population from which the sample was taken, was large financial institutions in South Africa. The method of sampling used in this research is that of cluster sampling (Huysamen, 1994). In cluster sampling, pre-existing, heterogeneous groups, called "clusters", are drawn randomly (or stratified randomly), and all the members of the selected clusters form the eventual sample. Cluster sampling may be performed in more than one phase. In this research it was performed in four phases. A scientific demographic profile was not obtained due to the constraints placed on the information gathering by the respondent organisations. In the context of this research which is intended to elicit group trends and views, the reasons given for these constraints were to protect the identity of the individuals who took part in the survey and to encourage open, honest, anonymous responses from the respondents. A general description with approximate percentages as provided by the human resources consultants and payroll administrators in the area will however be given in table 5.1.

TABLE 5.1
A GENERAL DESCRIPTION OF THE SAMPLE

	Sample 1	Sample 2	Sample 3	Sample 4
N	510	407	1265	407
Employee type	White collar	White collar	White collar	White collar
Type of organisation	Financial services (investment)	Financial services (employee benefits)	Financial services (insurance)	Financial services (investments)
Gender	Male (60%) Female (40%)	Male (55%) Female (45%)	Male (30%) Female (70%)	Male (55%) Female (45%)
Age range	20-55	20-45	18-50	20-45
Organisational cultural background	Competitive, aggressive, profit- focused	Team oriented profit- focused	Profit-focused	Team oriented, profit-focused
Language	English (60%) Afrikaans (30%) African language (10%)	English (50%) Afrikaans (40%) African language (10%)	Afrikaans (60%) English (35%) African language (5%)	English (50%) Afrikaans (40%) African language (10%)
Region	Johannesburg (100%)	Johannesburg (70%) Cape Town (30%)	Pretoria (100%)	Johannesburg (70%) Cape Town (30%)
Average schooling	12 years' formal schooling (70% post-school qualification)	12 years' formal schooling (50% post-school qualification)	12 years' formal schooling (40% post-school qualification)	12 years' formal schooling (50% post-school qualification)

For the purposes of this research, the samples were measured as a total entity (N=2807) in order to determine the relationships between the constructs in the questionnaire. The samples were treated as a single group representative of the disciplines in a financial services group. A discussion of the samples (in the context of statistical significance testing) follows in section 5.6.

5.3 ADMINISTRATION PROCESS

The purpose of this research is to empirically investigate Locke's model of work motivation. by means of a questionnaire. In this context it is useful to follow the suggested guidelines by Anastasi (1988) and Anastasi and Urbina (1997) when administering questionnaires. The basic rationale of measurement involves generalisation from the behaviour sample observed in the measurement situation to behaviour manifested in other, nonmeasurement situations (Anastasi, 1988; Anastasi & Urbina, 1997). Any influences that are specific to the measurement situation constitute error variance and reduce measurement validity. It is therefore important to identify any measurement-related influences that may limit or impair the generalisability of measurement results.

5.3.1 Data collection strategy

A strategy of data collection by means of a questionnaire which is appropriate to both the theoretical content as well as the sample population was adopted. The main reasons for using a questionnaire were firstly, that the researcher who was an employee of the FirstRand group may have engendered suspicion thereby biasing results if an observational approach or an interview approach was adopted; secondly, it was the specific intention of this research to base the questionnaire development on Locke's model, and as such the researcher preferred to develop the items using the theoretical model as a point of departure.

The researcher held informal discussions in which feedback on the items and construction of the questionnaire was sought. This approach to obtaining feedback from a group of respondents is consistent with advice concerning psychological research in cross-cultural situations. Accordingly, field research should involve its participants as consultants in the design and interpretation (Anastasi, 1988; Anastasi & Urbina, 1997).

5.3.2 Invitation to sample

Written invitations were sent to individuals in the sample companies. This was followed up with verbal encouragement to participate in the survey.

The respondents were advised of the date, time and venue for the completion of the questionnaire. The purpose of the questionnaire was clearly communicated and the merit thereof discussed at the various team meetings. Participation was strongly encouraged, although an individual had the right to refuse to participate.

5.3.3 Preparation for administration

According to Anastasi (1988) and Anastasi and Urbina (1997), the most important single requirement for good measurement procedure is advance preparation. Before the questionnaire was administered, the questionnaire administrators studied the instructions for administration.

The three questionnaires were prepared in advance of administration. The necessary materials, including answer sheets for OCQ-Tier1 and pencils were laid out on the tables. OCQ-Tier2 and OCQ-Tier3 with their envelopes were placed in an orderly fashion on the table next to the questionnaire administrator, whose role was to read the instructions, take charge of the group in the assessment room, hand out and collect the questionnaires, make certain that the instructions were followed and answer the individual questions of respondents within the limitations specified in the instructions.

Standardised procedures apply not only to the verbal instructions, timing, materials and other aspects of themselves, but also to the assessment environment (Anastasi, 1988; Anastasi & Urbina, 1997). In this regard, a suitable room was selected. The conference room used for the questionnaire completion, was free from undue noise and distraction and provided adequate lighting, ventilation, seating facilities and working space for the respondents. Special precautions were taken to avoid interruptions during completion of the questionnaire.

5.3.4 Questionnaire administration

It is important to introduce the questionnaire, create rapport and orientate the respondents (Anastasi, 1988; Anastasi & Urbina, 1997). The questionnaire administrator was required to arouse the respondents' interest in the questionnaire, elicit their cooperation, and encourage them to respond in a manner appropriate to the objective of the questionnaire. In this instance the objective called for frank and honest responses to questions about the individual's usual behaviour.

Situational variables may affect question responses (Anastasi, 1988; Anastasi & Urbina, 1997). An attempt was made to be friendly and nonjudgmental, to dispel surprise and strangeness from the measurement situation and to reassure and encourage the respondent in an effort to lower anxiety. No time limit for the administration of the questionnaires was set.

On the day of questionnaire administration, the respondents were welcomed, and in accordance with the previously mentioned procedures, completed the questionnaires. Once the respondents had completed OCQ-Tier1, it was placed in a clearly marked envelope and sealed. OCQ-Tier2 was handed out and completed by the respondents. Once completed, OCQ-Tier2 was placed in a separate clearly marked envelope and sealed. OCQ-Tier3 was handed out by the test administrator and completed by the respondents. Once completed, OCQ-Tier3 was placed in a marked envelope and sealed. All three envelopes were then placed in a large envelope and sealed and handed to the questionnaire administrator to be statistically analysed and processed.

5.4 DATA CAPTURING

The responses from OCQ-Tier1, OCQ-Tier2 and OCQ-Tier3 were captured into the AMOS (Arbuckle & Wothke, 1995-1999) statistical package,. This was done by a data capturer familiar with the AMOS software package. The capturing was verified by another data capturer.

5.5 SCORING OF DATA

The responses elicited from these questionnaires were statistically analysed and reports generated. In its simplest form, a high score in a specific question, as well as its sub-constructs indicates that the satisfaction in that area is high and that the individual has no concerns in that area. A low score on the other hand, indicates an area of dissatisfaction and of concern to the individual. Since this questionnaire is designed to measure trends of collective views, the totals of all the responses to a particular item are combined and an average score for that particular item computed. This then indicates whether the group is satisfied or dissatisfied in a particular area.

5.6 STATISTICAL ANALYSIS

In this research, the program “AMOS graphics” (Arbuckle & Wothke, 1995 - 1999) was used to test the models proposed for each tier and across the tiers of the OCQ. AMOS is short for “Analysis of Moment Structures”. It implements the general approach to data analysis known as structural equation modelling (SEM) - also known as analysis of covariance structures or causal modelling (Arbuckle & Wothke, 1995-1999, p. 1).

The Amos graphics program allows the researcher to draw the model to be tested as a path diagram, using circles to indicate latent (hypothetical variables) and rectangles to indicate observed variables. Byrne (2001, p. 9) describes these path diagrams as schematic representations of models which give a visual portrayal of relations which are assumed to exist between the variables under study. These diagrams are presented in chapter 6 for each model tested.

A number of important issues need to be noted in relation to this method of investigating the causal relations between variables. These will be discussed briefly below.

5.6.1 Statistical significance testing

It is accepted that the p-value of a test generally decreases as the sample size increases. In the case of the usual tests such as the t-test and the analysis of variance F-tests, the researcher often wants a small p-value in order to reject the null hypothesis. The rejection of the null hypothesis leads to the acceptance of the alternative hypothesis which usually implies some relation between two variables.

In the case of analysis of covariance structures or causal modelling, the null hypothesis states that the model proposed by the researcher (which is essentially the path diagram in the Amos graphics program) fits the data. The researcher wants to retain the null hypothesis and does not want a small p-value. Ironically, one way to achieve a large p-value is to use a small sample. However, a small sample size will mean poor estimates of parameters and is therefore not recommended.

Large samples are required and there should preferably be no missing data although there are methods to deal with this (Byrne, 2001, pp 287-288). However, as has been highlighted, with a large sample, even the best models may have to be rejected if the researcher blindly relies on the so-called "p-value" alone. One might consider any model as an approximation of reality at best, and therefore, in principle, false. All that is needed to show that a model is false is a large enough sample size!

In the present study, several samples were available (see secs 5.2 & 5.3 for a discussion of how the samples were obtained). For the purposes of testing causal models, the researcher selected all subjects who had complete data (no missing data) for the entire OCQ, that is, data relating to all the items in all three tiers (sections) of the questionnaire. The sample size contained 678 complete observations and constituted a relatively large sample. In the present study therefore the researcher was bound to find small p-values associated with the statistical tests of the null hypothesis as a result of the large sample.

5.6.2 Large sample, small p-value issue

A Chi-square test is usually performed on the null hypothesis which states that the model fits the data. The program also performs a Chi-square test on two other models namely the so-called saturated model and the "independence model". Based on complete data, the saturated model will always fit the data perfectly, in other words $\text{Chi-square} = 0,0$. The saturated model may appear ideal but is trivial from a scientific point of view because it does not follow from theoretical considerations of what relations should and should not hold. It does not serve one of the greater goals of science, namely the parsimonious description of nature.

The program also tests the so-called "independence model" which is a model that states no causal paths between variables, and is in a sense the worst model. The fit statistics (to be discussed below) of one's own model should show a "goodness of fit" somewhere between these two extreme situations represented by the saturated and the independence model.

Of more importance, these Chi-square tests, are the so-called "goodness-of fit" statistics developed by various researchers (Byrne, 2001, p. 79). These statistics attempt to give the researcher an impression of how close the proposed model fits the data. In the present study, two such "goodness-of fit" statistics were used, namely the so-called "RMSEA" and the "HOELTER".

The RMSEA attempts to answer the question: "How well would the model, with unknown but optimally chosen parameters, fit the population covariance model if it were available?" (Byrne, 2001, p. 84; Browne & Cudeck, 1993, pp. 137-138). Values less than 0,05 indicate a good fit and values even as high as 0,08 represent reasonable errors of approximation in the population. According to Byrne (2001, p85) other researchers have recently noted that RMSEA values ranging from 0,08 to 0,10 indicate mediocre fit and values larger than 0,10 poor fit. The AMOS graphics program used in the present study, reports the RMSEA value as well as a 90% confidence interval. In the present study, these RMSEA values are reported for each of the models tested.

Lastly, the researcher chose to report with each model tested, the so-called "Hoelster's critical N" at the 0,05 level. This fit statistic focuses on the adequacy of the sample size

rather than on model fit (Byrne, 2001, p. 87). In this study, Hoelter's critical N is that sample size that would lead to a fit of the model to the data at the 0,05 level. In other words, that sample size for which a p-value for the Chi-square greater than 0,05 will be obtained. This N will probably be some sample size smaller than the actual research sample of 678 of the present study. It does emphasise the point that p-values are functions of sample size and, given a large enough sample, all models will have to be rejected. However, for small samples one might not be able to reject a model.

In this study, the so-called "p-value" of the Chi-square test was largely ignored because the large sample size used made very small p-values almost inevitable. Instead, the emphasis was placed on the value of the RMSEA statistic as a measure of goodness-of-fit. The smaller the RMSEA value, the better the fit of the model to the data would be.

5.6.3 Modification indices

The AMOS graphics program calculates so-called "modification indices" which indicate the drop in the Chi-square value that can be achieved if a particular relation (path) or covariance (or correlation) is included/excluded in the model. A particular model consists not only of the relations specified between variables, but also of those relations purposely omitted. The existence of covariance between error terms is seldom specified. The modification index of a particular covariance between two error terms may indicate, however, that a severe drop in the Chi-square value can be achieved should this covariance as part of the model be specified and the test of the model re-run. The same argument holds for the so-called "covariance" or "correlation" between latent variables. In the present research it was found that the latent variables were highly intercorrelated hence these correlations had to be specified as part of the models.

Other relations on which the modification indices give important information are the so-called "paths" between latent variables (unobserved variables) and observed variables. One may have omitted a particular path, but the modification index of such a path may indicate that a large reduction in the Chi-square value may be achieved if this path is included in the model. This could move one to include this path in the model.

However, modifications made in this way to the original model must make theoretical sense. The “new” model must seem to make sense from a theoretical point of view. One cannot simply keep on including or excluding paths and correlations simply because the Chi-square value appears to drop. The overall sense of the model remains the principal consideration.

5.6.4 Mathematical estimation method and standardised estimates

The researcher specified the maximum likelihood method of estimation in the testing of all models and specified that regression estimates should be standardised. The latter specification allowed the researcher to consider the covariance between any two terms as correlations. It also makes the comparison of the size of parameters possible because the parameters are much like correlations or partial correlations (standardised regression coefficients to be exact).

5.6.5 Missing values

Fortunately the researcher was able to select 678 subjects with complete data on all items of the questionnaire.

5.6.6 Admissible solution

In the present study it was sometimes found that solutions were *inadmissible* because of too high correlations between latent variables (factors). Usually a pair of latent variables existed with a near perfect correlation between them. The solution to this problem was usually achieved by combining the two latent variables in question as one latent variable in a new model.

5.7 CHAPTER SUMMARY

In chapter 5, the theoretical background, rationale for the design, and construction of the OCQ was discussed. The sample for this research was highlighted. The administration process including the data collection strategy, the invitation to sample, preparation for administration and questionnaire administration was explored. Data capturing and scoring of data was also highlighted. With regards to the statistical analysis, an overview of the AMOS statistical package was given and issues regarding statistical significance testing, the large sample, small p-value issue, modification indices, mathematical estimation method and standardised estimates, missing values and admissible solution were discussed. The results will be presented in chapter 6.

CHAPTER 6

RESULTS

The aim of this chapter is to explore the OCQ's validity and reliability. The empirical results obtained by applying the OCQ to employees in the financial industry, will be analysed. Since the questionnaire is constructed on the basis of Locke's work motivation model, testing the validity of the questionnaire simultaneously tests the existence of six components connected causally to one another in a particular way. See sections 5.1 and 5.2 for a discussion of the rationale for the OCQ.

In this chapter, the following causal models were tested using the computer package AMOS (Arbuckle & Wothke, 1995-1999):

- The sequential causal link between the six work motivational constructs, namely personal actualisation → goalsetting → goal support → goal behaviour → goal achievement → quality of work.

This model represents a particular sequential-causal link between the constructs and was tested at each of the three tiers (or sections) of the OCQ.

- It was also hypothesised that a causal connection exists between the three tiers (or sections) for each of the six work motivational components (or constructs).

For example, in the case of the component "personal actualisation", the causal link between the three tiers may be briefly stated as follows: personal actualisation OCQ-Tier1 (tier 1) ←personal actualisation OCQ-Tier2 (tier 2) ←personal actualisation OCQ-Tier3 (tier 3).

This kind of model of the causal connection between the three tiers regarding a particular component, was tested in two separate steps in this study. Firstly, the causal link between OCQ-Tier1 (tier 1) and OCQ-Tier2 (tier 2) for a component was tested and then, in a separate step, the causal link between OCQ-Tier2 (tier 2) and OCQ-Tier3 (tier3) for the same component. This allowed the researcher more leeway in exploring which aspects of

the proposed link between the three tiers appeared to be confirmed by the data and which were not.

6.1 MODELLING THE FIRST TIER

This study identified six components of the Locke's work motivation model. See chapters 4 and 5 for a discussion of and rationale for these components. The graphical display of the model in figure 6.1 shows that "personal actualisation" leads to "goal setting" which then leads to "goal support", and so on. Note that each component is represented as a latent variable or factor, measured by a number of items. The exceptions are "personal actualisation" and "goal achievement" simply because these two components were measured by means of a single item only in OCQ-Tier1 (tier 1). The path diagram and results of this model are given in figure 6.1 and table 6.1.

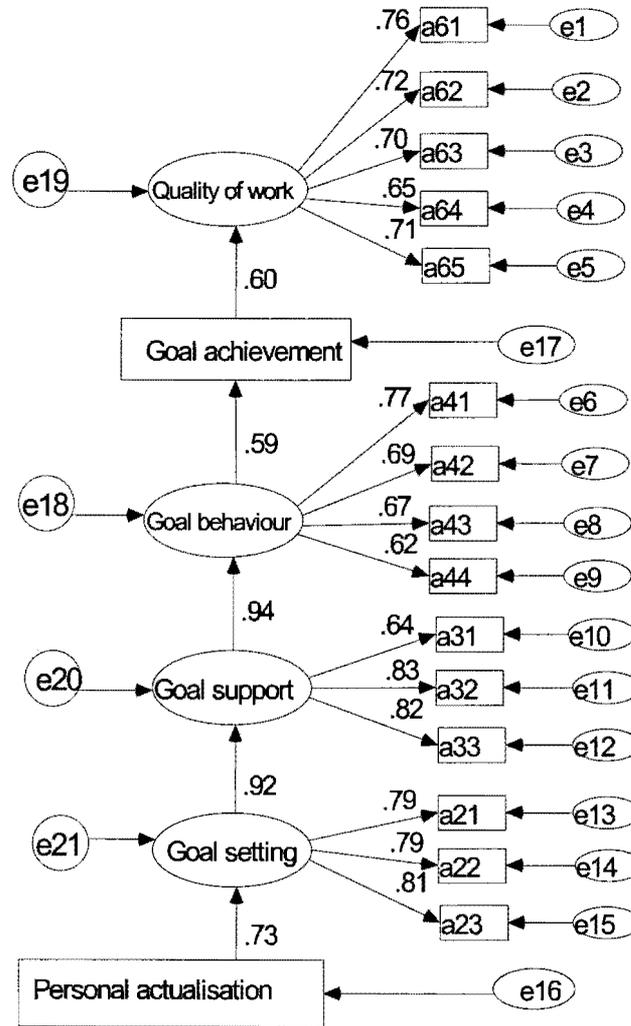


Figure 6.1: Path Diagram Modelling the Causal Relations Between the Six Components of OCQ-Tier1 (N = 678) Before Revisions.

TABLE 6.1
GOODNESS OF FIT STATISTICS FOR FIGURE 6.1

Model	NPAR	CMIN(χ^2)	DF	P	CMIN/DF
Default model	54	1139.102	116	0.000	9.820
Saturated model	170	0.000	0		
Independence model	17	34707.308	153	0.000	226.845
Model	RMSEA	LO 90	HI 90	HOELTER (0.5)	
Default model	0.114	0.108	0.120	85	
Independence model	0.578	0.572	0.583	4	

It is important to note the direction of the arrows between the components which implies that one cannot have "quality of working life" without "goal achievement", and no "goal achievement" without "goal behaviour", no goal behaviour without "goal support", no "goal support" without "goal setting" and no "goal setting" without "personal actualisation". This is also evident in Locke's (1997) model of work motivation.

The next issue addressed by the researcher was whether the model of these six elements in OCQ-Tier1 fits the data. Table 6.1 shows that the RMSEA value was found to be 0,114 which is larger than 0,10 and therefore represents a poor fit. However, for the independence model, the RMSEA value is 0,578 which indicates a much worse fit. It is interesting to note that the Hoelter N indicates that, had the sample size been only 85, a Chi-square test of the model would not have been able to reject the model at the 0,05 significance level. These results appear, at surface value, for the sample used, to reject the notion that the six elements that appear in Locke's model fit the data.

Some of the elements did however have too few items measuring them. Future research should consider increasing the number of items measuring the components "personal actualisation" and "goal achievement". It was decided to test a revised model with these latter two components excluded as well. The path diagram and results of this revised model are given in figure 6.2 and table 6.2.

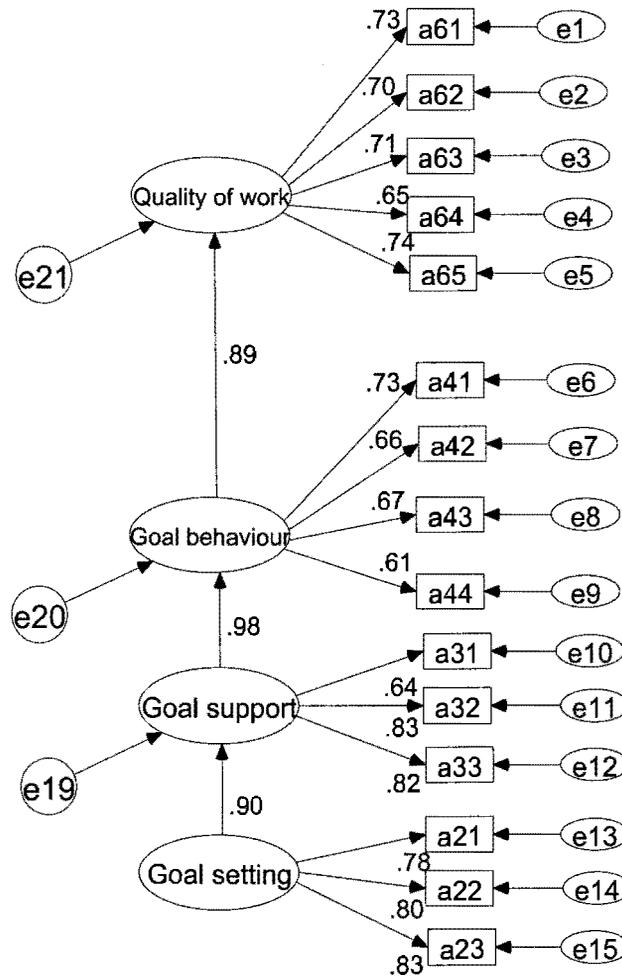


Figure 6.2: Path Diagram Modelling the Causal Relations Between the Six Components of OCQ-Tier1 (N = 678) After Revisions

**TABLE 6.2
GOODNESS OF FIT STATISTICS FOR FIGURE 6.2**

Model	NPAR	CMIN(χ^2)	DF	P	CMIN/DF
Default model	33	535.776	87	0.000	6.043
Saturated model	120	0.000	0		
Independence model	15	5717.061	105	0.000	54.448
Model	RMSEA	LO 90	HI 90	HOELTER (0.5)	
Default model	0.086	0.079	0.093	142	
Independence model	0.281	0.275	0.287	16	

The model in figure 6.2 excludes the two components, "personal actualisation" and "goal achievement" and is represented by a single item only (and is thus possibly under-represented). The RMSEA value was now found to be 0,086 in table 6.2 which indicated a moderately acceptable fit. The independence model fares much worse with a RMSEA value of 0,281. The Hoelter N indicated that even with a sample as small as 142, the Chi-square test would not have rejected the model at the 0,05 significance level. It may be concluded that this model shows some promise towards finding support for a fit between the model and the data.

6.2 MODELLING THE SECOND TIER

The model of the six components tested above for OCQ-Tier1 (tier 1) was now also tested at OCQ-Tier2 (tier 2) of the questionnaire. All the components in OCQ-Tier2 (tier 2) were measured by more than one item. The path diagram, parameter estimates, test statistics and fit indices are given in figure 6.3 and table 6.3.

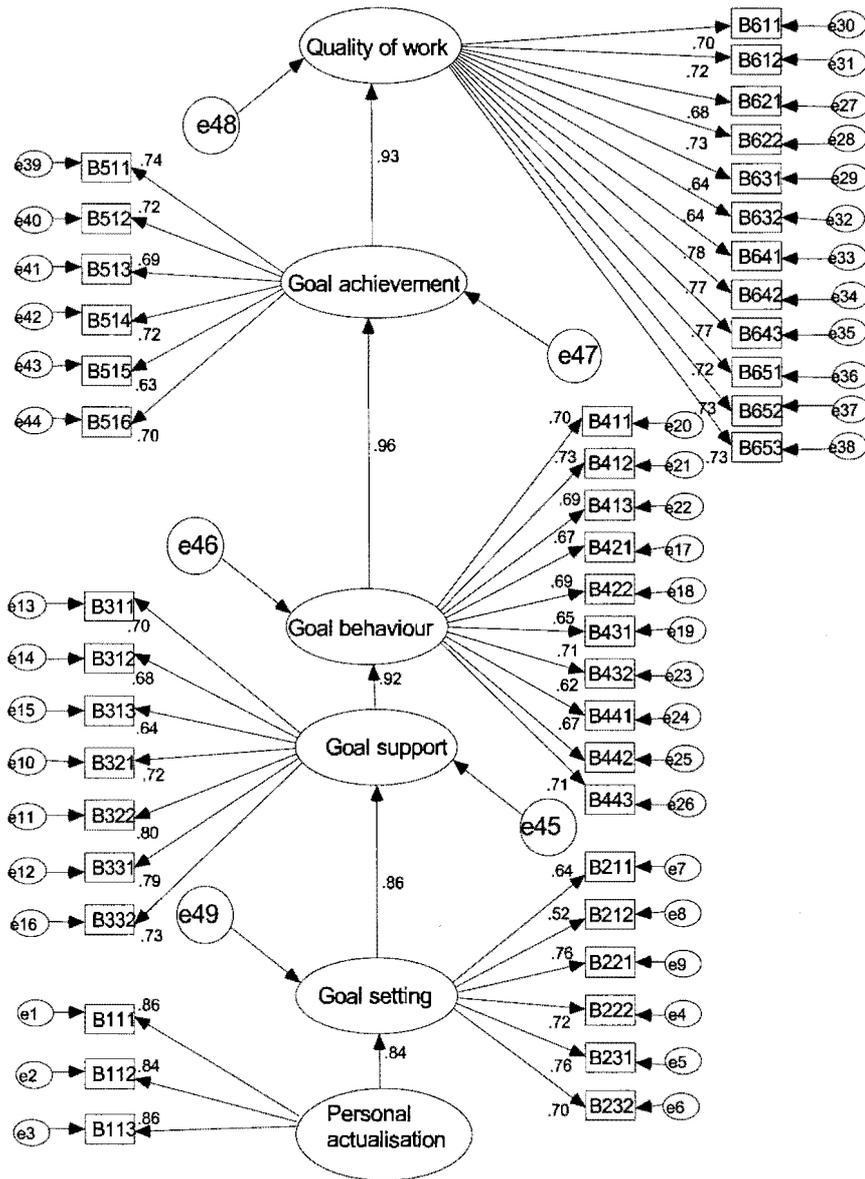


Figure 6.3: Path Diagram Modelling the Causal Relations Between the Six Components of OCQ-Tier2 (N = 678) Before Revisions

TABLE 6.3
GOODNESS OF FIT STATISTICS FOR FIGURE 6.3

Model	NPAR	CMIN(χ^2)	DF	P	CMIN/DF
Default model	137	6080.012	897	0.000	6.778
Saturated model	1034	0.000	0		
Independence model	44	96277.07	990	0.000	97.149
Model	RMSEA	LO 90	HI 90	HOELTER (0.5)	
Default model	0.092	0.090	0.095	108	
Independence model	0.377	0.375	0.379	8	

In table 6.3, the RMSEA value was found to be 0,092 which indicates a moderate fit. The Hoelter N is 108. If the sample size had been 108, the Chi-square test would not have rejected the model at the 0,05 significance level.

A model such as this one can often be improved by studying the so-called "modification indices" (Arbuckle & Wothke, 1995-1999). In this case the indication was that allowance should be made for covariance between some of the error terms. This was done and the model retested. The path diagram, parameter statistics, et cetera, are reported in figure 6.4 and table 6.4.

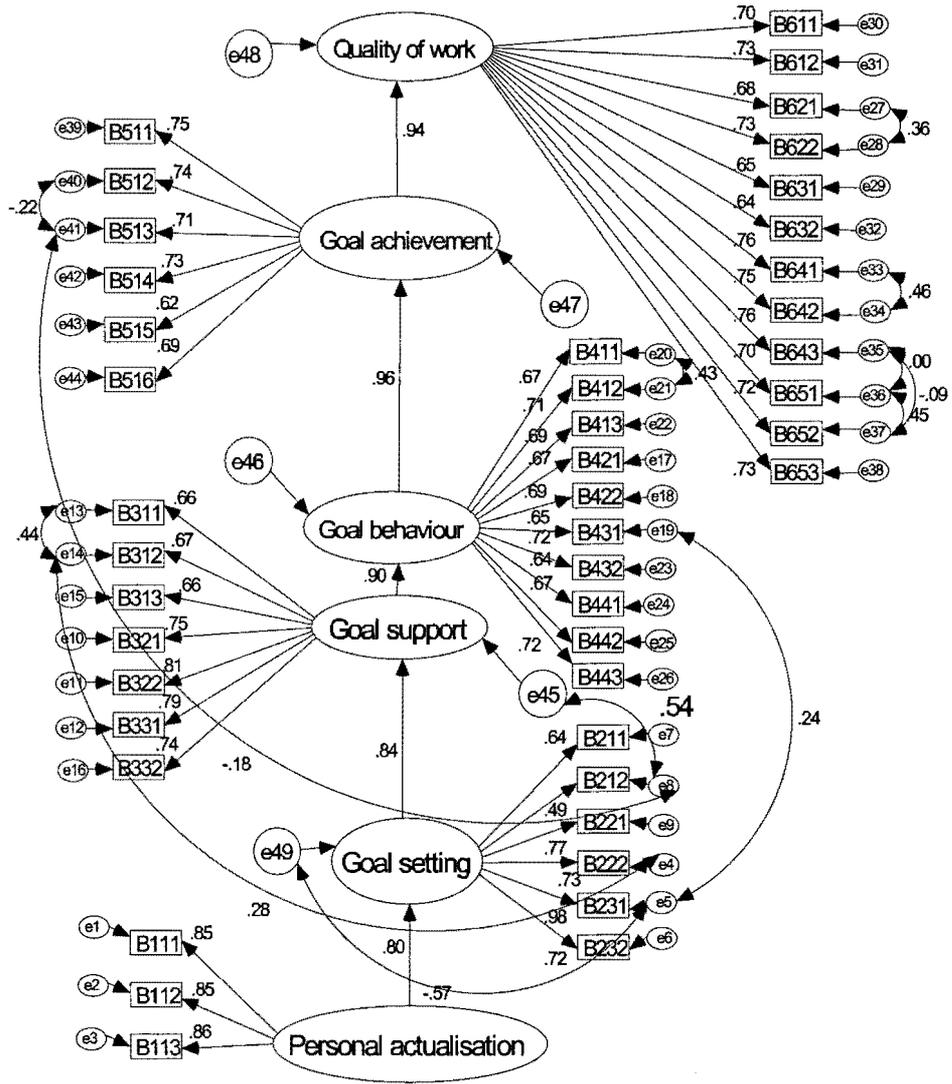


Figure 6.4: Path Diagram Modelling the Causal Relations Between the Six Components of OCQ-Tier2 (N = 678) After Revisions

TABLE 6.4

GOODNESS OF FIT STATISTICS FOR FIGURE 6.4

Model	NPAR	CMIN(χ^2)	DF	P	CMIN/DF
Default model	150	4878.976	884	0.000	5.519
Saturated model	1034	0.000	0		
Independence model	44	96177.027	990	0.000	97.149
Model	RMSEA	LO 90	HI 90	HOELTER (0.5)	
Default model	0.082	0.079	0.084	133	
Independence model	0.377	0.375	0.379	8	

The RMSEA value, reported in table 6.4, was now found to decrease from 0,092 to 0,082. The latter value indicates an acceptable fit of the model to the data. It should, however, be noted that it is difficult to interpret the theoretical significance of this latter model. It does, however, indicate between which items covariance remains which were not explained by the proposed latent variables. Such information might direct future research efforts in that the wording of these items needs to be considered carefully in order to establish what caused these items to correlate with one another beyond that which can be explained from their connections to the latent variables already in the model.

6.3 MODELLING THE THIRD TIER

The basic model tested above at OCQ-Tier1 (tier 1) and OCQ-Tier2 (tier 2) level of the questionnaire was not proposed for OCQ-Tier3 (tier 3) because the researcher did not expect the corrective measures identified for one component to be considered in some way to be a pre-condition for the identification of corrective measures of another component. This does not mean that high correlations do not exist between the six components at OCQ-Tier3 (tier 3). In fact, it is quite likely since the researcher proposes that each component at OCQ-Tier3 (tier 3) should be correlated to its equivalent component at OCQ-Tier2 (tier 2) and it has already been found that the six components are highly correlated at OCQ-Tier2 (tier 2) level.

It was decided to create a scale for each of the six components at the OCQ-Tier3 (tier 3) level by calculating the mean score of all the items that make up a component, and then correlating these six component scales to one another. These intercorrelations are given in table 6.5.

TABLE 6.5
CORRELATIONS BETWEEN THE FACTORS ON THE TIER 3 LEVEL

	Personal actualisation	Personal goal setting	Goal support	Goal-directed behaviour	Goal achievement	Quality of work life
Personal actualisation	1	.852	.757	.774	.763	.793
Personal goal setting	.852	1	.851	.847	.830	.856
Goal support	.757	.851	1	.864	.826	.872
Goal-directed behaviour	.774	.847	.864	1	.827	.882
Goal achievement	.763	.830	.826	.827	1	.874
Quality of work life	.793	.856	.872	.882	.874	1

It seems that all the components are highly correlated with one another and possibly too high. Since each component reflects corrective measures pertaining to a particular and distinct component at OCQ-Tier2 (tier 2), one would expect lower correlations between these components. It is clear that a factor analysis on this correlation matrix would not uncover six separate factors. Possibly "response set" (as all items measured in the same direction on the same 5-point Likert scale) may have caused high correlations between all the items resulting in a large single factor.

6.4 INTEGRATION OF RESULTS FOR THE PATH DIAGRAMS FOR THE THREE TIERS

Initially, a poor fit to the data was found for the proposed model (see fig 6.1 above for the path diagram) of the relations between components of OCQ-Tier1 (tier 1). When the model was adjusted by excluding components one and five (because these two components were each measured by one item only), a reasonable fit between the model and the data was achieved. This suggests that the OCQ-Tier1 (tier 1) of the questionnaire should be adapted for future use by writing more items to measure components one and five.

The model of the relations between components in OCQ-Tier2 (tier 2) as given in figure 6.3, also fitted the data poorly. When improvements were made to the model on the basis of information given by the modification indices, a reasonable fit of the model to the data was obtained. This indicated that there is a possibility that if one improves the wording and content of some of the items, future research might be able to find a reasonable fit between model and data.

The correlations between the components in OCQ-Tier3 (tier 3) appeared to be high, in fact, too high. This was possibly because of the so-called "response set" in which all items score in a similar direction, which is conducive to response set meaning that the results may have been different if the items were scored in a different manner.

6.5 MODELLING THE CAUSAL CONNECTION BETWEEN THE FIRST AND SECOND TIER

The results of the causal connection between the first and the second tier for the six elements of Locke's (1997) model of work motivation will be given.

6.5.1 Personal actualisation

The path diagram in figure 6.5 models the relation between "personal actualisation" in OCQ-Tier1 (tier 1) and "personal actualisation" in OCQ-Tier2 (tier 2).

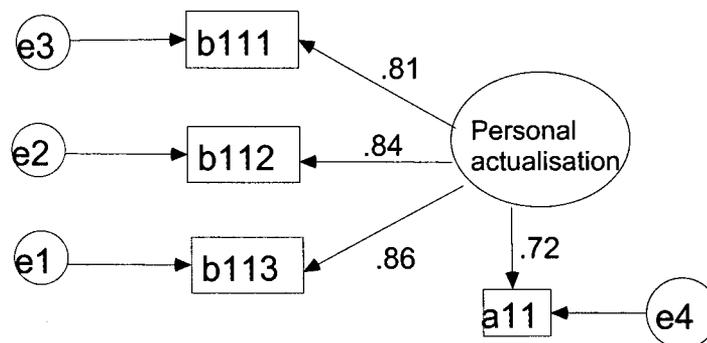


Figure 6.5: Path Diagram modelling the Causal Connections Between OCQ-Tier1 (tier 1) and OCQ-Tier 2 (tier 2) for the Component "Personal Actualisation" (N = 678)

It should be apparent that because "personal actualisation" in OCQ-Tier1 (tier 1), is represented by a single item only, that the model is somewhat trivial. The RMSEA value of 0,181 in table 6.6 indicated a poor fit.

TABLE 6.6
GOODNESS OF FIT STATISTICS FOR FIGURE 6.5

Model	NPAR	CMIN(χ^2)	DF	P	CMIN/DF
Default model	11	69.265	3	0.000	23.088
Saturated model	14	0.000	0		
Independence model	4	7774.605	10	0.000	777.460
Model	RMSEA	LO 90	HI 90	HOELTER (0.5)	
Default model	0.181	0.145	0.219	77	
Independence model	1.071	1.051	1.091	2	

The Hoelter N value is 77, which indicates that for a sample of size 77 the Chi-square would not have been able to reject the model at the 0,05 significance level.

6.5.2 Goal setting

The path diagram in figure 6.6 models the relationship between "goal setting" in OCQ-Tier1 (tier 1) and "goal setting" in OCQ-Tier2 (tier 2).

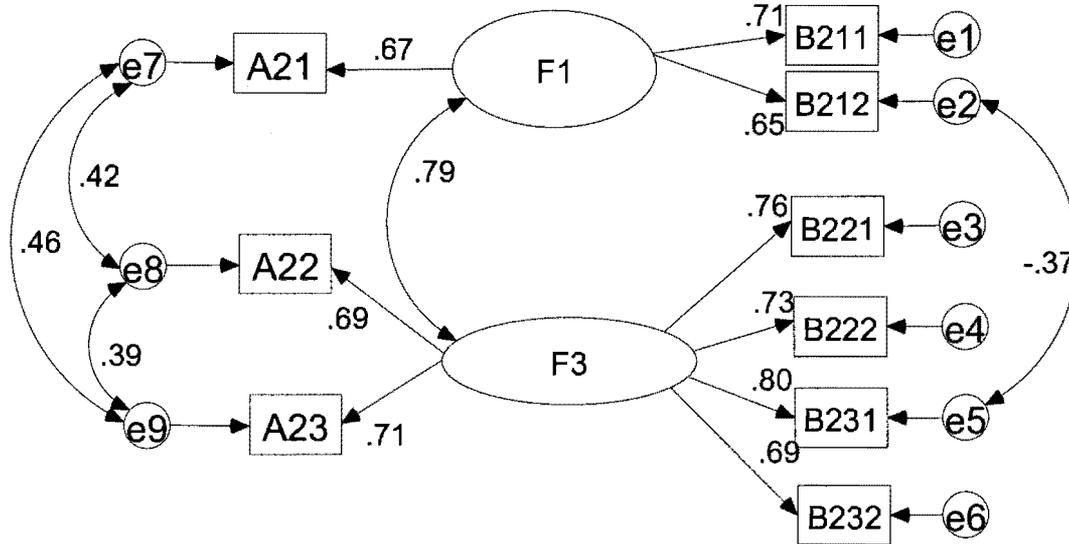


Figure 6.6: Path Diagram Modelling the Causal Connections Between OCQ-Tier1 and OCQ-Tier2 for the Component "Goal Setting" (N = 678)

A reasonable fit between the model (showing how goal-setting at OCQ-Tier1 is causally connected to goal-setting at OCQ-Tier2) and the data for this component, could only be achieved under the following conditions:

- Reducing the number of subfactors at OCQ-Tier2 (tier 2) level from three to only two factors. It is seen, for example, in figure 6.6 that items B221 (item 2.2.1), B222 (item 2.2.2), B231 (item 2.3.1) and B232 (item 2.3.2) constitute a single factor instead of two separate ones.
- Allowing covariance between e7, e8 and e9, as well as e2 and e6.

The goodness of fit statistics are given in table 6.7.

TABLE 6.7
GOODNESS OF FIT STATISTICS FOR FIGURE 6.6

Model	NPAR	CMIN(χ^2)	DF	P	CMIN/DF
Default model	32	134.921	22	0.000	6.133
Saturated model	54	0.000	0		
Independence model	9	18311.848	45	0.000	406.930
Model	RMSEA	LO 90	HI 90	HOELTER (0.5)	
Default model	0.087	0.073	0.101	171	
Independence model	0.774	0.765	0.784	3	

The RMSEA value which is 0,087 indicates only a moderately good fit. When taking into account the modifications (allowances) that had to be made to arrive at 0,087, it would be prudent to conclude that a satisfactory fit between model and data could not be shown. The model does, however, point out the direction that improvements should take. One should clearly find ways to formulate items in such a way that the correlations between elements F3 and F2 will decrease.

6.5.3 Goal support

The path diagram showing the causal links between OCQ-Tier1 (tier 1) "goal support" and OCQ-Tier2 (tier 2) "goal support" is given in figure 6.7 together with relevant parameter estimates and test statistics in table 6.8.

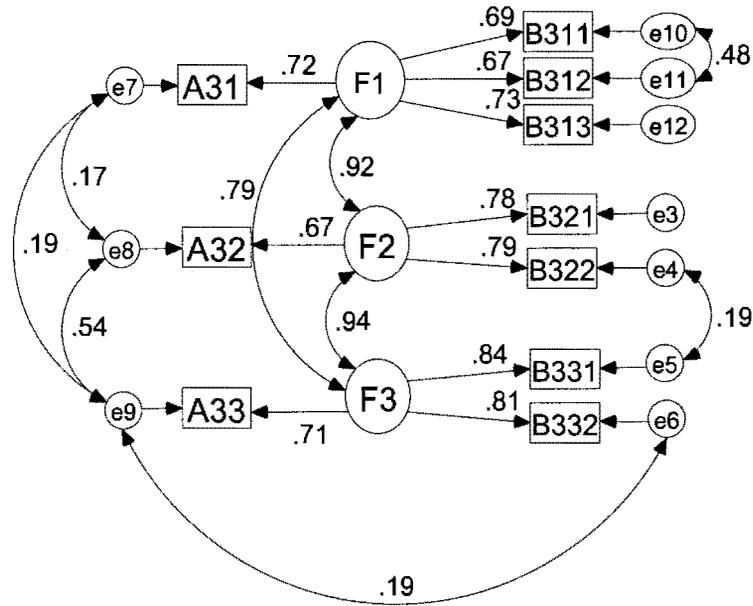


Figure 6.7: Path Diagram modelling the Causal Connections Between OCQ-Tier1 and OCQ-Tier2 for the Component "Goal Support" (N = 678)

**TABLE 6.8
GOODNESS OF FIT STATISTICS FOR FIGURE 6.7**

Model	NPAR	CMIN(χ^2)	DF	P	CMIN/DF
Default model	39	167.281	26	0.000	6.434
Saturated model	65	0.000	0		
Independence model	10	21631.731	55	0.000	393.304
Model	RMSEA	LO 90	HI 90	HOELTER (0.5)	
Default model	0.090	0.077	0.103	158	
Independence model	0.761	0.753	0.770	3	

Note that allowances had to be made for covariance between some error terms in order to achieve a RMSEA value below 0,10. Again, the correlations between the factors are high, suggesting that three factors are too many, or alternatively, that some other systematic factor such as response set may be causing a high level of correlation between items.

6.5.4 Goal-directed behaviour

The path diagram showing the causal links between OCQ-Tier1 (tier 1) "goal-directed behaviour" and OCQ-Tier2 (tier 2) "goal-directed behaviour" is given in figure 6.8 together with relevant parameter estimates and test statistics in table 6.9.

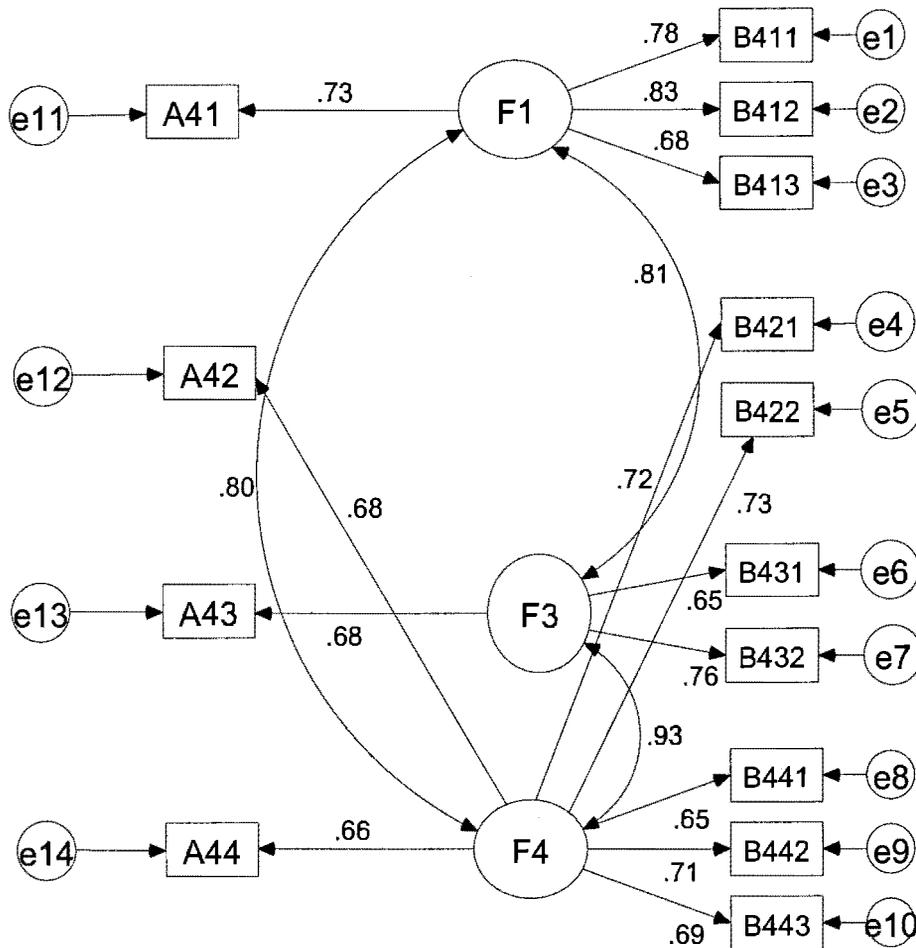


Figure 6.8: Path Diagram modelling the Causal Connections Between OCQ-Tier1 and OCQ-Tier2 for the Component "Goal-Directed Behaviour" (N = 678)

TABLE 6.9
GOODNESS OF FIT STATISTICS FOR FIGURE 6.8

Model	NPAR	CMIN(χ^2)	DF	P	CMIN/DF
Default model	45	565.349	74	0.000	7.640
Saturated model	119	0.000	0		
Independence model	14	28401.037	105	0.000	270.486
Model	RMSEA	LO 90	HI 90	HOELTER (0.5)	
Default model	0.099	0.091	0.107	114	
Independence model	0.631	0.625	0.637	4	

The researcher was forced to combine factors F2 (not shown in the path diagram) and F4 to achieve an admissible solution. The RMSEA value of 0,099 indicates a moderate fit of the model to the data. The correlation between factor F3 and F4 (0,93) still appears too high, suggesting that even three factors are too many, or alternatively, that some other systematic factor such as response set may be causing a too high level of correlation between items. Future research should be able to proceed from the path diagram and the estimates with a view to obtaining a model with a better fit to the data.

6.5.5 Goal achievement

The path diagram in figure 6.9 and table 6.10 models the relation between "goal achievement" in OCQ-Tier1 (tier 1) and "goal achievement" in OCQ-Tier2 (tier 2).

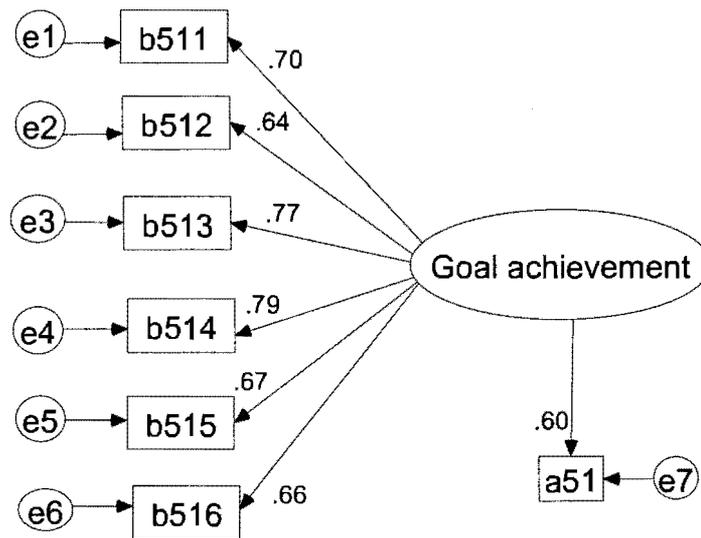


Figure 6.9: Path Diagram modelling the Causal Connections between OCQ-Tier1 and OCQ-Tier2 for the Component "Goal Achievement" (N = 678)

**TABLE 6.10
GOODNESS OF FIT STATISTICS FOR FIGURE 6.9**

Model	NPAR	CMIN(χ^2)	DF	P	CMIN/DF
Default model	20	320.870	15	0.000	21.391
Saturated model	35	0.000	0		
Independence model	7	13425.434	28	0.000	479.480
Model	RMSEA	LO 90	HI 90	HOELTER (0.5)	
Default model	0.174	0.157	0.190	53	
Independence model	0.841	0.829	0.853	3	

It should be apparent that because only one item represents "goal achievement" in OCQ-Tier1 (tier 1), the model is somewhat trivial. The RMSEA value of 0,174 indicates a poor fit. The Hoelter N value is 53, indicating that for a sample of size 53 the Chi-square would not have been able to reject the model. At this stage, one may conclude that a reasonable connection between OCQ-Tier1 (tier 1) and OCQ-Tier2 (tier 2) could not be shown.

6.5.6 Quality of work life

The path diagram showing the causal links between OCQ-Tier1 (tier 1) "quality of work life" and OCQ-Tier2 (tier 2) "quality of work life" is given in figure 6.10 and table 6.11 together with relevant parameter estimates and test statistics.

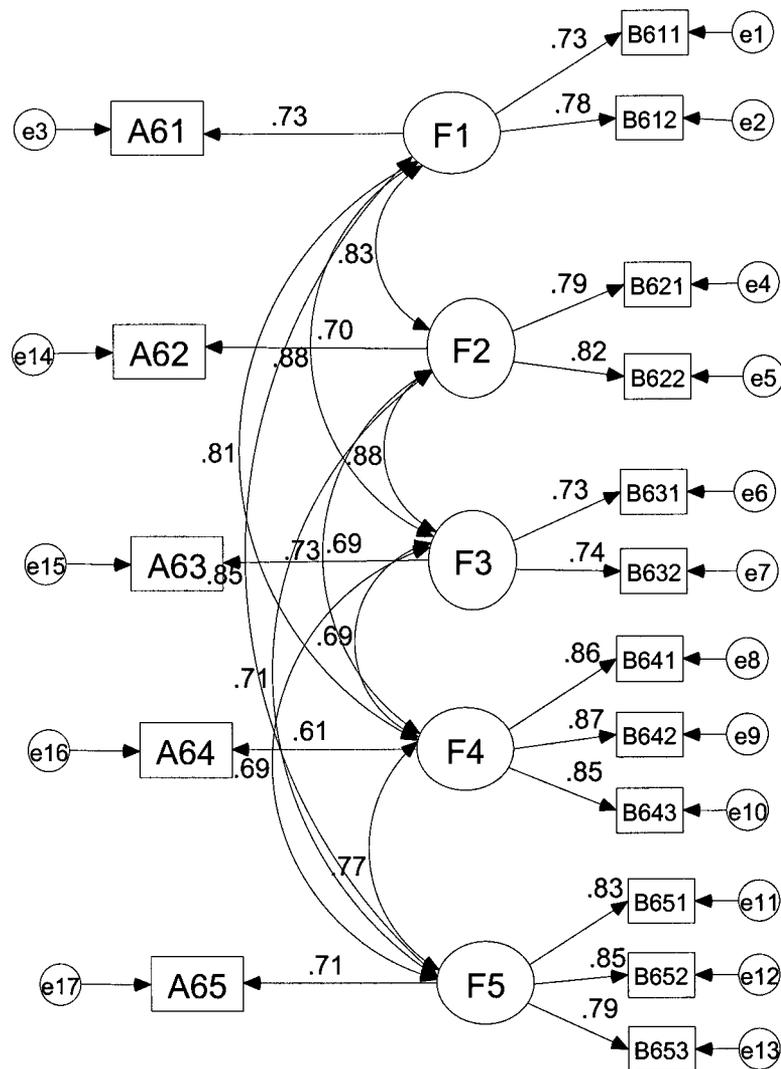


Figure 6.10: Path Diagram modelling the Causal Connections between OCQ-Tier1 and OCQ-Tier2 for the Component "Quality of Work Life" (N = 678)

TABLE 6.11
GOODNESS OF FIT STATISTICS FOR FIGURE 6.10

Model	NPAR	CMIN(χ^2)	DF	P	CMIN/DF
Default model	61	634.284	109	0.000	5.819
Saturated model	170	0.000	0		
Independence model	17	34746.380	153	0.000	227.101
Model	RMSEA	LO 90	HI 90	HOELTER (0.5)	
Default model	0.084	0.078	0.091	144	
Independence model	0.578	0.573	0.583	4	

A RMSEA value of 0,084 was achieved which indicates a reasonable fit of the model to the data, especially since it was unnecessary to allow covariance between error terms. Also note that although the correlations between factors F1 to F5 are high, none of them exceeds 0,90 as was the case in some of the other models.

6.6 MODELLING THE CAUSAL CONNECTION BETWEEN THE SECOND AND THIRD TIER

The causal connections between the second and third tier will be modelled for each of the six components evident in Locke's (1997) model of work motivation.

6.6.1 Personal actualisation

The path diagram in figure 6.11 models the relation between "personal actualisation" in OCQ-Tier2 (tier 2) and "personal actualisation" in OCQ-Tier3 (tier 3). The relevant parameter estimates and test statistics for the relationship between "personal actualisation" in OCQ-Tier2 (tier 2) and in OCQ-Tier3 (tier 3) is given in table 6.12. Note that covariance was allowed between the error terms e7, e8 and e9. This is because the model was inadmissible without these covariances and the researcher was therefore forced to include them.

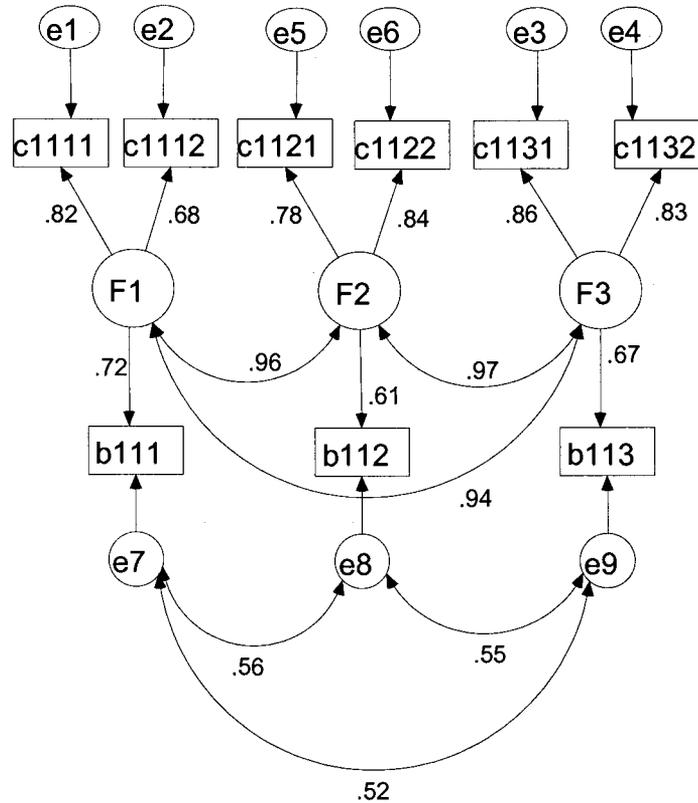


Figure 6.11: Path Diagram modelling the Causal Connections between OCQ-Tier2 and OCQ-Tier3 for the Component "Personal Actualisation" (N = 678).

**TABLE 6.12
GOODNESS OF FIT STATISTICS FOR MODEL IN FIGURE 6.11**

Model	NPAR	CMIN(χ^2)	DF	P	CMIN/DF
Default model	33	144.331	21	0.000	6.873
Saturated model	54	0.000	0		
Independence model	9	18829.174	45	0.000	418.426
Model	RMSEA	LO 90	HI 90	HOELTER (0.5)	
Default model	0.093	0.079	0.108	154	
Independence model	0.785	0.776	0.795	3	

The RMSEA value of 0,093 indicates a moderate to poor fit. Also note the high correlations (parameters) between the three factors, namely 0,96, 0,97 and 0,94. This indicates that a single factor might do as well. The general level of correlations between items may be too high because of the "response set". All things considered, one should accept that an adequate fit between model and data could not be demonstrated.

6.6.2 Goal setting

The path diagram in figure 6.12 models the relationship between "goal setting" in OCQ-Tier2 (tier 2) and "goal setting" in OCQ-Tier3 (tier 3).

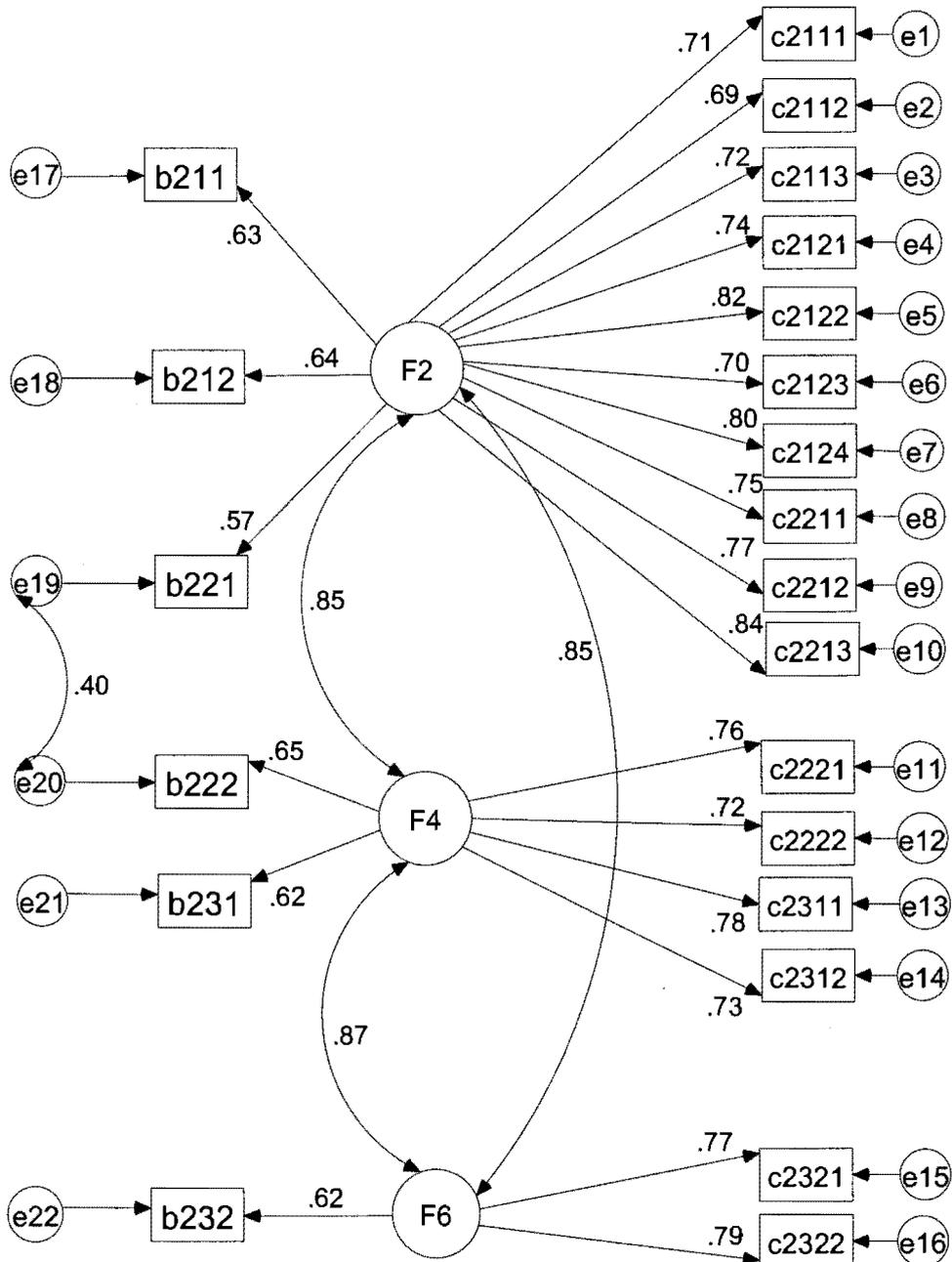


Figure 6.12: Path Diagram modelling the Causal Connections between OCQ-Tier2 and OCQ-Tier3 for the Component "Goal Setting" (N = 678)

The relevant parameter estimates and test statistics for the relationship between "goal setting" in OCQ-Tier2 and "goal setting" in OCQ-Tier3 is given in table 6.13.

TABLE 6.13
GOODNESS OF FIT STATISTICS FOR FIGURE 6.12

Model	NPAR	CMIN(χ^2)	DF	P	CMIN/DF
Default model	48	1978.017	205	0.000	9.649
Saturated model	253	0.000	0		
Independence model	22	10330.626	231	0.000	44.721
Model	RMSEA	LO 90	HI 90	HOELTER (0.5)	
Default model	0.113	0.109	0.118	82	
Independence model	0.254	0.250	0.258	18	

The model displayed in figure 6.12 and table 6.13 and tested, displays three factors only, instead of the theoretically intended six factors. The exclusion of the other factors was necessary because of extremely high correlations between the factors which caused the statistical solutions by the AMOS programme to be inadmissible. The resulting RMSEA value of 0,113, depicted in table 6.13, still indicates a poor fit. It should be concluded that a causal connection between OCQ-Tier2 (tier 2) and OCQ-Tier3 (tier 3) could not be demonstrated for the component "goal setting". The major problem again appears to be the high correlations between factors F1 to F6.

6.6.3 Goal support

The path diagram showing the causal links between OCQ-Tier2 (tier 2) "goal support" and OCQ-Tier3 (tier 3) "goal support" is given in figure 6.13 together with relevant parameter estimates and test statistics in table 6.14.

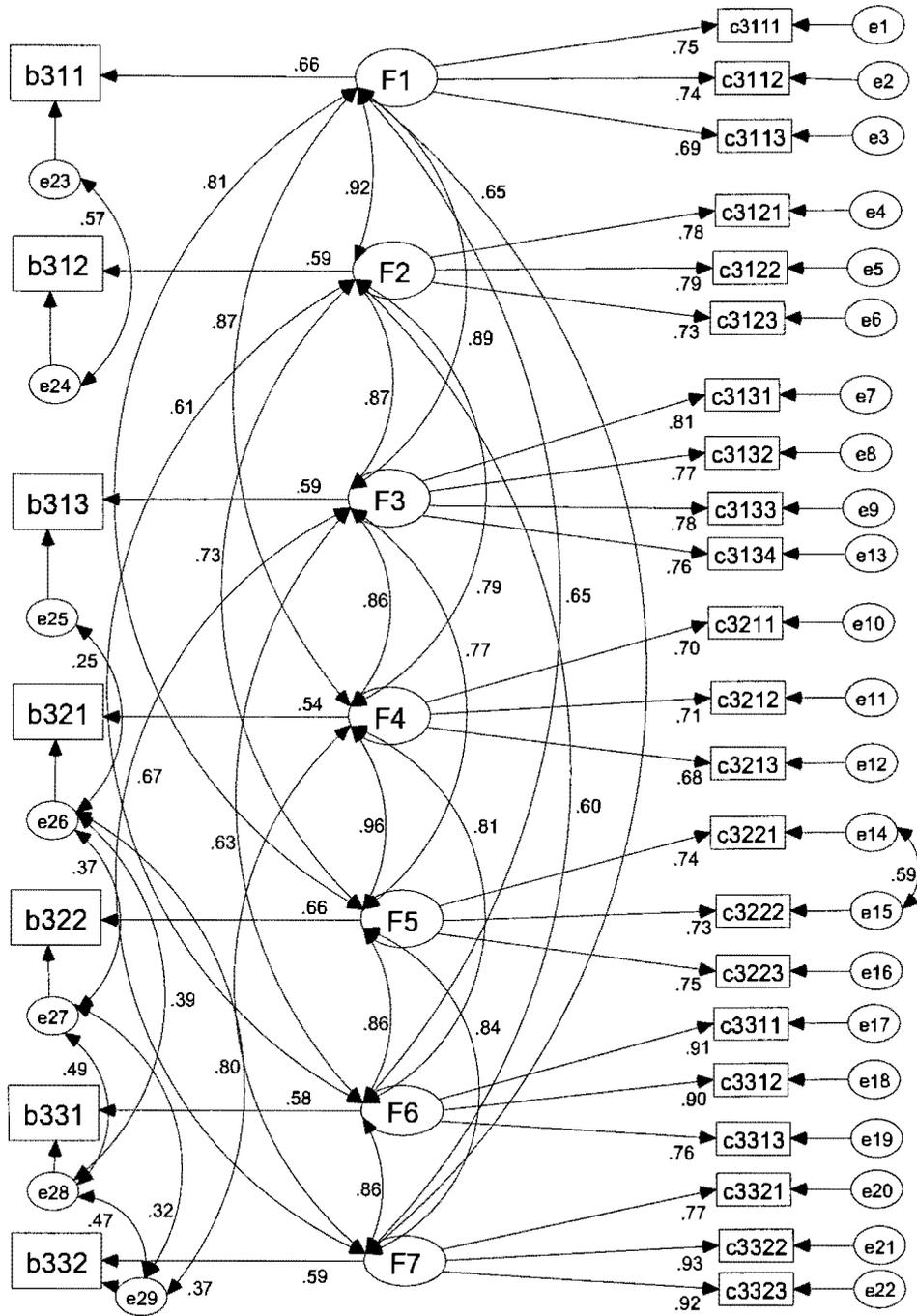


Figure 6.13: Path Diagram modelling the Causal Connections Between OCQ-Tier2 and OCQ-Tier3 for the Component "Goal Support" (N = 678)

TABLE 6.14
GOODNESS OF FIT STATISTICS FOR FIGURE 6.13

Model	NPAR	CMIN(χ^2)	DF	P	CMIN/DF
Default model	117	1822.490	347	0.000	5.252
Saturated model	464	0.000	0		
Independence model	29	63746.636	435	0.000	146.544
Model	RMSEA	LO 90	HI 90	HOELTER (0.5)	
Default model	0.079	0.076	0.083	146	
Independence model	0.464	0.461	0.467	6	

Note that allowances were made for covariance between a few error terms in order to achieve a RMSEA value below 0,10. The RMSEA of 0,079 now indicates a reasonable fit between model and data, especially because most of the error terms appear to be uncorrelated. However, some factors still show high correlations though for example:

- F1 and F2 (0,92)
- F4 and F5 (0,96)

Future research could therefore concentrate on trying to decrease the correlations between these factors, thus improving the fit of this model even further.

6.6.4 Goal-directed behaviour

The path diagram showing the causal links between OCQ-Tier2 (tier 2) "goal-directed behaviour" and OCQ-Tier3 (tier 3) "goal-directed behaviour" is given in figure 6.14 together with relevant parameter estimates and test statistics in table 6.15.

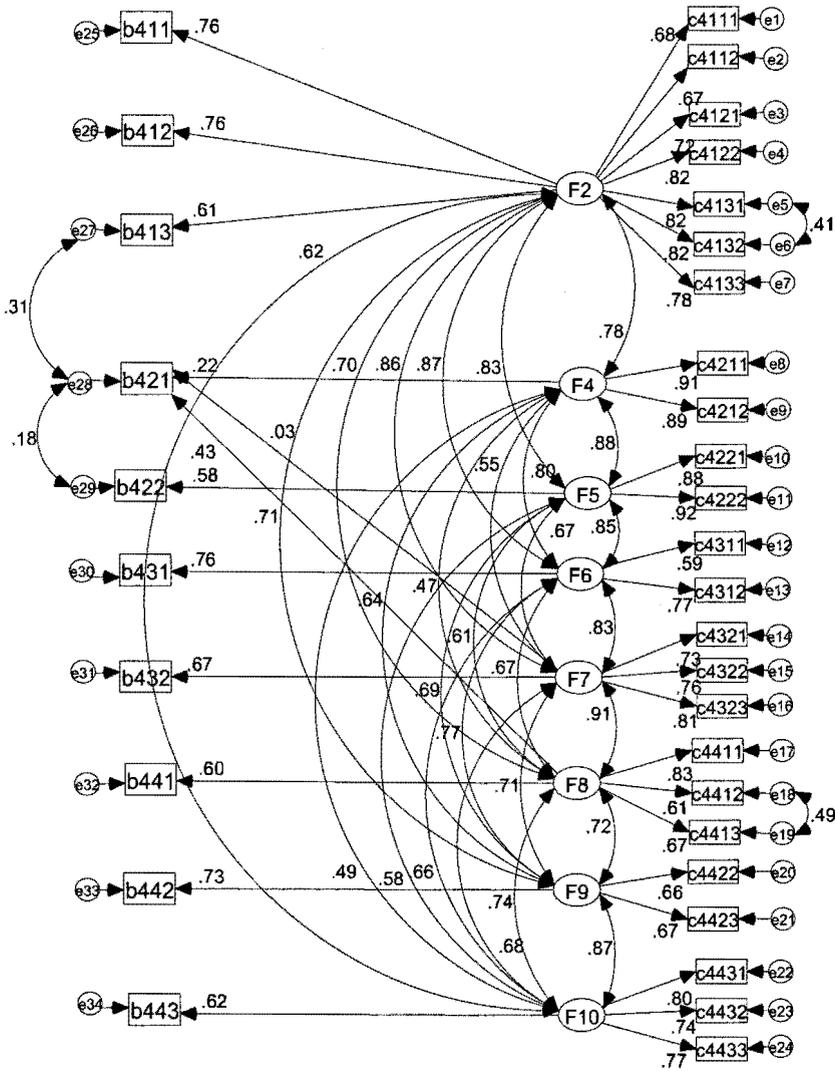


Figure 6.14: Path Diagram modelling the Causal Connections Between OCQ-Tier2 and OCQ-Tier3 for the Component "Goal-Directed Behaviour" (N = 678)

**TABLE 6.15
GOODNESS OF FIT STATISTICS FOR FIGURE 6.14**

Model	NPAR	CMIN(χ^2)	DF	P	CMIN/DF
Default model	136	2667.306	493	0.000	5.410
Saturated model	629	0.000	0		
Independence model	34	73338.307	595	0.000	123.258
Model	RMSEA	LO 90	HI 90	HOELTER (0.5)	
Default model	0.081	0.078	0.084	139	
Independence model	0.425	0.422	0.428	7	

The researcher was forced to combine factors F1 and F2 in order to achieve an admissible solution. Covariance had to be allowed between a few (but not too many) error terms. The RMSEA value of 0,081 indicates a reasonable fit of the model to the data. The correlation between factors still appears to be too high, especially factors F7 and F8, suggesting that even eight factors are too many, or alternatively, that some other systematic factors such as response set may be causing a too high level of correlation between items. Future research should be able to proceed from this path diagram and the estimates with a view to obtaining a model with an even better fit to the data.

6.6.5 Goal achievement

The path diagram showing the causal links between OCQ-Tier2 (tier 2) "goal achievement" and OCQ-Tier3 (tier 3) "goal achievement" is given in figure 6.15 together with relevant parameter estimates and test statistics in table 6.16.

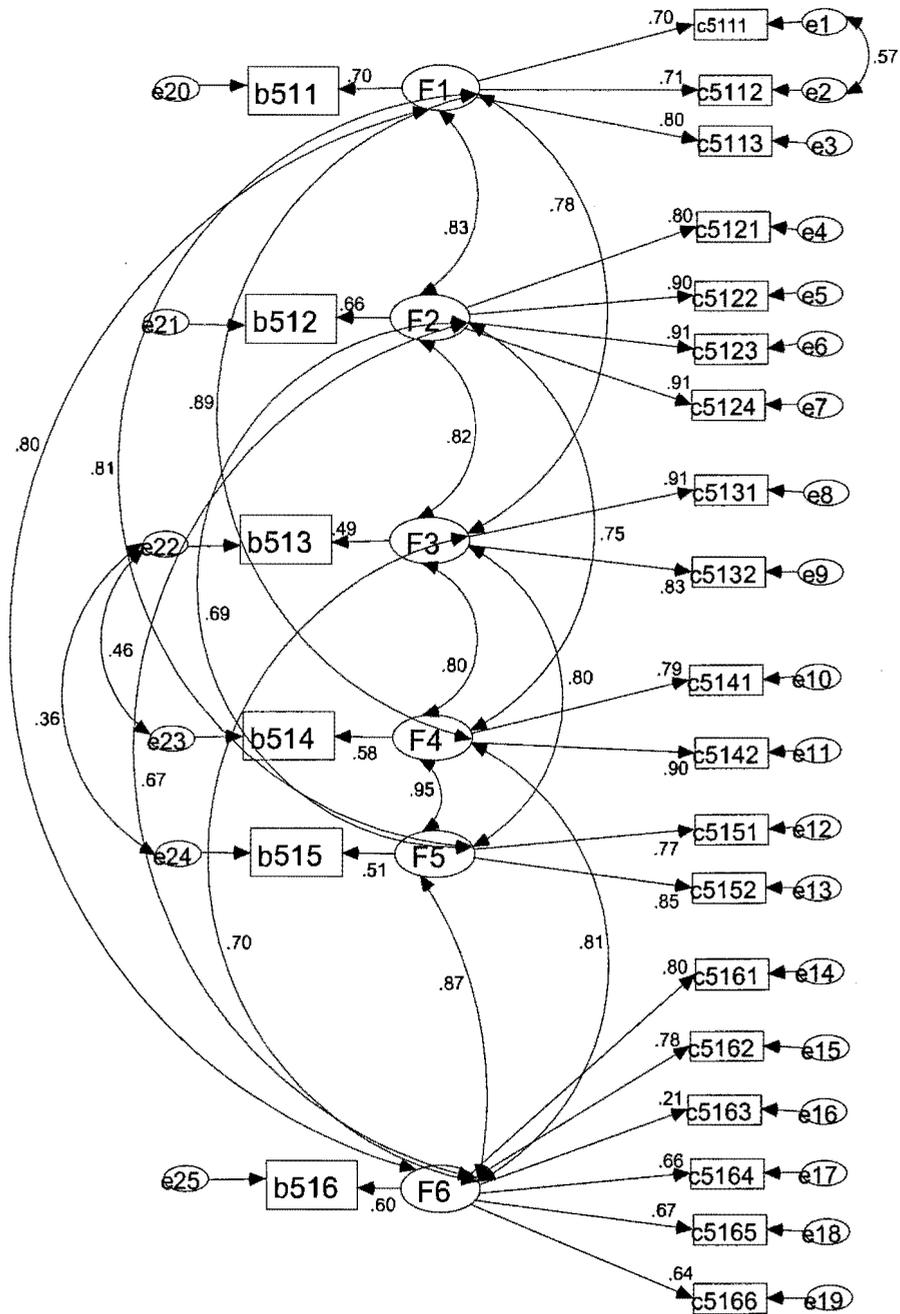


Figure 6.15: Path Diagram modelling the Causal Connections Between OCQ-Tier2 and OCQ-Tier3 for the Component "Goal Achievement" (N = 678)

TABLE 6.16
GOODNESS OF FIT STATISTICS FOR FIGURE 6.15

Model	NPAR	CMIN(χ^2)	DF	P	CMIN/DF
Default model	68	1964.876	257	0.000	7.645
Saturated model	325	0.000	0		
Independence model	25	12899.302	300	0.000	42.998
Model	RMSEA	LO 90	HI 90	HOELTER (0.5)	
Default model	0.099	0.095	0.103	102	
Independence model	0.249	0.245	0.253	18	

The RMSEA value of 0,099 indicates a reasonably poor fit. On the positive side, covariance was allowed between only a few error terms. It would appear that the correlation between F4 and F5 is too high. The theoretical model must either be adapted to combine these two factors, or work must be done on the items of these factors in order to achieve factors with a lower correlation between them.

6.6.6 Quality of work life

The path diagram showing the causal links between OCQ-Tier2 (tier 2) "quality of work life" and OCQ-Tier3 (tier 3) "quality of work life" is given in figure 6.16 together with the relevant parameter estimates and test statistics in table 6.17.

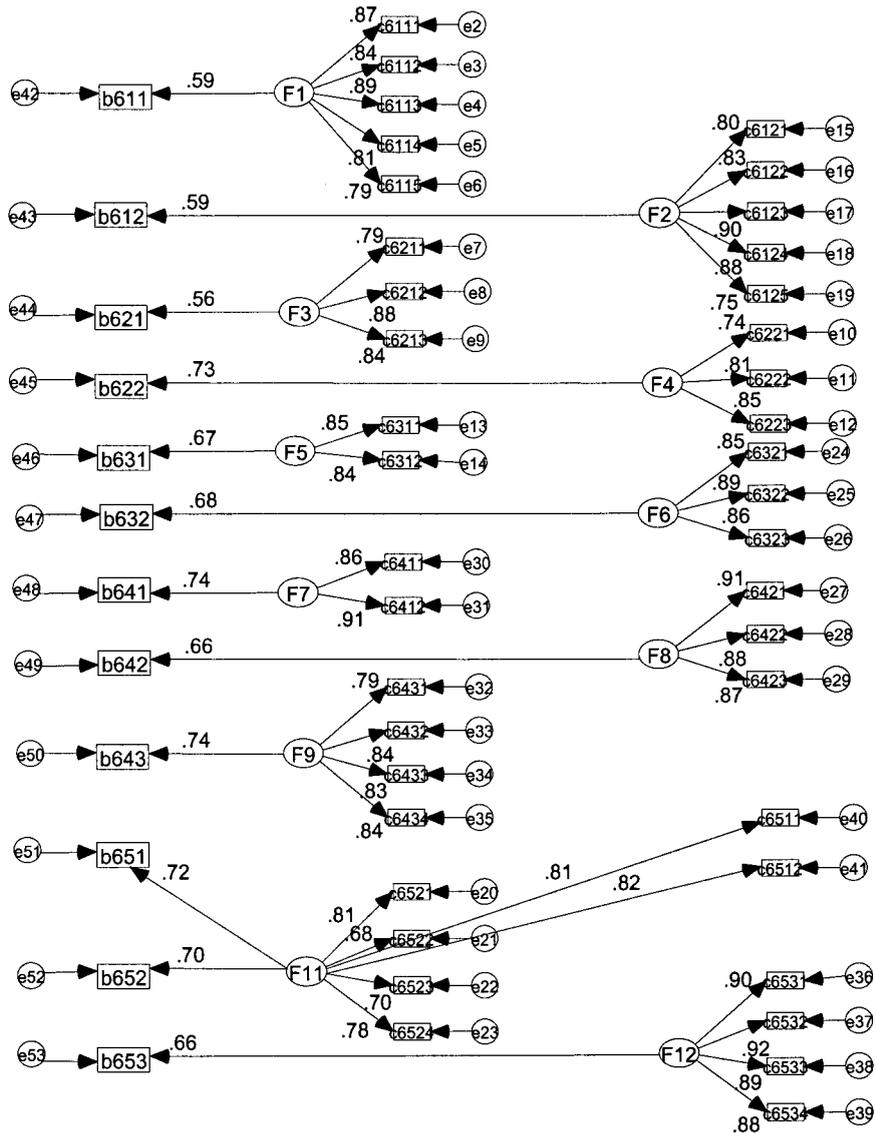


Figure 6.16: Path Diagram modelling the Causal Connections Between OCQ-Tier2 and OCQ-Tier3 for the Component "Quality of Work Life" (N = 678)

TABLE 6.17
GOODNESS OF FIT FOR FIGURE 6.16

Model	NPAR	CMIN(χ^2)	DF	P	CMIN/DF
Default model	211	5723.867	1219	0.000	4.696
Saturated model	1430	0.000	0		
Independence model	52	119655.304	1738	0.000	86.833
Model	RMSEA	LO 90	HI 90	HOELTER (0.5)	
Default model	0.074	0.072	0.076	159	
Independence model	0.356	0.354	0.358	9	

Owing to the complexity of the model, the covariance (correlations) between the factors is not indicated on the path diagram but was factored into the solution. Note that factor F10 is not indicated because the researcher had to combine this factor with factor F11 in order to achieve an admissible solution. A RMSEA value of 0,074 was achieved which indicates a moderate fit of the model to the data. Should covariance between error terms be allowed, a better fit may be obtained, but at the same time a model that is more difficult to make sense of is obtained. Since the correlations could not be indicated on the path diagram, the reader is referred to appendix 1. In general, the intercorrelations appear to be too high.

To improve visibility, the correlations between factors were not drawn but formed part of the model.

6.7 RELIABILITY OF THE OCQ

One of the objectives of the present study was to establish the reliability of the OCQ. Since no retest of a sample of subjects was done on the OCQ, it was not possible to calculate the so-called "test-retest reliability" of the questionnaire. The internal consistency reliability (Lemke & Wiersma, 1976) of a questionnaire can be tested on the response data of a single application of a test. First, however, it should be decided whether a test or subtest is expected to be homogeneous. The question should, for example, be asked about whether all the items of OCQ-Tier1 (tier 1) were expected to measure a single homogeneous construct. If the answer to this question is "yes", can six different

components be identified in OCQ-Tier1 (tier 1) of the OCQ? It would possibly make more sense to compute the internal consistency per component, but since number of items per component per tier was too few, this would also not make sense. The most sensible course of action appeared to be to compute the internal consistency of a component across all three tiers. This means that all the items making up a component [OCQ-Tier1 (tier 1), OCQ-Tier2 (tier 2) and OCQ-Tier 3 (tier 3)] would be regarded as the measurement of that component.

The Cronbach Alpha coefficient as an index of the internal consistency of a scale was calculated for each of the three tiers and for each of the six components across the three tiers. Cronbach alpha within the tiers is reported in table 6.18.

TABLE 6.18
CRONBACH ALPHA WITHIN THE THREE TIERS (N = 678)

	Tier 1	Tier 2	Tier 3
Cronbach Alpha	0.93	0.98	0.99

The cronbach alpha for each separate component across OCQ-Tier1, OCQ-Tier2 and OCQ-Tier3 is tabulated in table 6.19.

TABLE 6.19
CRONBACH ALPHA FOR EACH SEPARATE COMPONENT ACROSS THE
THREE TIERS (N = 678)

	Cronbach Alpha
Personal actualisation	0.9277
Personal goal setting	0.9579
Goal support	0.9656
Goal-directed behaviour	0.9668
Goal achievement	0.9531
Quality of work life (total satisfaction)	0.9817

All the coefficients are above 0,92. It cannot be concluded from these high coefficients that the test was reliable, because it would appear that a high level of correlation existed between all items almost irrespective of the content of the items. Possibly, because all items were scaled to measure in the same direction, a strong "response set" or tendency to answer all items at a particular response level, resulted in high correlations among items. This would also explain why the various models tested fitted the data either poorly or moderately well, with possibly one or two exceptions.

6.8 INTEGRATION OF RESULTS

The model suggesting particular causal links (see figure 6.1) between the six components within OCQ-Tier1 (tier 1) could not be confirmed. (See section 6.1 and table 6.1: The RMSEA value for the model was found to be 0,114 which is larger than 0,10 and therefore represents a poor fit.) Thus when the causal links between "personal actualisation", "goal setting", "goal support", "goal behaviour", "goal achievement" and "quality of work life" were analysed, support was not found for the model. When the two components "personal actualisation" and "goal achievement" were dropped from the model, some fit between the model and data was found. (The RMSEA value was now found to be 0,86 in table 6.2 which indicated a moderately acceptable fit.) At a first glance the researcher may be tempted to find more support for a model consisting of only four components, namely that of "goal setting", "goal support", "goal behaviour" and "quality of work life". In this context, it was noted that the two components that were dropped were each represented by a single item only (in OCQ-Tier1). Possibly this resulted in an inadequate measurement of these two components. However the result of $RMSEA = 0,086$ is still not convincing as this represents an only moderately good fit, indicating that the proposal of a four component model at this point would be premature. When this same model suggesting particular hierarchical causal links between the six components, was tested at the OCQ2-Tier2 (tier 2) level of the OCQ, a better fit between the model and data was found with all six components in the model. Here the two components "personal actualisation" and "goal achievement" were each represented by more than one item. This suggests that when there are more items measuring these components a better fit is found between the model and the data. However the fit suggested by the RMSEA value of 0,092 (compared to an RMSEA of 0,114 on OCQ-Tier1) was still not convincing as this value is not small enough

to conclude a good fit. Although there appears to be a clearer causal relationship between "personal actualisation", "goal setting", "goal support", "goal behaviour", "goal achievement" and "quality of work life" at the OCQ-Tier2 level, the results achieved do not indicate enough support for this model. When this latter model was adjusted by allowing "covariance" between some error terms in the model (as was suggested by the modification indices which forms part of the output of the AMOS programme), a better fit (RMSEA = 0,082) was found at the OCQ-Tier2 (tier 2) level as was evident from the smaller RMSEA of 0,082. When improvements were made on the basis of information given by the modification indices, a reasonable fit of the model to the data was obtained. This indicated that there is a possibility that if the wording and content of some of the items were improved, future research may be able to find a fit between the model and the data. This could indicate that the components "personal actualisation", "goal setting", "goal support", "goal behaviour", "goal achievement" and "quality of work life" are causally linked and that support for Locke's model of work motivation may be found. However, it should be remembered that allowing covariance between some of the error terms represents a measure of after-the-fact tampering with the model for which no theoretical justification could be shown.

In testing the causal links across the three tiers per element, the models for "personal actualisation" and "goal achievement" could not be shown to fit the data, especially between OCQ-tier1 and OCQ-Tier2. As far as "personal actualisation" is concerned, the RMSEA values were found to be 0,181 and 0,093 for the causal connection between OCQ-Tier1 (tier 1) and OCQ-Tier2 (tier 2), and between OCQ-Tier2 (tier 2) and OCQ-Tier3 (tier 3) respectively. As far as "goal achievement" is concerned, the RMSEA values found in the causal connection between OCQ-Tier1 (tier 1) and OCQ-Tier2 (tier 2) and between OCQ-Tier2 (tier 2) and OCQ-Tier3 (tier 3) were 0,174 and 0,99 respectively. The RMSEA values thus all indicate a poor fit of the models of a causal connection between OCQ-Tier1 (tier 1) and OCQ-Tier2 (tier 2) and between OCQ-Tier2 (tier 2) and OCQ-Tier3 (tier 3) as far as "personal actualisation" and "goal achievement" is concerned. There appears to be some support for the fit between a four component model consisting of "goal setting", "goal support", "goal behaviour", and "quality of work life" and the data at this level, but it is premature to suggest a modification to Locke's (1997) model of work motivation at this point based on these results.

A moderate confirmation of the models was found in the case of the components "goal setting" (RMSEA = 0,087 for the model of a causal connection between OCQ-Tier1 and OCQ-Tier2). However, a high RMSEA was found for "goal setting" (RMSEA = 0,113 for the model of a causal connection between OCQ-Tier2 and OCQ-Tier3) where the originally intended six components derived from Locke's model were collapsed into three components by the AMOS programme as a result of the extremely high correlations between the components. A moderate confirmation of the model was also found in the case of the component "goal support" (RMSEA = 0,079) for an adjusted model of causal connection between OCQ-Tier2 (tier 2) and OCQ-Tier3 (tier 3). The same is true for the component "goal-directed behaviour" where a RMSEA value of 0,081 is found for an adjusted model of causal connection between OCQ-Tier2 (tier 2) and OCQ-Tier3 (tier 3). However these results were found only after some adaptations were made to the models on the basis of so-called "modification indices" suggested by the output of the AMOS programme. (See sections 6.5 - 6.6 for more details.)

A reasonably good fit was found for the models suggesting causal links across the three tiers for the component "quality of work life" (RMSEA = 0,074 for the model of a causal connection between OCQ-Tier2 and OCQ-Tier3 and RMSEA = 0,084 for the model of a causal connection between OCQ-Tier1 and OCQ-Tier2).

This may indicate some support for a two component model where "goal setting", "goal support" and "goal directed behaviour" is combined to form a single component namely that of "goals" and "quality of work life" forms the other component. This however is speculative at this point and cannot be justified by the quantitative results obtained in this research.

On reflection of Locke's (1997) model of work motivation, it is the culmination of the first five components, namely personal actualisation, goal setting, goal support, goal-directed behaviour, goal achievement that influence the sixth component namely that of "quality of work life". "Quality of work life" is at the top of the hierarchy of the components (as depicted in figure 4.2) and as such is the end state following the execution of the other five components. The section of the questionnaire dealing with "quality of work life" also contained the largest number of questions in all three tiers. The questions reflected the sentiments of, and the culmination of the output of is the previous five sections which

reflected the five components which influence the component of "quality of work life". This possibly could have resulted in the better fit between the model and the data for the component "quality of work life".

The models suggesting a causal connection between OCQ-Tier1 (tier 1) and OCQ-Tier2 (tier 2) and OCQ-Tier2 (tier 2) and OCQ-Tier3 (tier 3) were thus not completely rejected and further research will be needed before a firm conclusion regarding the existence of causal connections across the three tiers can be confirmed or disconfirmed.

The level of correlation between latent variables was found to be high in all the models tested. For example, for the component "goal setting" (ref figure 6.12 and table 6.13), the model displays only three factors (components) namely that of "goal setting", "goal-directed behaviour" and "quality of work life". The exclusion of the other three factors, namely that of "personal actualisation", "goal support" and "goal achievement" was necessary because of extremely high correlations between the factors which caused the statistical solutions by the AMOS programme to be inadmissible. This meant that the divergent validity of the factors or latent variables are questionable and in some of the models could not distinguish between some of the latent variables. From a behavioural perspective it appears that the components are too closely interrelated to actually be split out into the separate components as suggested in this research and that perhaps they are indeed all part of the same component namely that of motivation which may be able to be split into three components namely that of "goal setting", "goal-directed behaviour" and "quality of work life". Sufficient empirical quantitative support for this however cannot be found in this research.

As in the above mentioned instance, in most of the models, the modification indices in the statistical output suggested that improvement was possible if covariance between error terms in the model was allowed. This suggested possible systematic sources of covariance between items not accounted for by the latent variables in the models.

The present research did not give sufficient evidence on which a revised model of Locke's model of work motivation can be proposed. The results did however provide evidence that the causal links suggested by Locke in his model are not as strong as what was originally believed and that the six components of Locke's model could possibly be collapsed into

fewer than six. Based on the moderate fit between the model and data for the component "quality of work life", there may be evidence that "quality of work life" could be one of the components and that further research will be required to see whether the other five components could be collapsed into a single component. Although the researcher has speculated as to the possible adaptations to Locke's model which could be investigated, to revise Locke's model on the basis of the present research is likely to be premature.

The Cronbach Alpha coefficients within tiers and across tiers for each of the six components indicated a very high level of internal consistency. Possibly this is indicative of a too high level of correlation between items. Response set and response style could have caused this high level of correlation between items. This made the testing of models difficult in the present study. This also made it difficult to draw a conclusion about the internal consistency reliability of the measurement of each element across the three tiers, because the high Cronbach coefficients may to some extent be caused by indiscriminate high correlations between items, caused possibly by response style.

The questionnaire, based on Locke's model of work motivation and the literature study on organisational climate, constructed specifically for this research with the purpose of empirically investigating Locke's model of work motivation did not entirely fit the actual model as originally expected by the researcher, both in terms of modelling of the three tiers based on the six elements of Locke's model and in terms of modelling the causal connections of the six elements between the three tiers.

6.9 CHAPTER SUMMARY

In chapter 6 the empirical results obtained by applying the OCQ to employees in the financial industry was analysed in order to explore the OCQ's validity and reliability. The causal models tested were the sequential causal link between the six work-motivational constructs namely personal actualisation goal setting goal support goal behaviour goal achievement quality of work life and whether a causal connection exists between the three tiers of the questionnaire for each of the six work motivational elements evident in Locke's (1997) model of work motivation..

The three tiers were modelled and a path diagram modelling the causal relations between the six components of the particular tier depicted for each of the tiers followed by the goodness of fit statistics for each model. The causal connection between OCQ-Tier1 and OCQ-Tier2 was explored and path diagrams showing these causal connections depicted together with the goodness of fit statistics. The same statistical procedure was followed for OCQ-Tier2 and OCQ-Tier3.

The reliability of the OCQ explored and Cronbach Alpha calculated within the three tiers after which Cronbach alpha was calculated for each component across the three tiers. A summary and integration of the results was given. The conclusions of and recommendations for this research will be discussed in chapter 7.

CHAPTER 7

CONCLUSIONS, LIMITATIONS AND RECOMMENDATIONS

In this chapter, conclusions will firstly be formulated about the literature review and the results of the empirical research. The shortcomings of the research will be discussed in the context of the conclusions of this research. The recommendations for further research will then be discussed. This concludes phase 2, step 8 of the research design.

7.1 CONCLUSIONS

Conclusions will be drawn about the literature review and the empirical research in accordance with the aims of the research.

7.1.1 Conclusions regarding the literature review

Conclusions will be drawn about organisational climate and work motivation with specific reference to the contextual framework of the research, and the literature reviewed, culminating in the conceptualisation and operationalisation of the various concepts.

The first aim, namely to contextualise the research in terms of organisational psychology, and more specifically, in terms of the financial services industry and an organisational and human resources model is met in chapter 2. This contextual chapter placed the research in context with regard to a framework of organisational activity which was adapted from a model by Mink, Mink and Schultz (1979), the financial services network of the FirstRand Group and Nedcor, a macro-organisational model which was adapted from Roux (1996), and a human resources work motivation model adapted from Locke's (1997) model of work motivation. By selecting this framework for surveying, the research anchored this research in the South African financial services context, both in terms of the format and the interpretation which could be made from the data obtained. The South African financial services industry, as a result of various situational and legislative changes, has developed specific characteristics and unique features which are found in the behaviour

and activities of individual members, the teams and groups they form and the processes that these financial services organisations support. This provides the framework in which the results of this research may be interpreted. The total organisational model which suggests that organisational climate is the net result of the individual and team players of organisational activity, the moderated behaviour patterns resulting unitary/internal/external phases of functioning as well as the impact of systems, procedures and the external socio-economic-political world provides an additional framework for this research. The macro-organisational model was adapted specifically for this research from the work of Roux (1996) who developed a risk-based strategic business model by specifically focusing on the South African banking environment. This model provided the organisational contextual framework for the South African financial services where this research is conducted. This research is thus conducted within the framework of a multi-level, systematic and dynamic environment.

Central to this research, since this research focused on Locke's model of work motivation, was Locke's (1997) research on work motivation which includes references to various approaches to work motivation. Three approaches formed the crux of his work. The first approach suggests that human beings are driven mainly by environmentally conditioned forces and that conscious choice is rarely present in their actions. The second approach acknowledges the conscious of the human being, but focuses on the subconscious drivers such as ego states to explain behaviour. A third approach recognises both subconscious and conscious drivers and tends to focus on goal-forming behaviour patterns. What is important is that Locke does not reject or favour any of these approaches, but views them as integrative and complimentary rather than opposing or contradictory. In the context of these approaches, Locke refers to a series of work motivation theories which include goal-setting theory, social cognitive theory, personality theory, valence-instrumentality-expectancy theory, attribution theory, equity theory, procedural equity theory and job characteristics theory, all of which have been proposed and empirically tested by proponents of each. Locke (1997) proposes a highly integrative and systemic model which encapsulates these theories and provides an understanding of some of the basic causal relationships between various motivational components. In his research Locke focussed extensively on empirical evidence by various research projects, and based on these findings, suggested certain causal analogues explaining the connection between the main

model parts. It is essentially these causal relationships in the model which is empirically investigated in this research.

The second aim, namely to study the literature on organisational climate and work motivation in order to gain a better understanding of these concepts, and the dimensions and their constructs which will ultimately form the foundation on which the questionnaire is constructed was achieved in chapters 3 and 4. Perhaps the most striking aspect of this study in chapter 3 and to a large extent in chapter 4 is the all-encompassing nature of the topic itself. Considering the discussions on the definition of organisational climate and work motivation, it becomes readily apparent how many divergent factors can in some way affect the desire of an employee to perform. By way of review, the research suggests that variables affecting motivation can be found at three levels in organisational settings. Firstly, some variables are unique to the individual self (such as personality and needs and the actualisation thereof). To this end, nine theories of individual behaviour were studied. Locke's model has as its entry point the individual as a focus point and incorporates the factors discussed by the various schools of thought on the individual in chapter 3 in his analysis of this element. In this research the element reflecting most of the theory discussed may be found in the first three of the six elements which were analysed, namely that of personal actualisation, goal setting and goal support, which essentially have to do with intrinsic forms of motivation. Secondly, managerial approaches to motivation were discussed. In this context, the traditional model, the human relations model and human resources models were explored. Leadership and organisational climate were also studied. These areas of research provided support for the last three elements of Locke's model, namely that of goal-directed behaviour, goal achievement and quality of work life. These elements of work motivation are essentially linked to extrinsic motivation. Thirdly, organisational effectiveness theories were explored, which also provided support for the last three elements of Locke's model of work motivation. In this context, organisational determinants of climate were explored. The outcome of climate, and climate as an intervening variable were investigated. Some popular organisational theories were also explored, including the cognitive and behaviour theories, and the contingency theories. These theories also formed building blocks and served as input for Locke's model of work motivation. Organisational climate measurement was reviewed and served as a guide and reference for the construction of the OCQ constructed in chapter 4. The critique of organisational climate reviewed in chapter 3 highlighted the complexity of dealing with a

subject as dynamic as organisational climate where so many variables are interacting in a diverse and complex environment which is influenced and influences the outcome.

The literature revealed the importance of a systems perspective in the study of motivation and organisational climate. Instead of viewing the variables from the different studies and literature, as static lists of items, consideration should be given to how they affect one another and change over time in response to circumstances. Individuals are thus seen to be in a constant state of flux in their motivational level, based on the nature, strength and interactive effects of the different groups of variables.

These different theories were reviewed with the aim of exploring to the extent to which they deal with different sets of variables and thus compare their relative explanatory power. Most of the theoretical approaches were found to be complementary rather than contradictory. Thus it is not just a matter of choosing the "best" theory, but rather deciding which approaches are, relatively speaking, the most helpful in understanding particular aspects of work motivation and organisational climate. One reason for studying these theories on work motivation was to organise in a meaningful fashion, the sets of variables associated with the topic of organisational climate and work motivation.

One test of the usefulness of a theory or model is the degree to which it can account for a wide diversity of variables while simultaneously integrating them into a comprehensive and succinct, unifying framework (Moran & Volkwein, 1992; Steers & Porter, 1979). Such a theory or model of work motivation would ideally account for variables from the three major areas discussed, namely individual, management and organisational effectiveness, as well as consider the implications of the interactive effects between these areas. A unifying model such as this was found in Locke's (1997) work motivation model, which was extensively analysed in chapters 2 and 4. In this part of the literature research, a great deal of support for the components of Locke's model was found in the literature of various researchers. Although not directly stated, most of the literature implied causal relationships similar to those between the components of Locke's (1997) model of work motivation. These, although not always in total synchronicity and intensity, have in common the system's and dynamic perspective of organisational climate and work motivation. Support was thus found, although not comprehensive, for the existence of Locke's model of work motivation and for the causal links suggested by him. Certainly

enough support was found to warrant further investigation and empirical exploration of these relationships.

The third literature aim, namely to integrate literature from the organisational climate and work motivation theories with Locke's (1997) model of work motivation, both for the purpose of conceptualising the dimensions and their constructs and for operationalising them in the form of a questionnaire constructed specifically for this research is met in chapter 4. Locke (1997) suggests that there are six primary elements of work motivation namely personal actualisation, goal setting, goal support, goal-directed behaviour, goal achievement and quality of work life and that causal relationships exist between these elements. These six elements form the core of the constructed questionnaire and diagnostic questions were developed in the context of these six elements to form OCQ-Tier1. The causal links suggested by Locke were used to develop questions aimed at identifying the causes of what is diagnosed in OCQ-Tier1. These questions form OCQ-Tier2. From the literature studied in chapters 2, 3 and 4 there appeared to be evidence of some strategies and remedies that could be used to resolve issues of dissatisfaction in organisational climate and work motivation. Questions related to the six elements were developed to test this assumption and this formed OCQ-Tier3. The three tiers together formed the OCQ which in its nature is diagnostic, seeks for causal connections and suggests corrective action. This questionnaire was specifically constructed as a tool to be used in this research with the purpose of empirically investigating Locke's model of work motivation.

7.1.2 Conclusions regarding the empirical study

The three aims of the empirical study were met in chapters 4, 5, 6, and 7. The first aim, namely to compile a questionnaire with diagnostic, causal and corrective measures of organisational climate in a financial services organisation was met in chapter 4. Locke's (1997) model of work motivation was analysed according to the six elements identified by Locke and integrated with other relevant theory, both from a conceptual and an operationalisation perspective. As discussed in the previous section, a 3-tiered questionnaire was constructed. For each of the six elements, questions of a diagnostic (OCQ-Tier1), causal (OCQ-Tier2) and corrective (OCQ-Tier3) nature were constructed.

Although this questionnaire was specifically constructed as a tool to be used in this research, its contribution to the research does not lie in the nature and characteristics of the questionnaire itself, but rather in the framework it provided for the literature review and statistical analysis.

The second empirical aim, namely to statistically evaluate the fit of the constructed questionnaire to Locke's (1997) model of work motivation by means of structural equation modelling was met in chapters 5 and 6 in which the statistical procedures and results are presented and discussed. The theoretical background to and rationale for the design and construction of the OCQ was discussed whereafter the sample was described and the administration process and data management outlined before the statistical analysis was discussed. The "AMOS graphics" programme which implements the structural equation modelling technique was used to test the models proposed for each tier and across the tiers of the OCQ. The path diagrams generated by the program are schematic representations of models which give visual portrayal of relations which are assumed to exist between the six elements of Locke's (1997) model. At a first glance the causal links suggested in Locke's model could not be confirmed. When the two components namely "personal actualisation" and "goal achievement" were dropped from the model, some fit between the model and data was found. These two components that were dropped each only contained a single item. Possibly this resulted in inadequate measurement of these two components. However even then only a moderate fit between the model and the data was found. When this same model suggesting particular hierarchical causal links between the six components was tested at the OCQ-Tier2 (tier 2) level, where the two components "personal actualisation" and "goal achievement" were each represented by more than one item, a better fit between the model and data was found suggesting a partial confirmation of the model. When the model was adjusted by allowing "covariance" between some error terms in the model (as was suggested by the modification indices of the AMOS programme), a better fit was found at the OCQ-Tier2 (tier 2) level. When improvements were made on the basis of information given by the modification indices, a reasonable fit of the model to the data was found. This indicated that should the wording and content of some of the items be improved, there is a possibility that future research may find a better fit between the model and the data.

In testing the causal links across the three tiers per component, the models for "personal actualisation" and "goal achievement" could not be shown to fit the data, especially between OCQ-Tier1 (tier 1) and OCQ-Tier2 (tier 2). A moderate confirmation of the models was found in the case of the components "goal setting" for OCQ-Tier1 (tier 1) and OCQ-Tier2 (tier 2). However, a poor fit was found for "goal setting" for OCQ-Tier2 (tier 2) and OCQ-Tier3 (tier 3) where the originally intended six components derived from Locke's model were collapsed into three components by the AMOS programme as a result of the extremely high correlations between the components. When the other models were adjusted on this basis, a moderate confirmation was also found in the case of "goal support" and "goal-directed behaviour" (between OCQ-Tier2 and OCQ-Tier3).

The good fit of the model linking "quality of work life" across OCQ-Tier1 (tier 1) and OCQ-Tier2 (tier 2) and across OCQ-Tier2 (tier 2) and OCQ-Tier3 (tier 3) suggests merit in the three-tier approach. The indications are that if future research could succeed in reducing the high correlations between items due to response style, this would demonstrate greater confirmation of the value of the three-tier approach. The reliability of the questionnaire could not be demonstrated conclusively because the response style was possibly responsible for the high level of internal consistency among items. At the same time, the reliability of the measurement of components across the three tiers, was also not disconfirmed. It should also be mentioned that because validity presupposes reliability, the extent to which some of the models were confirmed, does presuppose reliability of the OCQ measurement of the elements. On reflection of Locke's (1997) model of work motivation, it is the culmination of the first five components, namely personal actualisation, goal setting, goal support, goal-directed behaviour and goal achievement that influence the sixth component namely that of "quality of work life". As depicted in figure 4.2 "quality of work life" is the last element in a hierarchy and follows execution of the other components.

The level of correlation between latent variables was found to be high in all the models tested. This meant that the divergent validity of the factors or latent variables are questionable and in some of the model could not distinguish between some of the latent variables. However the statistical output suggested that improvement was possible if covariance between error terms in the model is allowed.

This research did not give sufficient evidence on which a revised model of Locke's work could be proposed. As indicated in section 6.8, it did however provide evidence that the causal links suggested by Locke in his model are not as prominent as was originally believed and that the six components of Locke's model could possibly be collapsed into fewer than six. Based on the moderate fit between the model and data for the component "quality of work life", there may be evidence that "quality of work life" could be one of the components or end states and that further research will be required to see whether the other five components could be collapsed into a single component. This may suggest that the components of work motivation are indeed so interrelated that they may not be able to be split into smaller components especially for the purposes of measurement as was the case in this research where the questionnaire developed for the purpose of investigating Locke's model was presented in the format of an organisational climate questionnaire (OCQ).

This research has investigated Locke's (1997) model of work motivation and it has not been found to hold entirely in this instance. However to propose a revised version of Locke's model based on only this research would be premature.

The third empirical aim namely to formulate recommendations on the findings in terms of the existing literature and empirical study is met in chapter 7 and are discussed in 7.3.

7.2 LIMITATIONS

Limitation for the literature study and the investigation will be given.

7.2.1 Limitations of the literature review

Limitations on two aspects of literature research, namely that of multi-cultural research and Locke's (1997) model of work motivation are highlighted.

7.2.1.1 Multicultural research

This research was conducted in two of the financial services groups in South Africa. However, when comparing the demographics and cultural diversity of the entire financial

services industry in South Africa with those of the sample used, it becomes apparent that the sample is not totally representative of that of the broader population and does not do justice to the complexities and richness of the employee make-up of a typical financial services organisation in South Africa.

Triandis, Vassiliou, Tanaka and Shanmugam (1972) suggest that different cultural groups show differences in behaviour, a phenomenon they refer to as the subjective culture of a cultural group, that is the characteristic way in which the social environment is perceived. They argue that cross-cultural studies show the need for a scale to be constructed for each culture, and for the independent validation of such scales. Anastasi (1990) argues that cross-cultural testing is not only associated with subculture within a dominant culture, but also the need for cross-cultural testing in newly developing nations in Africa and elsewhere.

The application of psychometric instruments, and indeed questionnaires like the one constructed for this research, to people from different cultural backgrounds has been questioned by Taylor (1987), Anastasi (1990) and Anastasi & Urbina (1997). Samuda (1983) states that the issue of cross-cultural measurement in multicultural societies is of universal concern. Anastasi (1990) argues that cultural differences may lead to group differences that affect responses to particular psychometric instruments, thus reducing the validity of a particular instrument for specific groups.

Bhagat, Kedia, Crawford and Kaplan (1990) emphasise that as the realities of competition in a global marketplace come closer, the more rapidly cross-cultural and cross-national issues and the importance of their measurement need to be addressed. These authors state that growing international economic interdependence makes it imperative for management to take informed decisions about human resources. To this end, accurate measurement of the variables involved in the management of people becomes highly significant.

Malpass and Poortinga (1986) assert that the application of psychometric instruments in different cultures is used for the evaluation of intercultural differences, on the one hand, and the determination whether measurement procedures yield equivalent results, on the other. They refer to three different meanings of the term "equivalence" in cross cultural research, namely functional equivalence of activities, conceptual equivalence of the

meaning of behaviour and metric equivalence indicated by the properties of psychometric instruments.

7.2.1.2 Locke's (1997) theoretical model

Several limitations of Locke's (1997) model of work motivation should be noted. To limit cognitive-perceptual overload, some causal arrows are omitted from the model. For example, self-efficacy affects commitment and presumably choices between action alternatives in the face of dissatisfaction. Personality and values can also affect action taken in response to job dissatisfaction. Perceived injustice undoubtedly affects goal commitment. Apart from goal theory, the various theories are not fully elaborated. For example, many complexities are involved in procedural justice and a number of competing subtheories. In Locke's (1997) model, recursive effects are not shown, except in the case of self-efficacy to performance. In the real world, almost any output can become an input over time. The model is static, not dynamic. Mone (1992) has done dynamic analysis of the goal-efficacy-performance relationship and found the basic static model to hold. Ability, knowledge and skill are critical to performance but, with one exception, are not shown in the motivation model. Self-efficacy reflects how people assess their skills and abilities. Locke's (1997) model of work motivation focuses on conscious motivation and omits the subconscious, except insofar as it is acknowledged as being involved in emotions. The model does not include theories with dubious or highly limited support (eg, Maslow, 1954; Deci, 1975). The researcher does, however, address these theories in chapter 3 and integrates this theory with Locke's model in chapter 4 in order to create the organisational climate questionnaire. This, however, is only done from a questionnaire construction perspective and does not attempt to holistically build on the theory of the integrated work motivation model.

7.2.2 Limitations of the investigation

Limitations in terms of the sample, the application of the three-tiered OCQ and the construction of the OCQ are discussed.

7.2.2.1 Limitations of the sample

In this research the assumption was made that geographic variations in perceptions would not contribute significantly to the basic identities of the financial services organisations, so that the limitation of the research to a sample of financial services organisations centred in the Gauteng and Cape Town area of South Africa would not prejudice the results being construed more widely. This has however not been empirically established.

Cluster sampling may lead to biased samples when there are some clusters which are homogenous in terms of the variables of interest (Huysamen, 1994). Since this research makes use of cluster sampling in four phases which are all taken from large financial institutions in South Africa, it may not be totally representative of the current financial industry in South Africa which includes many smaller niche banks, and since the research was conducted in only one economic sector may not be generalised to a wider portion of the economic sector, both nationally and internationally without further validation using samples from the other sectors.

7.2.2.2 Limitation in terms of application of the three-tiered OCQ

This research was carried out in four phases. However when it came to the administering of the OCQ in the business units, the researcher was only able to administer all three tiers of the questionnaire, namely OCQ-Tier1, OCQ-Tier2 and OCQ-Tier3 in two phases of the research (sample 2 and sample 4). In phase one (sample 1) of the research only OCQ-Tier1 and OCQ-Tier2 was used and in phase 3 (sample 3) only OCQ-Tier2 was used. This was due to operational pressures in the organisation and also due to constraints of a strategic nature. The sample was however large enough for the researcher to obtain significant results for the purposes of this research which is to empirically investigate Locke's (1997) via the statistical process of structural modelling, but may have affected the outcome in terms the eventual purpose of the OCQ regarding its applicability and usefulness for the end user, namely the manager. The other limitation is that the administration of all three tiers of the questionnaire is in its entirety both time consuming and exhaustive. It was necessary for the purpose of this research in order to complete the statistical analyses required for the purposes of this research, but is not an effective survey

tool in terms of time constraints and pure volume of data which the end user needs to process.

7.2.2.3 Limitations regarding the construction of the OCQ

Although the literature study, particularly in chapter 2 and 3 suggests that organisational culture and work motivation are, by their very nature, influenced by and in turn influence the rest of the larger system, particular attention is not paid to this aspect in the construction of the questionnaire.

With regard to the questionnaire completion, there appears to be a pattern of central tendency established in the responses to the questions. The questions are perhaps worded too abstractly and the double-barrelled nature of some of the items may cause confusion. This combined with an observation that the direction of the Likert scale reflects similar sentiments for all questions may have given rise to the response style outcome. Specific attention was also not paid to the analysis of the language ability and preference of the respondents (50% were Afrikaans speaking). Thus the item language complexity may not have been appropriate for the sample group.

The development procedure used for compiling the questionnaire was not scientific and was merely based on the researchers interpretation and analysis of the literature studied. Although the questionnaire provides a framework for the literature study and the statistical analysis for this research it cannot be used as a measure of work motivation and organisational climate until further research has been conducted on the questionnaire. The number of questions constructed to measure each of the six elements of Locke's model was based purely on information gleaned from the literature and attention was not necessarily given as to whether enough items were constructed on all levels of the questionnaire for it to be sufficiently representative of the element under investigation. This is true especially for OCQ-Tier1 where for example element one, namely personal actualisation and element five, namely goal achievement, only one item was constructed.

Careful consideration was also not given to the construction of the items. Many questions (items) measure more than one concept, resulting in low face validity. For example, in

question 1.1, the concepts of value, respect and success is measured in one question. In total 73 questions measured more than one concept resulting in possible confusion for the respondents and this may have influenced the statistical results obtained.

It was perhaps a little bit too ambitious to, as a first investigation of Locke's model of work motivation, focus on a multi-tiered approach, where OCQ-Tier2 is administered prior to the validity and reliability of OCQ-Tier1 being established. Although internal consistency reliability was established, test-retest reliability was not established. This, at the time, due to the nature and aims of the research was not considered necessary, but with hind sight may have contributed to the overall process and as such influenced the outcome of this research.

7.3 Recommendations for future research

It is proposed that the investigation of Locke's model of work motivation continue and that the use of the three-tier approach continue where the empirical findings are further explored.

In an attempt to address the limitations discussed in the previous section, it is recommended that further literary research be conducted on cultural aspects both in South Africa and in the broader financial services community, and that these be integrated with the findings of this research with a view to constructing a questionnaire or modifying this questionnaire so that it is applicable in both culturally diverse environments and in different cultural environments.

With regards to the limitations of Locke's model of work motivation, which were highlighted in the previous section, it is recommended that further research, be conducted on the limitations of Locke's model of work motivation with a view to building on and integrating more of the theory on work motivation, thus contributing to the expansion and fuller understanding of this all-encompassing concept of work motivation and organisational climate, which is playing an increasingly greater role in the management of organisations. To this end, both the conceptualisation and operationalisation of these concepts should be studied.

In terms of the construction of the OCQ, special attention should be paid to psychometric strategies to reduce response style. Items should possibly be worded less abstractly. About half of the items should be worded to reflect a sentiment that is the opposite to the other half. Item scale formats other than the Likert scale should be considered, for example forced-choice formats – especially at OCQ-Tier2 (tier 2).

The OCQ should be reviewed to ensure that a sufficient number of items are written to measure each component.

As a first step, research should concentrate on the reliable and valid measurement of each of the six components of OCQ-Tier1 (tier 1) before advancing to the measurement of these components at OCQ-Tier2 (tier 2) and OCQ-Tier3 (tier 3). Perhaps different studies in future could focus on one tier at a time allowing a more detailed and focussed exploration of this all encompassing subject.

With regards to the question of reliability, research could investigate the test-retest reliability of the OCQ.

Considering the question of external criteria which was noted in the previous section, external criteria should be developed and used to identify particular groupings which would imply a particular profile at each tier regarding their standing on the various constructs. The three-tier OCQ should then be tested against these external criteria. Experimental-type research could also be used at some stage whereby work may be done with groups based on the corrective measures suggested by OCQ-Tier3 (tier 3) of the OCQ. Pre- and post-measures could then be used to demonstrate the effectiveness of such interventions.

Regarding the administration of the OCQ it is recommended that this study be replicated in other areas where all three tiers of the OCQ may be used consistently and according to the methodology it was designed to use. In addressing the limitation of administration of all three tiers of the questionnaire in its entirety, which is both time consuming and exhaustive, it is recommended that further studies investigate the option of using OCQ-Tier1 used as is, that OCQ-Tier2 questions only be used, where OCQ-Tier1 suggests a

problem area, and that OCQ-Tier3 questions only be used where OCQ-Tier2 indicates a problem. Hence only the corrective suggestions will be highlighted, suggesting that managers are able to identify the heart of the problem quickly and are able to correct it and that these results over a period of time be used to empirically investigate Locke's model of work motivation with its causal relationships and implied corrective actions.

7.4 CHAPTER SUMMARY

In chapter 7 the conclusions, limitations and recommendations of this research were discussed. Conclusions were drawn from the literature review and the investigation. In the context of the literature review, conclusions regarding the three literature aims, namely to contextualise the research in terms of organisational psychology and more specifically in terms of the financial services industry and an organisation and human resources model, to study the literature on organisational climate and work motivation in order to gain a greater understanding of these concepts and the dimensions and their constructs which ultimately forms the foundation on which the OCQ is constructed and to integrate literature from the work motivation theories with Locke's (1997) work motivation model both for the purpose of conceptualising the dimensions and their constructs and for operationalising them in the form of a questionnaire constructed specifically for this research, were made. In the context of the investigation, conclusions were drawn from the results of the data obtained in meeting the three empirical aims, namely to compile a questionnaire with diagnostic, causal and corrective measures of organisational climate based primarily on Locke's work motivational model, to statistically evaluate the fit of the constructed questionnaire to Locke's (1997) model of work motivation by means of structural equation modelling and to formulate recommendations on the finding in terms of the existing literature and empirical study. Regarding limitations of the literature review, multicultural research and Locke's (1997) theoretical model were highlighted. In terms of limitations for the empirical study, limitations with regards to the sample, the application of the three-tiered OCQ and construction of the OCQ were discussed. Recommendations were then made. This concludes this research.

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<http://www.momentum.co.za/groupstructure.htm>

<http://www.nedcor.co.za>

APPENDIX 1
CORRELATIONS BETWEEN OCQ-TIER2 AND OCQ-TIER3 FOR QUALITY OF
WORK LIFE

Your model contains the following variables

c6111	observed	endogenous
c6112	observed	endogenous
c6113	observed	endogenous
c6114	observed	endogenous
c6115	observed	endogenous
c6211	observed	endogenous
c6212	observed	endogenous
c6213	observed	endogenous
c6221	observed	endogenous
c6222	observed	endogenous
c6223	observed	endogenous
c6311	observed	endogenous
c6312	observed	endogenous
c6121	observed	endogenous
c6122	observed	endogenous
c6123	observed	endogenous
c6124	observed	endogenous
c6125	observed	endogenous
c6521	observed	endogenous
c6522	observed	endogenous
c6523	observed	endogenous
c6524	observed	endogenous
c6321	observed	endogenous
c6322	observed	endogenous
c6323	observed	endogenous
c6421	observed	endogenous
c6422	observed	endogenous
c6423	observed	endogenous
c6411	observed	endogenous
c6412	observed	endogenous
c6431	observed	endogenous
c6432	observed	endogenous
c6433	observed	endogenous
c6434	observed	endogenous
b621	observed	endogenous
b622	observed	endogenous
b632	observed	endogenous
b641	observed	endogenous
c6531	observed	endogenous
c6532	observed	endogenous
c6533	observed	endogenous
c6534	observed	endogenous
c6511	observed	endogenous
c6512	observed	endogenous
b611	observed	endogenous
b642	observed	endogenous
b631	observed	endogenous
b652	observed	endogenous
b651	observed	endogenous
b653	observed	endogenous
b643	observed	endogenous
b612	observed	endogenous
F1	unobserved	exogenous
e2	unobserved	exogenous
e3	unobserved	exogenous
e4	unobserved	exogenous
e5	unobserved	exogenous
e6	unobserved	exogenous

F3	unobserved	exogenous
e7	unobserved	exogenous
e8	unobserved	exogenous
e9	unobserved	exogenous
F4	unobserved	exogenous
e10	unobserved	exogenous
e11	unobserved	exogenous
e12	unobserved	exogenous
F5	unobserved	exogenous
e13	unobserved	exogenous
e14	unobserved	exogenous
F2	unobserved	exogenous
e15	unobserved	exogenous
e16	unobserved	exogenous
e17	unobserved	exogenous
e18	unobserved	exogenous
e19	unobserved	exogenous
F11	unobserved	exogenous
e20	unobserved	exogenous
e21	unobserved	exogenous
e22	unobserved	exogenous
e23	unobserved	exogenous
F6	unobserved	exogenous
e24	unobserved	exogenous
e25	unobserved	exogenous
e26	unobserved	exogenous
F8	unobserved	exogenous
e27	unobserved	exogenous
e28	unobserved	exogenous
e29	unobserved	exogenous
F7	unobserved	exogenous
e30	unobserved	exogenous
e31	unobserved	exogenous
F9	unobserved	exogenous
e32	unobserved	exogenous
e33	unobserved	exogenous
e34	unobserved	exogenous
e35	unobserved	exogenous
F12	unobserved	exogenous
e36	unobserved	exogenous
e37	unobserved	exogenous
e38	unobserved	exogenous
e39	unobserved	exogenous
e40	unobserved	exogenous
e41	unobserved	exogenous
e42	unobserved	exogenous
e48	unobserved	exogenous
e49	unobserved	exogenous
e45	unobserved	exogenous
e46	unobserved	exogenous
e52	unobserved	exogenous
e53	unobserved	exogenous
e51	unobserved	exogenous
e50	unobserved	exogenous
e47	unobserved	exogenous
e44	unobserved	exogenous
e43	unobserved	exogenous

Number of variables in your model: 115
Number of observed variables: 52
Number of unobserved variables: 63
Number of exogenous variables: 63
Number of endogenous variables: 52

Summary of Parameters

	Weights	Covariances	Variances	Means	Intercepts	Total
	-----	-----	-----	-----	-----	-----
Fixed:	63	0	0	0	0	63
Labeled:	0	0	0	0	0	0
Unlabeled:	41	55	63	0	52	211
	-----	-----	-----	-----	-----	-----
Total:	104	55	63	0	52	274

NOTE:

The model is recursive.

Sample size: 678

Model: Default model

Computation of degrees of freedom

Number of distinct sample moments: 1430

Number of distinct parameters to be estimated: 211

Degrees of freedom: 1219

0e	65	0.0e+000	-1.3397e+000	1.00e+004	3.31859798100e+004	0	1.00e+004
1e	79	0.0e+000	-6.0346e-001	4.58e+000	2.01730397933e+004	19	3.82e-001
2e	*52	0.0e+000	-1.0685e+000	1.61e+000	1.41628680677e+004	5	9.96e-001
3e	*27	0.0e+000	-7.1535e-001	6.88e-001	1.16278395727e+004	5	9.65e-001
4e	8	0.0e+000	-2.2612e-001	6.71e-001	9.44866466380e+003	5	9.31e-001
5e	2	0.0e+000	-2.6715e-001	7.74e-001	7.67259767521e+003	5	8.13e-001
6e	0	1.7e+003	0.0000e+000	8.65e-001	6.29521385778e+003	5	8.22e-001
7e	0	9.9e+002	0.0000e+000	6.10e-001	6.04510680590e+003	3	0.00e+000
8e	0	2.5e+003	0.0000e+000	8.22e-001	5.75497102765e+003	1	1.05e+000
9e	0	3.7e+003	0.0000e+000	4.49e-001	5.72528671044e+003	1	1.11e+000
10e	0	4.2e+003	0.0000e+000	1.69e-001	5.72388222778e+003	1	1.06e+000
11e	0	4.2e+003	0.0000e+000	2.03e-002	5.72386684248e+003	1	1.01e+000
12e	0	4.3e+003	0.0000e+000	2.97e-004	5.72386683870e+003	1	1.00e+000

Minimum was achieved

Chi-square = 5723.867

Degrees of freedom = 1219

Probability level = 0.000

Maximum Likelihood Estimates

Regression Weights:		Estimate	S.E.	C.R.	Label
-----		-----	-----	-----	-----
c6111	<----- F1	1.000			
c6112	<----- F1	0.971	0.034	28.604	
c6113	<----- F1	1.063	0.033	32.074	
c6114	<----- F1	0.905	0.034	26.904	
c6115	<----- F1	0.943	0.037	25.646	
c6211	<----- F3	1.000			
c6212	<----- F3	1.155	0.045	25.410	
c6213	<----- F3	1.112	0.046	24.237	
c6221	<----- F4	1.000			
c6222	<----- F4	1.128	0.052	21.514	
c6223	<----- F4	1.170	0.052	22.404	
c6311	<----- F5	1.000			
c6312	<----- F5	0.965	0.036	27.143	
c6121	<----- F2	1.000			
c6122	<----- F2	1.015	0.041	24.974	
c6123	<----- F2	1.128	0.040	28.048	
c6124	<----- F2	1.094	0.040	27.296	
c6125	<----- F2	1.024	0.047	21.796	
c6521	<----- F11	1.000			
c6522	<----- F11	0.854	0.044	19.317	
c6523	<----- F11	0.916	0.045	20.203	
c6524	<----- F11	0.986	0.042	23.426	
c6321	<----- F6	1.000			
c6322	<----- F6	1.012	0.033	30.219	
c6323	<----- F6	0.975	0.034	28.559	
c6421	<----- F8	1.000			

c6422 <----- F8	0.963	0.027	35.305
c6423 <----- F8	0.934	0.027	33.989
c6411 <----- F7	1.000		
c6412 <----- F7	1.041	0.032	32.729
c6431 <----- F9	1.000		
c6432 <----- F9	1.034	0.042	24.838
c6433 <----- F9	1.015	0.042	24.414
c6434 <----- F9	1.047	0.042	24.762
b621 <----- F3	0.746	0.050	14.787
b622 <----- F4	1.007	0.053	19.141
b632 <----- F6	0.821	0.041	20.017
b641 <----- F7	0.873	0.038	23.057
c6531 <----- F12	1.000		
c6532 <----- F12	1.000	0.026	38.665
c6533 <----- F12	0.995	0.028	35.563
c6534 <----- F12	1.020	0.029	34.764
c6511 <----- F11	1.018	0.041	24.634
c6512 <----- F11	0.998	0.040	25.242
b651 <----- F11	0.979	0.047	21.043
b653 <----- F12	0.772	0.038	20.394
b652 <----- F11	0.918	0.046	20.143
b643 <----- F9	0.879	0.042	20.916
b642 <----- F8	0.736	0.035	20.746
b611 <----- F1	0.638	0.038	16.847
b612 <----- F2	0.760	0.047	16.024
b631 <----- F5	0.682	0.035	19.489

Standardized Regression Weights:

Estimate

-----	-----
c6111 <----- F1	0.867
c6112 <----- F1	0.838
c6113 <----- F1	0.891
c6114 <----- F1	0.810
c6115 <----- F1	0.787
c6211 <----- F3	0.793
c6212 <----- F3	0.879
c6213 <----- F3	0.845
c6221 <----- F4	0.743
c6222 <----- F4	0.814
c6223 <----- F4	0.845
c6311 <----- F5	0.847
c6312 <----- F5	0.836
c6121 <----- F2	0.804
c6122 <----- F2	0.829
c6123 <----- F2	0.898
c6124 <----- F2	0.881
c6125 <----- F2	0.750
c6521 <----- F11	0.812
c6522 <----- F11	0.677
c6523 <----- F11	0.701
c6524 <----- F11	0.782
c6321 <----- F6	0.855
c6322 <----- F6	0.886
c6323 <----- F6	0.857
c6421 <----- F8	0.914
c6422 <----- F8	0.881
c6423 <----- F8	0.867
c6411 <----- F7	0.863
c6412 <----- F7	0.909
c6431 <----- F9	0.791
c6432 <----- F9	0.840
c6433 <----- F9	0.829
c6434 <----- F9	0.838
b621 <----- F3	0.560
b622 <----- F4	0.732
b632 <----- F6	0.679
b641 <----- F7	0.740
c6531 <----- F12	0.900
c6532 <----- F12	0.920
c6533 <----- F12	0.890
c6534 <----- F12	0.882
c6511 <----- F11	0.811
c6512 <----- F11	0.824
b651 <----- F11	0.723
b653 <----- F12	0.658

b652 <----- F11	0.699
b643 <----- F9	0.736
b642 <----- F8	0.664
b611 <----- F1	0.588
b612 <----- F2	0.585
b631 <----- F5	0.669

Intercepts:

	Estimate	S.E.	C.R.	Label
	-----	-----	-----	-----
b611	3.106	0.037	84.221	
b641	3.125	0.043	73.306	
b631	3.491	0.035	98.600	
b621	3.139	0.039	79.526	
b632	3.326	0.039	85.476	
b642	3.248	0.041	79.902	
b612	3.282	0.037	88.357	
b652	3.279	0.043	76.905	
b622	3.248	0.041	78.566	
b653	3.249	0.041	80.123	
b643	3.186	0.039	80.970	
c6111	3.254	0.039	82.941	
c6112	3.299	0.039	83.760	
c6113	3.351	0.041	82.546	
c6114	3.482	0.038	91.606	
c6115	3.201	0.041	78.516	
c6211	3.473	0.037	92.947	
c6212	3.565	0.039	91.638	
c6213	3.518	0.039	90.253	
c6221	3.227	0.040	79.781	
c6222	3.317	0.042	79.714	
c6223	3.155	0.042	75.819	
c6311	3.271	0.041	79.765	
c6312	3.412	0.040	85.184	
c6121	3.618	0.036	101.775	
c6122	3.558	0.035	101.556	
c6123	3.566	0.036	99.263	
c6124	3.565	0.036	100.404	
c6125	3.317	0.039	85.013	
c6521	3.400	0.040	84.977	
c6522	3.515	0.041	85.739	
c6523	3.277	0.042	77.169	
c6524	3.117	0.041	76.101	
c6321	3.347	0.038	88.826	
c6322	3.372	0.037	91.715	
c6323	3.367	0.037	91.950	
c6421	3.227	0.040	80.318	
c6422	3.159	0.040	78.747	
c6423	3.062	0.040	77.451	
c6411	3.059	0.042	73.016	
c6412	3.100	0.041	74.864	
c6431	3.376	0.042	81.016	
c6432	3.277	0.041	80.761	
c6433	3.348	0.040	82.946	
c6434	3.376	0.041	81.947	
c6531	3.385	0.038	88.040	
c6532	3.350	0.038	89.137	
c6533	3.342	0.039	86.414	
c6534	3.323	0.040	83.084	
b651	3.417	0.044	77.658	
c6511	3.361	0.041	82.365	
c6512	3.553	0.039	90.368	

Covariances:

	Estimate	S.E.	C.R.	Label
	-----	-----	-----	-----
F1 <-----> F3	0.398	0.035	11.228	
F1 <-----> F4	0.415	0.037	11.146	
F1 <-----> F5	0.469	0.041	11.415	
F1 <-----> F2	0.495	0.037	13.276	
F12 <-----> F1	0.545	0.041	13.175	
F3 <-----> F4	0.454	0.037	12.206	
F3 <-----> F5	0.388	0.037	10.582	
F3 <-----> F2	0.429	0.034	12.679	
F3 <-----> F11	0.418	0.036	11.675	

F3 <-----> F6	0.369	0.034	10.954
F3 <-----> F8	0.449	0.038	11.707
F3 <-----> F7	0.444	0.039	11.474
F3 <-----> F9	0.466	0.038	12.171
F12 <-----> F3	0.417	0.036	11.610
F4 <-----> F5	0.639	0.047	13.668
F4 <-----> F2	0.339	0.032	10.746
F4 <-----> F11	0.482	0.039	12.208
F4 <-----> F6	0.501	0.039	12.704
F4 <-----> F8	0.503	0.041	12.142
F4 <-----> F7	0.495	0.042	11.859
F4 <-----> F9	0.498	0.041	12.181
F12 <-----> F4	0.491	0.040	12.380
F5 <-----> F2	0.384	0.035	10.979
F5 <-----> F11	0.560	0.044	12.882
F5 <-----> F6	0.683	0.046	14.684
F5 <-----> F8	0.563	0.045	12.458
F5 <-----> F7	0.558	0.046	12.215
F5 <-----> F9	0.520	0.043	12.060
F12 <-----> F5	0.557	0.043	12.878
F2 <-----> F6	0.363	0.032	11.310
F2 <-----> F8	0.475	0.038	12.626
F12 <-----> F2	0.462	0.036	12.862
F11 <-----> F6	0.499	0.039	12.727
F11 <-----> F8	0.649	0.046	14.086
F11 <-----> F7	0.643	0.047	13.767
F11 <-----> F9	0.654	0.047	13.972
F12 <-----> F11	0.663	0.045	14.619
F6 <-----> F8	0.520	0.041	12.618
F6 <-----> F7	0.496	0.041	12.058
F6 <-----> F9	0.474	0.039	12.096
F12 <-----> F6	0.480	0.039	12.454
F8 <-----> F7	0.822	0.053	15.466
F8 <-----> F9	0.664	0.048	13.949
F12 <-----> F8	0.639	0.045	14.129
F7 <-----> F9	0.706	0.050	14.117
F12 <-----> F7	0.612	0.045	13.517
F12 <-----> F9	0.642	0.046	14.090
F2 <-----> F11	0.455	0.036	12.690
F1 <-----> F11	0.531	0.041	12.906
F1 <-----> F9	0.547	0.043	12.847
F1 <-----> F6	0.442	0.038	11.739
F2 <-----> F9	0.488	0.038	12.905
F1 <-----> F8	0.636	0.046	13.972
F2 <-----> F7	0.477	0.038	12.478
F1 <-----> F7	0.597	0.045	13.230

Correlations:

Estimate

F1 <-----> F3	0.584
F1 <-----> F4	0.599
F1 <-----> F5	0.587
F1 <-----> F2	0.751
F12 <-----> F1	0.684
F3 <-----> F4	0.754
F3 <-----> F5	0.557
F3 <-----> F2	0.748
F3 <-----> F11	0.642
F3 <-----> F6	0.571
F3 <-----> F8	0.610
F3 <-----> F7	0.612
F3 <-----> F9	0.705
F12 <-----> F3	0.601
F4 <-----> F5	0.906
F4 <-----> F2	0.584
F4 <-----> F11	0.729
F4 <-----> F6	0.765
F4 <-----> F8	0.674
F4 <-----> F7	0.673
F4 <-----> F9	0.742
F12 <-----> F4	0.698
F5 <-----> F2	0.572
F5 <-----> F11	0.734
F5 <-----> F6	0.902
F5 <-----> F8	0.652

F5 <-----> F7	0.657
F5 <-----> F9	0.671
F12 <-----> F5	0.685
F2 <-----> F6	0.583
F2 <-----> F8	0.668
F12 <-----> F2	0.689
F11 <-----> F6	0.704
F11 <-----> F8	0.804
F11 <-----> F7	0.809
F11 <-----> F9	0.902
F12 <-----> F11	0.871
F6 <-----> F8	0.650
F6 <-----> F7	0.630
F6 <-----> F9	0.660
F12 <-----> F6	0.637
F8 <-----> F7	0.914
F8 <-----> F9	0.810
F12 <-----> F8	0.743
F7 <-----> F9	0.875
F12 <-----> F7	0.722
F12 <-----> F9	0.832
F2 <-----> F11	0.723
F1 <-----> F11	0.710
F1 <-----> F9	0.720
F1 <-----> F6	0.597
F2 <-----> F9	0.766
F1 <-----> F8	0.752
F2 <-----> F7	0.681
F1 <-----> F7	0.717

Variances:

	Estimate	S.E.	C.R.	Label
-----	-----	-----	-----	-----
F1	0.784	0.056	14.024	
F3	0.594	0.049	12.025	
F4	0.611	0.055	11.023	
F5	0.816	0.061	13.356	
F2	0.553	0.044	12.476	
F11	0.715	0.056	12.678	
F6	0.702	0.052	13.616	
F8	0.912	0.060	15.335	
F7	0.885	0.064	13.876	
F9	0.735	0.060	12.174	
F12	0.810	0.054	15.007	
e2	0.258	0.018	14.666	
e3	0.312	0.020	15.499	
e4	0.230	0.017	13.647	
e5	0.337	0.021	16.072	
e6	0.428	0.026	16.413	
e7	0.351	0.023	15.280	
e8	0.233	0.019	12.029	
e9	0.294	0.021	13.721	
e10	0.497	0.030	16.501	
e11	0.395	0.026	15.286	
e12	0.335	0.023	14.369	
e13	0.323	0.023	14.178	
e14	0.326	0.022	14.588	
e15	0.302	0.019	16.272	
e16	0.260	0.016	15.849	
e17	0.170	0.013	13.523	
e18	0.191	0.013	14.319	
e19	0.451	0.027	16.913	
e20	0.369	0.023	16.290	
e21	0.617	0.035	17.488	
e22	0.621	0.036	17.358	
e23	0.440	0.026	16.687	
e24	0.259	0.018	14.381	
e25	0.196	0.015	12.948	
e26	0.241	0.017	14.291	
e27	0.180	0.014	12.640	
e28	0.244	0.017	14.477	
e29	0.262	0.018	14.988	
e30	0.303	0.021	14.489	
e31	0.202	0.017	11.746	

e32	0.440	0.027	16.505
e33	0.329	0.021	15.655
e34	0.345	0.022	15.885
e35	0.343	0.022	15.698
e36	0.190	0.013	14.563
e37	0.146	0.011	13.401
e38	0.210	0.014	14.961
e39	0.241	0.016	15.256
e40	0.387	0.024	16.313
e41	0.335	0.021	16.085
e42	0.602	0.034	17.759
e48	0.556	0.033	16.832
e49	0.625	0.036	17.532
e45	0.537	0.032	16.624
e46	0.469	0.027	17.238
e52	0.629	0.036	17.367
e53	0.631	0.036	17.724
e51	0.626	0.036	17.217
e50	0.480	0.028	17.069
e47	0.552	0.032	17.157
e44	0.724	0.041	17.575
e43	0.614	0.034	17.800

Residual Covariances

	b612	b643	b653	b651	b652	b631	b642
b612	0.000						
b643	0.210	0.000					
b653	0.234	0.163	0.000				
b651	0.225	0.065	0.253	0.000			
b652	0.309	0.051	0.305	0.284	0.000		
b631	0.221	0.099	0.117	0.027	0.023	0.000	
b642	0.256	0.380	0.236	0.171	0.157	0.182	0.000
b611	0.311	0.221	0.193	0.292	0.235	0.207	0.217
c6512	0.154	0.027	0.072	-0.066	-0.095	0.088	0.108
c6511	0.130	0.026	0.057	-0.076	-0.109	0.040	0.125
c6534	0.076	-0.011	0.000	-0.064	-0.051	0.014	0.060
c6533	0.084	-0.007	-0.047	-0.037	-0.033	0.039	0.083
c6532	0.107	-0.001	-0.043	-0.032	-0.028	0.021	0.073
c6531	0.106	0.026	-0.006	0.010	-0.012	0.028	0.095
b641	0.260	0.276	0.272	0.172	0.161	0.124	0.373
b632	0.336	0.072	0.129	0.013	0.140	0.138	0.145
b622	0.237	0.127	0.209	0.087	0.119	0.093	0.203
b621	0.293	0.204	0.256	0.123	0.187	0.293	0.287
c6434	0.076	-0.055	0.151	0.105	0.027	-0.004	0.031
c6433	0.109	-0.091	0.152	0.081	0.040	0.012	0.049
c6432	0.183	-0.001	0.078	0.044	-0.018	0.058	0.121
c6431	0.124	-0.001	0.045	0.057	0.009	-0.020	0.109
c6412	0.143	0.041	0.184	0.075	0.064	0.006	0.038
c6411	0.159	0.031	0.193	0.117	0.093	0.006	0.042
c6423	0.180	0.007	0.180	0.071	0.090	0.039	-0.046
c6422	0.153	-0.015	0.159	0.053	0.068	0.037	-0.054
c6421	0.190	0.016	0.174	0.069	0.082	0.080	-0.030
c6323	0.154	0.023	0.066	-0.076	-0.009	0.009	0.049
c6322	0.133	0.008	0.084	-0.062	-0.039	0.049	0.083
c6321	0.166	0.065	0.151	-0.015	0.012	0.040	0.083
c6524	0.187	0.071	0.073	-0.015	-0.004	0.044	0.120
c6523	0.163	0.068	0.071	-0.041	0.031	0.096	0.181
c6522	0.132	0.036	0.103	0.011	0.080	-0.025	0.080
c6521	0.120	-0.016	0.048	-0.079	-0.070	0.045	0.065
c6125	0.026	0.022	0.102	0.050	0.065	0.098	0.100
c6124	-0.061	-0.008	0.027	-0.052	-0.016	0.052	0.056
c6123	-0.021	0.030	0.104	0.038	0.054	0.072	0.100
c6122	-0.018	0.014	0.104	0.055	0.064	0.046	0.053
c6121	0.004	0.053	0.128	0.115	0.096	0.030	0.110
c6312	0.185	0.012	0.077	-0.015	-0.021	0.002	0.058
c6311	0.180	-0.027	0.086	-0.034	-0.037	-0.045	0.036
c6223	0.146	-0.002	0.123	-0.003	-0.012	-0.038	0.065
c6222	0.143	-0.083	0.044	-0.074	-0.044	-0.024	-0.002
c6221	0.224	0.082	0.113	0.038	0.051	-0.030	0.126
c6213	0.005	-0.019	0.156	0.032	0.051	0.024	0.043
c6212	0.003	-0.028	0.101	-0.002	0.026	0.072	0.067
c6211	0.070	0.050	0.134	0.024	0.096	0.103	0.100

c6115	0.124	0.081	0.187	0.168	0.125	0.061	0.061
c6114	0.107	0.075	0.151	0.101	0.090	0.030	0.105
c6113	0.102	0.004	0.077	0.026	0.037	0.014	-0.000
c6112	0.102	0.047	0.132	0.053	0.059	0.067	0.043
c6111	0.132	0.030	0.091	0.063	0.038	0.073	0.030

	b611	c6512	c6511	c6534	c6533	c6532	c6531
b611	0.000						
c6512	0.164	0.000					
c6511	0.160	0.079	0.000				
c6534	0.086	-0.024	-0.028	0.000			
c6533	0.107	-0.019	-0.054	0.027	0.000		
c6532	0.118	-0.015	-0.035	0.002	0.011	0.000	
c6531	0.139	0.042	0.018	-0.007	-0.012	0.004	0.000
b641	0.219	0.061	0.045	0.017	0.048	0.042	0.068
b632	0.238	0.042	0.082	0.028	0.000	-0.007	-0.001
b622	0.222	0.077	0.021	0.008	-0.004	-0.014	0.020
b621	0.244	0.190	0.151	0.122	0.118	0.096	0.131
c6434	0.145	-0.005	-0.056	-0.012	-0.004	-0.004	0.012
c6433	0.119	-0.002	-0.060	0.002	0.011	0.031	0.040
c6432	0.175	-0.000	0.039	-0.035	-0.027	-0.039	0.002
c6431	0.169	0.035	0.005	-0.070	-0.011	-0.045	-0.014
c6412	0.113	-0.069	-0.022	-0.030	-0.025	-0.015	-0.012
c6411	0.114	-0.074	-0.037	-0.038	-0.032	-0.027	-0.009
c6423	0.109	-0.031	-0.029	-0.031	-0.012	-0.000	-0.020
c6422	0.094	-0.064	-0.092	-0.018	0.015	0.000	-0.003
c6421	0.119	-0.052	-0.016	-0.049	-0.043	-0.021	-0.029
c6323	0.152	0.001	0.014	-0.052	-0.053	-0.025	-0.017
c6322	0.157	-0.028	0.002	-0.012	-0.022	-0.005	-0.020
c6321	0.152	0.029	0.022	0.036	0.033	0.043	0.012
c6524	0.177	-0.043	-0.038	0.061	0.065	0.068	0.058
c6523	0.191	-0.056	-0.032	-0.011	0.026	0.031	0.084
c6522	0.110	-0.045	-0.042	-0.041	0.025	-0.022	0.054
c6521	0.145	0.103	0.137	-0.072	-0.055	-0.060	-0.016
c6125	0.055	0.006	-0.036	-0.027	-0.037	-0.009	-0.009
c6124	-0.006	-0.042	-0.098	-0.054	-0.082	-0.030	-0.050
c6123	0.052	0.011	-0.024	0.018	-0.023	0.047	0.027
c6122	0.056	-0.005	-0.061	-0.025	-0.041	-0.017	-0.002
c6121	0.103	0.020	-0.014	-0.002	-0.017	0.023	0.034
c6312	0.163	0.044	0.029	-0.023	-0.025	-0.006	-0.012
c6311	0.135	0.012	-0.020	-0.010	-0.030	0.009	-0.017
c6223	0.113	0.001	-0.031	0.022	0.009	0.001	0.000
c6222	0.100	-0.007	-0.035	-0.052	-0.033	-0.043	-0.047
c6221	0.179	0.049	0.029	0.034	0.013	0.018	-0.003
c6213	0.070	-0.016	-0.090	-0.022	-0.046	-0.051	-0.021
c6212	0.079	0.012	-0.035	-0.038	-0.047	-0.049	-0.017
c6211	0.087	0.070	0.006	0.047	0.034	0.034	0.041
c6115	0.012	-0.006	-0.022	0.019	0.009	0.044	0.032
c6114	-0.004	-0.023	-0.038	0.000	-0.013	0.023	0.004
c6113	-0.054	-0.098	-0.125	-0.067	-0.067	-0.031	-0.067
c6112	-0.026	-0.040	-0.045	-0.012	-0.057	-0.008	-0.041
c6111	-0.011	-0.055	-0.069	-0.008	-0.010	0.046	-0.020

	b641	b632	b622	b621	c6434	c6433	c6432
b641	0.000						
b632	0.134	0.000					
b622	0.142	0.111	0.000				
b621	0.245	0.286	0.403	0.000			
c6434	-0.007	-0.009	0.018	0.017	0.000		
c6433	-0.016	0.014	0.051	0.084	0.079	0.000	
c6432	0.041	0.115	0.079	0.149	-0.018	-0.001	0.000
c6431	0.050	0.033	0.000	0.062	-0.019	0.007	0.051
c6412	-0.031	-0.031	0.040	0.109	0.009	-0.007	-0.050
c6411	0.033	0.011	0.049	0.115	-0.015	-0.033	0.005
c6423	-0.083	0.034	0.079	0.155	-0.010	0.034	-0.021
c6422	-0.063	-0.012	0.089	0.152	-0.036	0.010	-0.040
c6421	-0.057	-0.009	0.097	0.139	-0.012	0.024	-0.012
c6323	0.014	-0.028	0.026	0.265	-0.069	-0.007	0.028
c6322	-0.009	0.030	0.003	0.222	-0.067	-0.019	0.015
c6321	0.079	-0.059	0.047	0.243	0.011	0.028	0.057
c6524	0.087	0.054	0.093	0.191	0.030	0.029	0.036
c6523	0.135	0.086	0.130	0.249	-0.072	-0.059	-0.019
c6522	0.086	-0.063	-0.040	0.045	0.024	-0.041	0.019

c6521	0.027	0.046	0.012	0.160	-0.087	-0.101	-0.052
c6125	0.070	0.088	0.206	0.114	-0.038	0.019	0.024
c6124	0.005	0.016	0.101	0.018	-0.041	-0.055	-0.068
c6123	0.073	0.055	0.128	0.035	0.017	-0.003	-0.013
c6122	0.050	0.012	0.118	-0.004	0.016	-0.006	-0.023
c6121	0.092	0.047	0.089	-0.002	0.063	0.046	0.014
c6312	0.015	0.034	-0.087	0.220	-0.024	-0.012	0.092
c6311	-0.014	-0.022	-0.040	0.252	-0.054	-0.021	0.051
c6223	0.046	-0.046	-0.052	0.166	-0.016	-0.006	0.078
c6222	-0.031	-0.009	-0.054	0.200	-0.129	-0.108	0.028
c6221	0.093	0.095	0.091	0.247	0.016	0.023	0.111
c6213	0.052	-0.014	0.089	-0.077	0.046	0.002	-0.023
c6212	0.042	0.011	0.062	-0.061	0.005	-0.027	-0.034
c6211	0.068	0.055	0.144	0.023	0.013	0.025	0.029
c6115	0.085	0.073	0.121	0.136	0.125	0.065	0.058
c6114	0.084	0.042	0.119	0.076	0.049	0.035	-0.000
c6113	-0.022	0.036	0.087	0.091	-0.046	-0.053	-0.034
c6112	0.018	0.057	0.125	0.120	-0.031	-0.078	-0.031
c6111	0.003	0.079	0.096	0.137	-0.008	-0.007	-0.014

	c6431	c6412	c6411	c6423	c6422	c6421	c6323
c6431	0.000						
c6412	-0.026	0.000					
c6411	-0.018	0.005	0.000				
c6423	-0.007	-0.006	-0.026	0.000			
c6422	-0.041	-0.014	-0.053	0.047	0.000		
c6421	-0.056	0.055	0.004	-0.011	0.009	0.000	
c6323	-0.041	-0.029	-0.057	0.005	-0.047	-0.051	0.000
c6322	-0.051	-0.013	-0.052	0.015	-0.038	-0.038	0.027
c6321	-0.007	0.061	0.057	0.056	0.031	0.035	0.012
c6524	0.046	0.029	0.067	0.040	0.036	0.024	-0.022
c6523	-0.056	-0.016	-0.018	-0.004	-0.015	-0.045	0.081
c6522	0.039	-0.016	-0.022	-0.036	-0.024	-0.018	-0.070
c6521	-0.068	-0.092	-0.116	-0.017	-0.078	-0.052	-0.009
c6125	-0.012	-0.009	0.008	0.018	-0.011	-0.034	0.042
c6124	-0.085	-0.075	-0.086	-0.058	-0.071	-0.056	-0.061
c6123	-0.038	-0.011	-0.024	-0.017	-0.010	0.001	-0.021
c6122	-0.017	0.007	-0.001	-0.012	-0.004	-0.002	-0.005
c6121	0.081	0.021	0.034	-0.004	0.007	0.027	-0.056
c6312	-0.031	-0.052	0.063	-0.009	-0.052	-0.050	-0.026
c6311	-0.075	-0.020	0.014	0.016	-0.009	-0.016	-0.065
c6223	-0.063	-0.033	0.055	-0.011	-0.017	-0.009	-0.021
c6222	-0.105	-0.134	0.015	-0.065	-0.068	-0.069	-0.013
c6221	0.057	-0.003	0.046	-0.003	-0.005	-0.006	0.000
c6213	-0.046	-0.020	-0.009	-0.057	-0.009	-0.003	-0.082
c6212	-0.073	-0.056	-0.023	-0.078	-0.023	-0.051	-0.049
c6211	0.004	-0.004	0.008	0.028	0.035	0.017	0.032
c6115	0.003	0.091	0.106	0.087	0.054	0.060	-0.050
c6114	0.007	-0.012	-0.007	-0.010	-0.002	-0.004	-0.085
c6113	-0.101	-0.049	-0.066	-0.054	-0.070	-0.046	-0.057
c6112	-0.089	-0.013	-0.019	-0.011	-0.040	-0.005	-0.021
c6111	-0.073	-0.020	-0.044	0.007	-0.018	-0.000	0.007

	c6322	c6321	c6524	c6523	c6522	c6521	c6125
c6322	0.000						
c6321	-0.023	0.000					
c6524	-0.025	0.042	0.000				
c6523	0.053	0.105	0.002	0.000			
c6522	-0.103	-0.042	-0.011	0.058	0.000		
c6521	-0.031	0.029	-0.055	0.040	0.056	0.000	
c6125	0.044	0.048	0.081	-0.001	-0.024	-0.051	0.000
c6124	-0.050	-0.035	-0.023	-0.048	-0.048	-0.104	-0.007
c6123	-0.010	0.022	0.052	-0.005	0.008	-0.045	-0.038
c6122	-0.004	0.012	0.037	-0.054	0.018	-0.077	0.068
c6121	-0.041	-0.013	0.090	-0.010	0.087	-0.037	-0.010
c6312	0.002	0.047	0.037	0.001	-0.140	-0.015	0.065
c6311	-0.042	0.021	0.003	0.054	-0.182	-0.029	0.031
c6223	-0.051	0.063	0.014	0.017	-0.057	-0.059	0.024
c6222	-0.063	0.037	-0.002	0.035	-0.105	-0.065	0.015
c6221	-0.009	0.031	0.086	0.021	-0.052	-0.042	0.134
c6213	-0.078	-0.020	-0.062	-0.054	-0.004	-0.095	-0.000
c6212	-0.055	0.002	-0.066	-0.051	-0.019	-0.044	0.025
c6211	0.023	0.070	0.032	0.046	0.001	0.001	0.150

c6115	-0.009	0.025	0.152	0.034	-0.013	-0.050	0.055
c6114	-0.062	-0.014	0.072	0.016	0.042	-0.048	0.013
c6113	-0.061	-0.005	0.020	-0.038	0.001	-0.111	-0.040
c6112	-0.025	0.051	0.075	-0.012	0.012	-0.051	-0.038
c6111	0.005	0.055	0.075	-0.001	-0.032	-0.076	-0.048

	c6124	c6123	c6122	c6121	c6312	c6311	c6223
c6124	0.000						
c6123	0.048	0.000					
c6122	-0.015	-0.022	0.000				
c6121	-0.011	-0.032	0.055	0.000			
c6312	-0.075	-0.008	-0.014	-0.040	0.000		
c6311	-0.075	-0.003	-0.028	-0.052	0.021	0.000	
c6223	-0.109	-0.037	-0.028	-0.025	-0.053	0.087	0.000
c6222	-0.158	-0.072	-0.093	-0.095	0.041	0.067	0.067
c6221	0.019	0.033	0.042	0.078	-0.026	-0.055	-0.054
c6213	-0.031	-0.032	-0.019	-0.011	-0.097	-0.090	-0.061
c6212	-0.031	-0.038	-0.021	-0.040	-0.054	-0.039	-0.045
c6211	0.063	0.061	0.037	0.001	0.009	0.051	-0.031
c6115	0.018	0.081	0.021	0.067	0.014	0.026	0.026
c6114	0.076	0.092	0.017	0.088	-0.083	-0.081	-0.085
c6113	-0.063	-0.038	-0.061	0.020	-0.067	-0.059	-0.035
c6112	-0.057	-0.012	-0.024	0.024	0.017	0.012	0.041
c6111	-0.083	-0.014	-0.087	-0.027	-0.004	0.018	0.023

	c6222	c6221	c6213	c6212	c6211	c6115	c6114
c6222	0.000						
c6221	-0.000	0.000					
c6213	-0.165	0.079	0.000				
c6212	-0.110	0.020	0.054	0.000			
c6211	-0.039	0.052	-0.040	-0.003	0.000		
c6115	-0.068	0.054	0.052	-0.006	0.112	0.000	
c6114	-0.174	-0.038	0.038	-0.006	0.065	0.054	0.000
c6113	-0.128	-0.037	-0.023	-0.074	0.025	-0.045	0.001
c6112	-0.040	-0.000	-0.033	-0.061	-0.003	-0.033	-0.029
c6111	-0.041	0.019	-0.055	-0.074	0.033	-0.008	-0.034

	c6113	c6112	c6111
c6113	0.000		
c6112	0.049	0.000	
c6111	0.039	-0.002	0.000

Residual Means

b612	b643	b653	b651	b652	b631
9.326e-015	1.732e-014	1.243e-014	1.688e-014	1.732e-014	1.377e-014
b642	b611	c6512	c6511	c6534	c6533
1.732e-014	6.217e-015	1.865e-014	1.998e-014	1.865e-014	1.732e-014
c6532	c6531	b641	b632	b622	b621
1.821e-014	1.821e-014	1.465e-014	1.465e-014	1.643e-014	7.994e-015
c6434	c6433	c6432	c6431	c6412	c6411
2.132e-014	1.776e-014	1.954e-014	1.865e-014	2.087e-014	1.954e-014
c6423	c6422	c6421	c6323	c6322	c6321
1.954e-014	1.910e-014	2.043e-014	1.599e-014	1.732e-014	1.465e-014
c6524	c6523	c6522	c6521	c6125	c6124
1.821e-014	1.510e-014	1.465e-014	2.043e-014	1.377e-014	1.732e-014
c6123	c6122	c6121	c6312	c6311	c6223
1.643e-014	1.465e-014	1.421e-014	1.910e-014	1.688e-014	1.954e-014

c6222	c6221	c6213	c6212	c6211	c6115
1.821e-014	1.732e-014	1.643e-014	1.643e-014	1.421e-014	1.510e-014
c6114	c6113	c6112	c6111		
1.732e-014	2.132e-014	1.821e-014	1.821e-014		

Standardized Residual Covariances

	b612	b643	b653	b651	b652	b631	b642
b612	0.000						
b643	5.239	0.000					
b653	5.775	3.636	0.000				
b651	5.061	1.295	5.042	0.000			
b652	7.193	1.054	6.289	5.198	0.000		
b631	6.313	2.584	2.993	0.629	0.550	0.000	
b642	6.315	8.497	5.238	3.429	3.256	4.656	0.000
b611	8.458	5.590	4.801	6.623	5.510	5.931	5.329
c6512	3.825	0.597	1.559	-1.263	-1.877	2.241	2.377
c6511	3.119	0.551	1.204	-1.399	-2.097	0.980	2.659
c6534	1.859	-0.245	0.004	-1.213	-1.009	0.364	1.305
c6533	2.111	-0.159	-0.992	-0.721	-0.667	1.023	1.859
c6532	2.757	-0.015	-0.919	-0.647	-0.594	0.554	1.680
c6531	2.669	0.589	-0.127	0.204	-0.246	0.740	2.143
b641	6.060	5.704	5.699	3.236	3.135	2.997	7.551
b632	8.708	1.725	3.026	0.277	3.066	3.552	3.378
b622	5.750	2.790	4.536	1.711	2.424	2.225	4.409
b621	7.455	4.849	6.007	2.635	4.133	7.902	6.704
c6434	1.787	-1.107	3.167	1.949	0.514	-0.106	0.655
c6433	2.620	-1.879	3.252	1.538	0.796	0.301	1.056
c6432	4.357	-0.026	1.655	0.830	-0.344	1.448	2.576
c6431	2.912	-0.018	0.938	1.055	0.175	-0.493	2.272
c6412	3.361	0.826	3.864	1.403	1.242	0.140	0.751
c6411	3.721	0.634	4.041	2.180	1.792	0.155	0.835
c6423	4.452	0.157	3.980	1.401	1.854	0.998	-0.958
c6422	3.743	-0.314	3.459	1.032	1.373	0.946	-1.107
c6421	4.615	0.342	3.755	1.328	1.631	2.003	-0.600
c6323	4.169	0.562	1.616	-1.668	-0.196	0.235	1.194
c6322	3.594	0.197	2.029	-1.349	-0.868	1.263	1.987
c6321	4.373	1.553	3.568	-0.321	0.267	1.019	1.957
c6524	4.474	1.501	1.534	-0.270	-0.069	1.085	2.555
c6523	3.796	1.419	1.478	-0.761	0.600	2.330	3.782
c6522	3.200	0.783	2.220	0.203	1.586	-0.616	1.734
c6521	2.926	-0.349	1.033	-1.488	-1.362	1.147	1.415
c6125	0.624	0.515	2.347	1.048	1.414	2.624	2.290
c6124	-1.570	-0.207	0.666	-1.168	-0.359	1.514	1.395
c6123	-0.528	0.726	2.551	0.842	1.235	2.062	2.448
c6122	-0.474	0.347	2.637	1.268	1.516	1.349	1.350
c6121	0.104	1.332	3.215	2.607	2.257	0.883	2.754
c6312	4.596	0.274	1.703	-0.306	-0.430	0.038	1.277
c6311	4.368	-0.585	1.864	-0.656	-0.741	-1.039	0.786
c6223	3.477	-0.049	2.606	-0.060	-0.235	-0.875	1.382
c6222	3.432	-1.783	0.935	-1.435	-0.883	-0.552	-0.046
c6221	5.548	1.844	2.511	0.769	1.058	-0.730	2.805
c6213	0.121	-0.435	3.603	0.665	1.108	0.636	0.983
c6212	0.067	-0.629	2.329	-0.050	0.562	1.910	1.538
c6211	1.832	1.204	3.241	0.524	2.186	2.877	2.399
c6115	2.980	1.780	4.104	3.332	2.567	1.559	1.312
c6114	2.731	1.762	3.535	2.144	1.978	0.805	2.416
c6113	2.411	0.080	1.670	0.513	0.760	0.349	-0.006
c6112	2.521	1.075	2.969	1.082	1.238	1.763	0.943
c6111	3.258	0.681	2.052	1.280	0.801	1.914	0.662
b611	c6512	c6511	c6534	c6533	c6532	c6531	
b611	0.000						
c6512	4.105	0.000					
c6511	3.858	1.565	0.000				
c6534	2.112	-0.495	-0.551	0.000			
c6533	2.718	-0.394	-1.103	0.536	0.000		
c6532	3.073	-0.328	-0.746	0.046	0.222	0.000	
c6531	3.551	0.891	0.368	-0.128	-0.241	0.079	0.000

b641	5.108	1.248	0.898	0.339	1.007	0.897	1.436
b632	6.203	0.990	1.844	0.648	0.010	-0.162	-0.015
b622	5.421	1.660	0.445	0.159	-0.097	-0.320	0.429
b621	6.327	4.509	3.460	2.841	2.840	2.382	3.175
c6434	3.462	-0.094	-1.087	-0.236	-0.087	-0.084	0.244
c6433	2.911	-0.047	-1.193	0.038	0.231	0.657	0.846
c6432	4.237	-0.005	0.771	-0.698	-0.557	-0.828	0.052
c6431	4.007	0.705	0.098	-1.388	-0.228	-0.937	-0.289
c6412	2.662	-1.386	-0.428	-0.601	-0.523	-0.327	-0.247
c6411	2.671	-1.494	-0.732	-0.764	-0.657	-0.580	-0.189
c6423	2.677	-0.668	-0.597	-0.657	-0.259	-0.004	-0.444
c6422	2.276	-1.346	-1.873	-0.373	0.311	0.008	-0.055
c6421	2.860	-1.078	-0.316	-1.013	-0.903	-0.443	-0.612
c6323	4.142	0.014	0.319	-1.221	-1.299	-0.636	-0.406
c6322	4.258	-0.654	0.051	-0.285	-0.538	-0.123	-0.481
c6321	4.014	0.673	0.489	0.819	0.789	1.053	0.280
c6524	4.286	-0.870	-0.747	1.235	1.343	1.448	1.210
c6523	4.504	-1.112	-0.623	-0.219	0.544	0.643	1.732
c6522	2.700	-0.946	-0.844	-0.858	0.527	-0.472	1.172
c6521	3.586	2.087	2.688	-1.465	-1.148	-1.294	-0.334
c6125	1.393	0.138	-0.788	-0.596	-0.866	-0.221	-0.208
c6124	-0.150	-1.029	-2.299	-1.298	-2.030	-0.750	-1.236
c6123	1.389	0.262	-0.552	0.416	-0.564	1.162	0.650
c6122	1.555	-0.129	-1.478	-0.614	-1.027	-0.446	-0.045
c6121	2.837	0.493	-0.336	-0.050	-0.438	0.594	0.844
c6312	4.076	0.963	0.619	-0.497	-0.562	-0.129	-0.258
c6311	3.290	0.254	-0.405	-0.204	-0.635	0.195	-0.372
c6223	2.724	0.017	-0.632	0.452	0.200	0.030	0.002
c6222	2.410	-0.137	-0.715	-1.070	-0.696	-0.943	-1.013
c6221	4.459	1.074	0.623	0.732	0.299	0.422	-0.068
c6213	1.787	-0.366	-1.991	-0.492	-1.060	-1.222	-0.496
c6212	2.021	0.281	-0.778	-0.841	-1.088	-1.155	-0.405
c6211	2.327	1.687	0.142	1.123	0.824	0.859	1.006
c6115	0.269	-0.129	-0.463	0.394	0.208	0.992	0.714
c6114	-0.088	-0.544	-0.857	0.011	-0.305	0.542	0.090
c6113	-1.230	-2.097	-2.583	-1.405	-1.450	-0.685	-1.456
c6112	-0.615	-0.886	-0.960	-0.272	-1.281	-0.193	-0.932
c6111	-0.251	-1.223	-1.481	-0.175	-0.224	1.058	-0.460

	b641	b632	b622	b621	c6434	c6433	c6432
b641	0.000						
b632	2.968	0.000					
b622	2.900	2.477	0.000				
b621	5.425	7.004	9.069	0.000			
c6434	-0.126	-0.210	0.367	0.391	0.000		
c6433	-0.311	0.313	1.074	1.926	1.492	0.000	
c6432	0.794	2.621	1.638	3.402	-0.342	-0.017	0.000
c6431	0.971	0.726	0.003	1.378	-0.357	0.143	0.975
c6412	-0.560	-0.680	0.829	2.442	0.160	-0.125	-0.949
c6411	0.592	0.254	1.004	2.562	-0.277	-0.642	0.095
c6423	-1.640	0.787	1.709	3.657	-0.205	0.698	-0.428
c6422	-1.222	-0.272	1.889	3.539	-0.716	0.197	-0.802
c6421	-1.091	-0.195	2.057	3.221	-0.237	0.493	-0.233
c6323	0.320	-0.654	0.597	6.794	-1.582	-0.160	0.662
c6322	-0.193	0.698	0.076	5.649	-1.518	-0.438	0.344
c6321	1.765	-1.347	1.035	6.062	0.238	0.643	1.298
c6524	1.725	1.213	1.951	4.363	0.594	0.583	0.710
c6523	2.646	1.897	2.666	5.540	-1.402	-1.163	-0.376
c6522	1.748	-1.449	-0.859	1.048	0.489	-0.849	0.392
c6521	0.547	1.052	0.251	3.745	-1.733	-2.052	-1.053
c6125	1.504	2.141	4.672	2.705	-0.819	0.425	0.517
c6124	0.108	0.416	2.478	0.469	-0.928	-1.285	-1.568
c6123	1.668	1.435	3.082	0.894	0.378	-0.065	-0.292
c6122	1.195	0.331	2.958	-0.106	0.376	-0.136	-0.539
c6121	2.158	1.253	2.207	-0.044	1.468	1.090	0.332
c6312	0.313	0.756	-1.776	5.168	-0.499	-0.266	1.959
c6311	-0.287	-0.476	-0.792	5.796	-1.101	-0.432	1.062
c6223	0.912	-0.990	-0.991	3.652	-0.320	-0.132	1.566
c6222	-0.632	-0.189	-1.043	4.435	-2.575	-2.206	0.571
c6221	1.935	2.174	1.835	5.683	0.335	0.503	2.369
c6213	1.113	-0.341	1.918	-1.728	0.988	0.043	-0.491
c6212	0.911	0.255	1.331	-1.364	0.098	-0.595	-0.738
c6211	1.543	1.383	3.271	0.559	0.286	0.568	0.661
c6115	1.729	1.681	2.616	3.140	2.589	1.368	1.208
c6114	1.833	1.040	2.747	1.872	1.072	0.793	-0.007

c6113	-0.439	0.828	1.855	2.094	-0.927	-1.094	-0.705
c6112	0.379	1.357	2.773	2.854	-0.654	-1.683	-0.667
c6111	0.057	1.880	2.133	3.261	-0.175	-0.159	-0.305

	c6431	c6412	c6411	c6423	c6422	c6421	c6323
c6431	0.000						
c6412	-0.495	0.000					
c6411	-0.349	0.085	0.000				
c6423	-0.153	-0.110	-0.500	0.000			
c6422	-0.825	-0.258	-0.990	0.911	0.000		
c6421	-1.110	1.016	0.077	-0.203	0.159	0.000	
c6323	-0.945	-0.651	-1.291	0.124	-1.097	-1.180	0.000
c6322	-1.172	-0.287	-1.167	0.354	-0.882	-0.886	0.609
c6321	-0.155	1.345	1.264	1.306	0.707	0.799	0.262
c6524	0.901	0.562	1.317	0.829	0.745	0.484	-0.516
c6523	-1.085	-0.308	-0.357	-0.091	-0.298	-0.908	1.845
c6522	0.781	-0.319	-0.444	-0.773	-0.507	-0.369	-1.666
c6521	-1.362	-1.826	-2.323	-0.363	-1.616	-1.076	-0.215
c6125	-0.249	-0.191	0.176	0.411	-0.242	-0.760	1.047
c6124	-1.943	-1.715	-1.971	-1.421	-1.696	-1.332	-1.657
c6123	-0.866	-0.239	-0.541	-0.415	-0.230	0.029	-0.551
c6122	-0.394	0.155	-0.012	-0.310	-0.096	-0.052	-0.150
c6121	1.900	0.498	0.795	-0.087	0.162	0.645	-1.539
c6312	-0.654	-1.076	1.296	-0.199	-1.113	-1.060	-0.577
c6311	-1.536	-0.404	0.288	0.351	-0.181	-0.323	-1.385
c6223	-1.241	-0.654	1.086	-0.235	-0.347	-0.193	-0.467
c6222	-2.106	-2.666	0.293	-1.365	-1.405	-1.420	-0.284
c6221	1.193	-0.054	0.967	-0.075	-0.103	-0.138	0.004
c6213	-0.985	-0.429	-0.196	-1.305	-0.192	-0.073	-2.048
c6212	-1.562	-1.204	-0.502	-1.771	-0.508	-1.124	-1.206
c6211	0.080	-0.082	0.175	0.666	0.826	0.402	0.829
c6115	0.071	1.842	2.150	1.841	1.131	1.232	-1.188
c6114	0.154	-0.265	-0.149	-0.218	-0.055	-0.077	-2.169
c6113	-2.048	-0.969	-1.302	-1.125	-1.418	-0.934	-1.329
c6112	-1.872	-0.264	-0.398	-0.236	-0.856	-0.112	-0.519
c6111	-1.530	-0.422	-0.913	0.152	-0.390	-0.005	0.161

	c6322	c6321	c6524	c6523	c6522	c6521	c6125
c6322	0.000						
c6321	-0.514	0.000					
c6524	-0.568	0.935	0.000				
c6523	1.187	2.319	0.039	0.000			
c6522	-2.422	-0.976	-0.229	1.153	0.000		
c6521	-0.718	0.672	-1.092	0.782	1.143	0.000	
c6125	1.102	1.166	1.783	-0.027	-0.542	-1.152	0.000
c6124	-1.352	-0.908	-0.542	-1.114	-1.159	-2.505	-0.162
c6123	-0.273	0.570	1.204	-0.111	0.182	-1.064	-0.874
c6122	-0.105	0.311	0.900	-1.289	0.440	-1.900	1.629
c6121	-1.124	-0.339	2.161	-0.235	2.132	-0.899	-0.243
c6312	0.046	1.002	0.779	0.026	-3.017	-0.319	1.508
c6311	-0.897	0.439	0.056	1.101	-3.829	-0.602	0.695
c6223	-1.111	1.354	0.294	0.345	-1.180	-1.225	0.526
c6222	-1.388	0.802	-0.039	0.709	-2.196	-1.359	0.336
c6221	-0.209	0.694	1.828	0.436	-1.128	-0.902	3.097
c6213	-1.915	-0.484	-1.372	-1.162	-0.101	-2.154	-0.008
c6212	-1.353	0.059	-1.454	-1.094	-0.427	-0.982	0.566
c6211	0.605	1.795	0.751	1.046	0.018	0.035	3.608
c6115	-0.202	0.581	3.213	0.707	-0.285	-1.075	1.211
c6114	-1.571	-0.356	1.615	0.355	0.966	-1.097	0.305
c6113	-1.415	-0.116	0.419	-0.773	0.018	-2.328	-0.877
c6112	-0.610	1.211	1.615	-0.265	0.263	-1.122	-0.851
c6111	0.129	1.314	1.619	-0.016	-0.715	-1.673	-1.089

	c6124	c6123	c6122	c6121	c6312	c6311	c6223
c6124	0.000						
c6123	1.143	0.000					
c6122	-0.382	-0.536	0.000				
c6121	-0.269	-0.778	1.420	0.000			
c6312	-1.865	-0.206	-0.368	-0.998	0.000		
c6311	-1.833	-0.080	-0.702	-1.281	0.409	0.000	
c6223	-2.605	-0.876	-0.681	-0.612	-1.024	1.646	0.000
c6222	-3.802	-1.693	-2.290	-2.304	0.804	1.286	1.233

c6221	0.487	0.807	1.076	1.964	-0.538	-1.109	-1.050
c6213	-0.755	-0.759	-0.474	-0.264	-2.215	-1.999	-1.268
c6212	-0.738	-0.898	-0.525	-0.994	-1.231	-0.874	-0.935
c6211	1.607	1.533	0.966	0.032	0.220	1.208	-0.691
c6115	0.419	1.886	0.504	1.614	0.306	0.565	0.544
c6114	1.897	2.277	0.445	2.243	-1.950	-1.846	-1.904
c6113	-1.445	-0.868	-1.452	0.462	-1.451	-1.246	-0.728
c6112	-1.378	-0.285	-0.605	0.580	0.380	0.258	0.894
c6111	-1.980	-0.336	-2.151	-0.669	-0.093	0.391	0.486

	c6222	c6221	c6213	c6212	c6211	c6115	c6114
c6222	0.000						
c6221	-0.005	0.000					
c6213	-3.462	1.748	0.000				
c6212	-2.298	0.432	1.102	0.000			
c6211	-0.859	1.202	-0.871	-0.074	0.000		
c6115	-1.442	1.198	1.176	-0.131	2.653	0.000	
c6114	-3.921	-0.891	0.924	-0.137	1.637	1.139	0.000
c6113	-2.668	-0.804	-0.509	-1.633	0.592	-0.861	0.028
c6112	-0.871	-0.002	-0.771	-1.406	-0.082	-0.655	-0.615
c6111	-0.884	0.426	-1.272	-1.696	0.808	-0.166	-0.707

	c6113	c6112	c6111
c6113	0.000		
c6112	0.944	0.000	
c6111	0.749	-0.039	0.000

Standardized Residual Means

b612	b643	b653	b651	b652	b631
2.511e-013	4.402e-013	3.066e-013	3.835e-013	4.062e-013	3.888e-013
b642	b611	c6512	c6511	c6534	c6533
4.261e-013	1.686e-013	4.744e-013	4.897e-013	4.663e-013	4.478e-013
c6532	c6531	b641	b632	b622	b621
4.845e-013	4.736e-013	3.437e-013	3.766e-013	3.975e-013	2.025e-013
c6434	c6433	c6432	c6431	c6412	c6411
5.174e-013	4.401e-013	4.815e-013	4.476e-013	5.040e-013	4.664e-013
c6423	c6422	c6421	c6323	c6322	c6321
4.943e-013	4.760e-013	5.084e-013	4.366e-013	4.711e-013	3.890e-013
c6524	c6523	c6522	c6521	c6125	c6124
4.446e-013	3.555e-013	3.575e-013	5.106e-013	3.528e-013	4.878e-013
c6123	c6122	c6121	c6312	c6311	c6223
4.573e-013	4.184e-013	3.998e-013	4.768e-013	4.115e-013	4.696e-013
c6222	c6221	c6213	c6212	c6211	c6115
4.376e-013	4.282e-013	4.216e-013	4.224e-013	3.803e-013	3.704e-013
c6114	c6113	c6112	c6111		
4.556e-013	5.251e-013	4.622e-013	4.641e-013		

Modification Indices

Covariances: M.I. Par Change

e43 <-----> F8	4.270	0.031
e43 <-----> F11	13.905	0.047
e43 <-----> F2	51.179	-0.096
e43 <-----> F1	7.722	0.048
e43 <-----> F12	9.082	-0.045
e50 <-----> F9	46.702	-0.075
e50 <-----> F7	26.637	0.068
e50 <-----> F11	8.997	0.034
e50 <-----> e43	14.757	0.084
e53 <-----> F7	7.471	0.041
e53 <-----> F8	5.228	0.035
e53 <-----> F11	7.503	0.035
e53 <-----> F3	4.284	0.033
e53 <-----> F12	79.349	-0.136
e53 <-----> e43	11.566	0.084
e53 <-----> e50	6.521	0.057
e51 <-----> F9	11.649	0.044
e51 <-----> F7	4.683	0.033
e51 <-----> F6	11.372	-0.053
e51 <-----> F11	14.067	-0.047
e51 <-----> F1	8.475	0.052
e51 <-----> F12	4.883	-0.034
e51 <-----> e53	51.173	0.181
e52 <-----> F7	4.718	0.033
e52 <-----> F8	4.385	0.032
e52 <-----> F11	4.916	-0.028
e52 <-----> e43	30.218	0.137
e52 <-----> e53	91.680	0.242
e52 <-----> e51	155.611	0.318
e46 <-----> F8	6.409	0.033
e46 <-----> F6	7.327	0.036
e46 <-----> F5	5.990	-0.031
e46 <-----> F4	4.862	-0.025
e46 <-----> F3	10.517	0.044
e46 <-----> e43	4.782	0.047
e46 <-----> e50	8.355	0.056
e49 <-----> F7	17.290	0.062
e49 <-----> F8	78.266	-0.133
e49 <-----> F11	11.927	0.044
e49 <-----> e43	6.415	0.063
e49 <-----> e50	157.971	0.280
e49 <-----> e46	15.928	0.087
e42 <-----> F9	5.112	0.028
e42 <-----> F6	6.574	0.039
e42 <-----> F11	18.139	0.053
e42 <-----> F1	47.259	-0.118
e42 <-----> e43	70.981	0.203
e42 <-----> e50	9.298	0.066
e42 <-----> e51	13.015	0.089
e42 <-----> e46	8.442	0.062
e42 <-----> e49	17.535	0.103
e41 <-----> F9	5.716	0.023
e41 <-----> F7	11.363	-0.038
e41 <-----> F5	13.936	0.043
e41 <-----> F3	5.167	0.027
e41 <-----> F1	5.479	-0.031
e41 <-----> e51	16.888	-0.079
e41 <-----> e52	34.006	-0.112
e41 <-----> e46	5.515	0.039
e40 <-----> F11	5.571	0.024
e40 <-----> F1	5.814	-0.035
e40 <-----> e51	18.970	-0.089
e40 <-----> e52	38.853	-0.128
e40 <-----> e49	4.021	0.041
e40 <-----> e41	40.160	0.098
e39 <-----> F11	5.124	-0.019
e39 <-----> F12	9.756	0.031
e39 <-----> e43	4.973	-0.036
e39 <-----> e51	6.686	-0.043
e39 <-----> e42	5.729	-0.039
e38 <-----> F2	7.453	-0.023
e38 <-----> F12	4.463	0.020
e38 <-----> e53	14.008	-0.058

e38 <-----> e40	6.177	-0.032
e38 <-----> e39	13.953	0.038
e37 <-----> F11	5.184	-0.016
e37 <-----> F2	5.318	0.017
e37 <-----> F3	5.402	-0.020
e37 <-----> e53	18.218	-0.058
e36 <-----> F11	19.126	0.033
e36 <-----> F12	4.296	-0.019
e36 <-----> e42	4.344	0.031
e36 <-----> e41	7.367	0.031
e48 <-----> F8	17.069	-0.060
e48 <-----> F11	18.293	0.052
e48 <-----> e43	10.835	0.078
e48 <-----> e50	105.195	0.219
e48 <-----> e53	9.672	0.075
e48 <-----> e46	13.669	0.078
e48 <-----> e49	235.148	0.370
e48 <-----> e42	14.949	0.091
e47 <-----> F6	11.194	-0.049
e47 <-----> F11	6.580	0.031
e47 <-----> F5	5.118	0.032
e47 <-----> F1	6.866	0.044
e47 <-----> F12	8.013	-0.041
e47 <-----> e43	57.066	0.177
e47 <-----> e52	21.499	0.111
e47 <-----> e46	28.518	0.111
e47 <-----> e49	10.621	0.078
e47 <-----> e42	11.309	0.078
e47 <-----> e37	7.956	-0.037
e47 <-----> e48	20.139	0.103
e45 <-----> F8	8.792	0.043
e45 <-----> F2	9.846	0.041
e45 <-----> F5	6.894	-0.037
e45 <-----> F4	5.522	-0.028
e45 <-----> F3	10.560	0.048
e45 <-----> F1	4.281	0.035
e45 <-----> F12	11.986	-0.050
e45 <-----> e50	14.378	0.080
e45 <-----> e53	19.018	0.104
e45 <-----> e52	8.083	0.068
e45 <-----> e46	29.943	0.114
e45 <-----> e49	8.724	0.070
e45 <-----> e37	9.047	-0.039
e45 <-----> e48	4.569	0.049
e45 <-----> e47	11.596	0.077
e44 <-----> F9	4.203	-0.028
e44 <-----> F6	18.990	0.073
e44 <-----> F11	8.838	0.041
e44 <-----> F4	38.755	0.089
e44 <-----> F3	67.317	-0.137
e44 <-----> e43	88.242	0.249
e44 <-----> e50	21.717	0.112
e44 <-----> e53	7.296	0.073
e44 <-----> e46	7.323	0.064
e44 <-----> e49	20.057	0.121
e44 <-----> e42	17.880	0.111
e44 <-----> e37	4.682	-0.032
e44 <-----> e48	12.729	0.092
e44 <-----> e47	9.824	0.080
e44 <-----> e45	49.393	0.180
e35 <-----> F6	4.239	-0.025
e35 <-----> F4	6.111	-0.026
e35 <-----> F3	7.392	0.033
e35 <-----> e43	16.723	-0.079
e35 <-----> e50	15.127	-0.067
e35 <-----> e51	13.411	0.072
e35 <-----> e49	22.693	-0.093
e35 <-----> e40	6.953	-0.042
e35 <-----> e48	14.679	-0.072
e35 <-----> e44	35.304	-0.125
e34 <-----> F7	7.615	-0.032
e34 <-----> F8	12.542	0.042
e34 <-----> F11	14.431	-0.037
e34 <-----> F12	12.567	0.042
e34 <-----> e50	40.944	-0.110

e34 <-----> e51	4.889	0.044
e34 <-----> e49	20.811	-0.089
e34 <-----> e40	9.229	-0.048
e34 <-----> e37	6.229	0.027
e34 <-----> e48	18.494	-0.081
e34 <-----> e35	45.518	0.101
e33 <-----> F4	11.814	0.035
e33 <-----> F12	9.955	-0.037
e33 <-----> e43	12.259	0.066
e33 <-----> e52	9.243	-0.059
e33 <-----> e40	16.611	0.063
e33 <-----> e37	4.997	-0.023
e33 <-----> e47	8.166	0.052
e33 <-----> e45	4.606	-0.039
e33 <-----> e44	4.018	0.041
e32 <-----> F9	4.020	0.021
e32 <-----> F11	5.534	0.026
e32 <-----> F1	4.361	-0.032
e32 <-----> e53	7.355	-0.059
e32 <-----> e42	6.781	0.055
e32 <-----> e41	8.274	0.047
e32 <-----> e39	4.373	-0.030
e32 <-----> e38	6.285	0.034
e32 <-----> e33	15.547	0.065
e31 <-----> F8	13.024	0.035
e31 <-----> F6	7.077	0.028
e31 <-----> F4	8.968	-0.027
e31 <-----> e43	4.810	-0.036
e31 <-----> e49	12.815	-0.060
e31 <-----> e42	4.303	-0.034
e31 <-----> e41	5.478	-0.030
e31 <-----> e48	8.756	-0.047
e31 <-----> e47	20.755	-0.072
e31 <-----> e35	10.515	0.042
e31 <-----> e33	13.003	-0.046
e30 <-----> F6	12.146	-0.041
e30 <-----> F5	6.276	0.028
e30 <-----> F4	7.825	0.028
e30 <-----> e51	6.660	0.049
e30 <-----> e46	10.715	-0.054
e30 <-----> e41	6.583	-0.037
e30 <-----> e48	5.593	0.043
e30 <-----> e45	11.678	-0.062
e30 <-----> e34	4.304	-0.031
e30 <-----> e33	4.548	0.031
e29 <-----> F7	10.350	-0.033
e29 <-----> F6	4.820	0.024
e29 <-----> e50	6.050	-0.038
e29 <-----> e46	4.244	-0.031
e29 <-----> e49	11.006	-0.058
e29 <-----> e48	21.376	-0.077
e29 <-----> e34	6.504	0.035
e28 <-----> F7	10.087	-0.032
e28 <-----> F8	16.993	0.040
e28 <-----> F11	6.512	-0.022
e28 <-----> F12	9.869	0.033
e28 <-----> e50	10.991	-0.050
e28 <-----> e49	16.889	-0.070
e28 <-----> e40	20.500	-0.063
e28 <-----> e38	9.548	0.033
e28 <-----> e48	5.968	-0.040
e28 <-----> e30	4.471	-0.027
e28 <-----> e29	33.687	0.067
e27 <-----> F7	12.642	0.032
e27 <-----> e50	6.676	-0.036
e27 <-----> e46	9.316	0.041
e27 <-----> e49	7.632	-0.043
e27 <-----> e40	6.719	0.033
e27 <-----> e38	4.456	-0.021
e27 <-----> e48	27.802	-0.079
e27 <-----> e32	8.743	-0.040
e27 <-----> e31	38.316	0.064
e26 <-----> F6	16.083	0.041
e26 <-----> F5	22.017	-0.047
e26 <-----> F4	6.645	0.023

e26 <-----> e51	5.589	-0.041
e26 <-----> e39	4.619	-0.024
e26 <-----> e36	6.510	0.026
e26 <-----> e47	5.244	-0.037
e26 <-----> e44	11.081	0.061
e26 <-----> e30	5.828	-0.031
e25 <-----> F6	4.213	0.019
e25 <-----> F11	5.206	-0.019
e25 <-----> F4	9.790	-0.027
e25 <-----> e43	5.807	-0.038
e25 <-----> e46	4.749	0.030
e25 <-----> e48	5.113	-0.035
e25 <-----> e47	8.115	0.043
e25 <-----> e31	8.286	0.031
e25 <-----> e30	7.735	-0.034
e25 <-----> e26	15.982	0.042
e24 <-----> F7	8.302	0.030
e24 <-----> F6	19.422	-0.046

e24 <-----> F5	4.756	0.023
e24 <-----> e36	6.822	-0.028
e24 <-----> e47	21.791	-0.077
e24 <-----> e25	11.162	-0.036
e23 <-----> F11	47.242	-0.073
e23 <-----> F2	5.652	0.028
e23 <-----> F4	6.275	0.029
e23 <-----> F3	18.656	-0.058
e23 <-----> F1	6.766	0.039
e23 <-----> F12	17.982	0.056
e23 <-----> e53	11.793	-0.074
e23 <-----> e41	10.553	-0.053
e23 <-----> e40	7.122	-0.047
e23 <-----> e39	6.003	0.035
e23 <-----> e38	4.439	0.028
e23 <-----> e37	7.952	0.033
e23 <-----> e44	4.003	0.046
e23 <-----> e30	8.049	0.046
e22 <-----> F9	11.530	-0.043
e22 <-----> F6	15.537	0.062
e22 <-----> F12	9.651	0.048
e22 <-----> e50	8.905	0.067
e22 <-----> e49	13.353	0.092
e22 <-----> e41	11.997	-0.066
e22 <-----> e36	11.111	0.050
e22 <-----> e48	13.130	0.088
e22 <-----> e45	6.152	0.059
e22 <-----> e44	19.408	0.119
e22 <-----> e35	8.643	-0.058
e22 <-----> e34	4.631	-0.042
e22 <-----> e32	4.203	-0.044
e22 <-----> e27	11.210	-0.052
e22 <-----> e26	6.135	0.042
e21 <-----> F5	27.490	-0.079
e21 <-----> e52	12.264	0.088
e21 <-----> e41	7.978	-0.054
e21 <-----> e40	5.811	-0.049
e21 <-----> e39	4.682	-0.036
e21 <-----> e38	5.393	0.036
e21 <-----> e36	7.935	0.042
e21 <-----> e44	11.908	-0.093
e21 <-----> e34	7.539	-0.053
e21 <-----> e22	6.525	0.064
e20 <-----> F9	12.905	-0.036
e20 <-----> F7	9.720	-0.037
e20 <-----> F11	66.025	0.079
e20 <-----> F4	4.476	-0.022
e20 <-----> F12	8.097	-0.034
e20 <-----> e51	21.642	-0.093
e20 <-----> e52	16.537	-0.082
e20 <-----> e41	72.125	0.128
e20 <-----> e40	109.425	0.169
e20 <-----> e34	9.683	-0.048
e20 <-----> e30	11.879	-0.052
e20 <-----> e29	5.446	0.032
e20 <-----> e23	15.360	-0.067
e20 <-----> e22	5.490	0.047

e20 <-----> e21	10.764	0.065
e19 <-----> F4	4.986	0.026
e19 <-----> e44	4.347	0.049
e19 <-----> e35	15.008	-0.065
e19 <-----> e33	4.183	0.034
e19 <-----> e29	5.784	0.036
e19 <-----> e27	11.508	-0.046
e19 <-----> e23	5.104	0.042
e18 <-----> F11	4.613	-0.017
e18 <-----> F2	14.864	0.031
e18 <-----> F4	4.602	-0.017
e18 <-----> e43	27.309	-0.078
e18 <-----> e53	9.145	-0.046
e18 <-----> e51	12.646	-0.055
e18 <-----> e46	5.426	0.031
e18 <-----> e42	18.157	-0.063
e18 <-----> e45	5.596	0.034
e17 <-----> F12	9.295	0.027
e17 <-----> e37	13.426	0.029
e17 <-----> e32	4.573	-0.027
e17 <-----> e19	18.210	-0.054
e17 <-----> e18	75.219	0.074
e16 <-----> F1	9.977	-0.038
e16 <-----> e49	4.692	-0.037
e16 <-----> e37	4.276	-0.019
e16 <-----> e47	8.055	-0.046
e16 <-----> e44	6.783	-0.048
e16 <-----> e22	5.463	-0.040
e16 <-----> e19	32.890	0.084
e16 <-----> e18	4.442	-0.021
e16 <-----> e17	10.602	-0.032
e15 <-----> F9	8.855	0.027
e15 <-----> F5	4.666	-0.023
e15 <-----> F3	4.919	-0.025
e15 <-----> F1	4.350	0.026
e15 <-----> e51	9.690	0.057
e15 <-----> e32	23.648	0.076
e15 <-----> e21	12.091	0.063
e15 <-----> e17	19.175	-0.045
e15 <-----> e16	33.207	0.070
e14 <-----> F9	5.733	0.023
e14 <-----> F8	6.486	-0.030
e14 <-----> F4	5.569	-0.023
e14 <-----> e41	5.746	0.035
e14 <-----> e45	17.001	-0.075
e14 <-----> e33	8.123	0.042
e14 <-----> e31	7.397	-0.035
e14 <-----> e30	25.600	0.074
e14 <-----> e26	4.575	-0.028
e14 <-----> e22	13.200	-0.070
e14 <-----> e21	7.672	-0.053
e13 <-----> F6	6.363	-0.029
e13 <-----> F4	12.726	0.035
e13 <-----> e50	9.665	-0.054
e13 <-----> e46	11.496	-0.057
e13 <-----> e49	9.181	-0.059
e13 <-----> e37	4.473	0.022
e13 <-----> e48	9.832	-0.058
e13 <-----> e45	7.393	-0.050
e13 <-----> e26	10.126	-0.042
e13 <-----> e21	18.646	-0.083
e13 <-----> e14	4.078	0.030
e12 <-----> F11	6.307	-0.025
e12 <-----> F2	8.308	-0.031
e12 <-----> F12	5.838	0.029
e12 <-----> e46	10.223	-0.055
e12 <-----> e42	6.029	-0.048
e12 <-----> e47	19.815	-0.084
e12 <-----> e45	13.476	-0.069
e12 <-----> e33	4.373	0.032
e12 <-----> e30	4.501	0.032
e12 <-----> e24	9.229	0.043
e12 <-----> e18	8.111	-0.034

e12 <-----> e14	11.126	-0.051
e12 <-----> e13	48.048	0.106
e11 <-----> F9	4.800	-0.023
e11 <-----> F5	10.094	0.039
e11 <-----> F4	5.607	0.025
e11 <-----> F3	9.002	-0.039
e11 <-----> e50	5.064	-0.042
e11 <-----> e53	4.934	-0.047
e11 <-----> e51	5.232	-0.049
e11 <-----> e46	8.266	-0.053
e11 <-----> e49	4.659	-0.046
e11 <-----> e45	11.907	-0.069
e11 <-----> e44	9.431	0.070
e11 <-----> e35	8.068	-0.047
e11 <-----> e34	5.871	-0.040
e11 <-----> e33	12.061	0.056
e11 <-----> e31	13.996	-0.053
e11 <-----> e30	21.962	0.075
e11 <-----> e25	8.521	-0.039
e11 <-----> e22	5.028	0.047
e11 <-----> e18	7.325	-0.035
e11 <-----> e14	10.210	0.052
e11 <-----> e13	7.786	0.045
e11 <-----> e12	32.277	0.094
e10 <-----> F6	4.834	0.031
e10 <-----> F5	10.546	-0.044
e10 <-----> e49	5.092	0.052
e10 <-----> e42	4.466	0.047
e10 <-----> e47	13.110	0.079
e10 <-----> e45	25.028	0.109
e10 <-----> e32	7.976	0.056
e10 <-----> e23	5.463	0.046
e10 <-----> e20	5.919	-0.044
e10 <-----> e17	7.086	-0.036
e10 <-----> e15	6.843	0.043
e10 <-----> e13	14.341	-0.067
e10 <-----> e12	15.885	-0.072
e9 <-----> F11	5.607	-0.023
e9 <-----> F5	5.012	-0.026
e9 <-----> e43	4.419	-0.039
e9 <-----> e53	9.605	0.059
e9 <-----> e51	7.619	0.053
e9 <-----> e49	5.211	-0.044
e9 <-----> e40	6.829	-0.041
e9 <-----> e44	24.610	-0.101
e9 <-----> e35	21.709	0.069
e9 <-----> e29	4.896	-0.029
e9 <-----> e27	6.703	0.031
e9 <-----> e26	4.284	-0.027
e9 <-----> e23	4.054	-0.033
e9 <-----> e21	4.028	0.038
e9 <-----> e20	4.597	-0.033
e9 <-----> e19	6.565	-0.042
e9 <-----> e11	23.671	-0.078
e9 <-----> e10	17.324	0.073
e8 <-----> F4	5.944	-0.023
e8 <-----> F3	15.892	0.041
e8 <-----> e43	6.423	-0.045
e8 <-----> e40	4.963	0.032
e8 <-----> e45	6.573	-0.044
e8 <-----> e44	21.709	-0.089
e8 <-----> e35	6.771	0.036
e8 <-----> e29	5.150	-0.028
e8 <-----> e23	12.105	-0.054
e8 <-----> e20	7.005	0.038
e8 <-----> e10	4.398	-0.034
e8 <-----> e9	47.477	0.089
e7 <-----> F2	15.361	0.042
e7 <-----> F3	11.058	-0.040
e7 <-----> e51	4.197	-0.041
e7 <-----> e45	5.169	0.043
e7 <-----> e35	4.117	-0.032
e7 <-----> e29	4.766	0.030
e7 <-----> e19	18.642	0.074
e7 <-----> e18	6.279	0.030

e7 <-----> e15	10.163	-0.046
e7 <-----> e12	4.347	-0.033
e7 <-----> e9	14.862	-0.057
e6 <-----> F7	6.838	0.033
e6 <-----> F6	6.750	-0.035
e6 <-----> F2	4.345	0.024
e6 <-----> F1	19.064	-0.065
e6 <-----> e53	5.234	0.049
e6 <-----> e51	8.363	0.063
e6 <-----> e35	15.339	0.065
e6 <-----> e30	8.941	0.048
e6 <-----> e29	5.434	0.035
e6 <-----> e26	8.520	-0.042
e6 <-----> e23	8.162	0.053
e6 <-----> e21	8.589	-0.062
e6 <-----> e20	7.148	-0.046
e6 <-----> e17	5.319	0.029
e6 <-----> e7	4.388	0.036
e5 <-----> F2	21.040	0.048
e5 <-----> F4	11.256	-0.034
e5 <-----> F1	6.752	-0.035
e5 <-----> e43	7.566	-0.052
e5 <-----> e49	11.892	0.066
e5 <-----> e48	9.367	0.056
e5 <-----> e45	17.669	0.076
e5 <-----> e44	8.770	-0.061
e5 <-----> e33	4.861	-0.032
e5 <-----> e31	5.227	-0.029
e5 <-----> e26	4.924	-0.029
e5 <-----> e19	5.558	-0.039
e5 <-----> e18	28.325	0.062
e5 <-----> e17	7.132	0.030
e5 <-----> e12	8.662	-0.045
e5 <-----> e11	20.724	-0.074
e5 <-----> e9	4.346	0.030
e5 <-----> e6	17.284	0.068
e4 <-----> F1	26.643	0.060
e4 <-----> e42	19.229	-0.073
e4 <-----> e40	4.483	-0.029
e4 <-----> e21	9.566	0.052
e4 <-----> e17	9.760	-0.031
e4 <-----> e15	4.596	0.026
e4 <-----> e6	19.887	-0.064
e3 <-----> F9	14.026	-0.036
e3 <-----> F11	4.254	0.020
e3 <-----> F4	8.324	0.029
e3 <-----> e39	4.810	0.027
e3 <-----> e34	17.051	-0.060
e3 <-----> e12	8.591	0.044
e3 <-----> e7	6.705	-0.039
e3 <-----> e6	6.969	-0.042
e3 <-----> e5	7.011	-0.038
e3 <-----> e4	33.080	0.071
e2 <-----> F6	4.948	0.024
e2 <-----> F11	4.989	-0.020
e2 <-----> F2	11.397	-0.032
e2 <-----> F12	5.766	0.026
e2 <-----> e43	7.526	0.047
e2 <-----> e53	7.126	-0.047
e2 <-----> e37	17.780	0.040
e2 <-----> e45	4.754	-0.036
e2 <-----> e44	4.799	0.041
e2 <-----> e21	4.169	-0.036
e2 <-----> e18	4.576	-0.023
e2 <-----> e17	4.068	0.021
e2 <-----> e16	10.581	-0.038
e2 <-----> e15	5.878	-0.031
e2 <-----> e11	5.031	0.033
e2 <-----> e9	5.744	-0.032
e2 <-----> e5	11.828	-0.045
e2 <-----> e4	26.455	0.059

Variances:

M.I. Par Change

Regression Weights:

	M.I.	Par Change
b612 <----- F9	27.649	0.193
b612 <----- F7	38.547	0.209
b612 <----- F8	44.178	0.219
b612 <----- F6	48.560	0.264
b612 <----- F11	41.175	0.239
b612 <----- F5	55.446	0.261
b612 <----- F4	47.543	0.280
b612 <----- F1	22.367	0.169
b612 <----- F12	18.461	0.149
b612 <----- b652	6.885	0.023
b612 <----- b611	7.693	0.026
b612 <----- b641	4.832	0.020
b612 <----- b632	8.360	0.025
b612 <----- b621	7.278	0.025
b643 <----- F1	4.867	0.071
b643 <----- b642	10.326	0.026
b643 <----- b641	7.248	0.022
b653 <----- F9	21.701	0.174
b653 <----- F7	45.215	0.230
b653 <----- F8	39.763	0.211
b653 <----- F6	17.725	0.162
b653 <----- F11	15.401	0.148
b653 <----- F2	17.578	0.180
b653 <----- F5	13.945	0.133
b653 <----- F4	19.779	0.184
b653 <----- F3	29.214	0.228
b653 <----- F1	22.700	0.173
b653 <----- b651	5.753	0.021
b653 <----- b652	8.942	0.027
b653 <----- b641	5.210	0.021
b653 <----- c6411	4.341	0.020
b651 <----- F9	4.546	0.080
b651 <----- F7	11.478	0.117
b651 <----- F8	7.163	0.090
b651 <----- F1	9.572	0.113
b651 <----- b652	7.767	0.025
b652 <----- F7	7.759	0.096
b652 <----- F8	8.726	0.100
b652 <----- F2	5.970	0.106
b652 <----- F3	5.926	0.104
b652 <----- F1	7.641	0.101
b652 <----- b653	4.544	0.020
b652 <----- b651	7.071	0.023
b631 <----- F8	6.334	0.073
b631 <----- F2	11.153	0.125
b631 <----- F3	11.899	0.127
b631 <----- F1	6.778	0.082
b642 <----- F9	20.306	0.168
b642 <----- F7	5.919	0.083
b642 <----- F6	10.095	0.122
b642 <----- F11	19.454	0.167
b642 <----- F2	15.259	0.168
b642 <----- F5	11.005	0.118
b642 <----- F4	10.701	0.135
b642 <----- F3	12.635	0.150
b642 <----- F1	4.160	0.074
b642 <----- F12	11.492	0.120
b642 <----- b643	12.248	0.032
b642 <----- b641	15.164	0.036
b611 <----- F9	36.765	0.221
b611 <----- F7	24.650	0.165
b611 <----- F8	19.565	0.144
b611 <----- F6	43.206	0.247
b611 <----- F11	46.576	0.252
b611 <----- F2	7.466	0.115
b611 <----- F5	42.460	0.227
b611 <----- F4	35.011	0.239
b611 <----- F3	15.569	0.163
b611 <----- F12	23.288	0.166
b611 <----- b612	5.468	0.021
b611 <----- b651	5.251	0.019

b611 <----- b641	4.098	0.019
c6511 <----- F2	4.587	-0.075
c6511 <----- F1	6.990	-0.078
c6533 <----- F2	6.680	-0.069
b641 <----- F9	5.253	0.082
b641 <----- F11	9.294	0.111
b641 <----- F2	8.544	0.121
b641 <----- F3	8.585	0.119
b641 <----- F12	5.758	0.081
b641 <----- b643	6.520	0.023
b641 <----- b642	11.297	0.029
b632 <----- F2	6.292	0.102
b632 <----- F1	6.784	0.090
b632 <----- b612	4.436	0.018
b622 <----- F9	6.527	0.090
b622 <----- F7	7.794	0.090
b622 <----- F8	13.606	0.117

b622 <----- F11	5.721	0.086
b622 <----- F2	33.927	0.238
b622 <----- F3	23.153	0.193
b622 <----- F1	23.159	0.165
b622 <----- b621	6.626	0.023
b621 <----- F9	16.526	0.163
b621 <----- F7	21.852	0.171
b621 <----- F8	29.188	0.194
b621 <----- F6	80.474	0.371
b621 <----- F11	34.980	0.240
b621 <----- F5	96.753	0.376
b621 <----- F4	51.500	0.318
b621 <----- F1	19.364	0.171
b621 <----- F12	21.049	0.174
b621 <----- b612	5.662	0.023
b621 <----- b631	4.489	0.020
b621 <----- b642	4.382	0.020
b621 <----- b632	5.561	0.023
b621 <----- b622	9.168	0.030
b621 <----- c6323	5.925	0.023
b621 <----- c6322	4.457	0.020
b621 <----- c6321	4.012	0.019
b621 <----- c6523	5.128	0.022
b621 <----- c6312	4.370	0.020
b621 <----- c6311	5.436	0.023
b621 <----- c6222	5.087	0.022
c6434 <----- F6	4.454	-0.063
c6434 <----- F5	4.818	-0.061
c6432 <----- F6	6.197	0.073
c6432 <----- F5	12.067	0.094
c6432 <----- F4	10.441	0.102
c6431 <----- F1	4.260	-0.064
c6412 <----- F4	7.201	-0.074
c6322 <----- F4	4.572	-0.056
c6321 <----- F9	5.179	0.060
c6321 <----- F7	10.591	0.078
c6321 <----- F8	7.926	0.066
c6321 <----- F4	8.277	0.083
c6321 <----- F3	4.077	0.060
c6321 <----- F12	5.595	0.059
c6524 <----- F2	4.794	0.081
c6524 <----- F1	11.812	0.107
c6524 <----- F12	6.634	0.078
c6523 <----- F6	7.063	0.103
c6523 <----- F5	5.464	0.083
c6522 <----- F6	10.412	-0.124
c6522 <----- F5	15.064	-0.138
c6522 <----- F4	8.394	-0.119
c6521 <----- F9	8.602	-0.087
c6521 <----- F7	11.094	-0.090
c6521 <----- F8	5.253	-0.061
c6521 <----- F2	9.432	-0.105
c6521 <----- F3	4.730	-0.073
c6521 <----- F1	9.624	-0.089
c6521 <----- F12	4.149	-0.057
c6125 <----- F6	5.400	0.077
c6125 <----- F5	7.305	0.083
c6125 <----- F4	9.691	0.111

c6125 <----- F3	5.514	0.086
c6124 <----- F9	16.545	-0.092
c6124 <----- F7	19.453	-0.091
c6124 <----- F8	15.860	-0.081
c6124 <----- F6	12.530	-0.082
c6124 <----- F11	19.995	-0.102
c6124 <----- F5	18.712	-0.093
c6124 <----- F4	17.626	-0.105
c6124 <----- F1	6.021	-0.054
c6124 <----- F12	13.334	-0.078
c6121 <----- F9	5.272	0.062
c6222 <----- F9	13.071	-0.114
c6222 <----- F7	10.841	-0.095
c6222 <----- F8	9.683	-0.088
c6222 <----- F11	4.853	-0.070
c6222 <----- F2	21.461	-0.168
c6222 <----- F3	17.740	-0.150
c6222 <----- F1	16.294	-0.123
c6222 <----- F12	4.089	-0.060
c6221 <----- F9	4.758	0.074
c6221 <----- F2	7.339	0.107
c6221 <----- F3	7.925	0.109
c6213 <----- F6	13.854	-0.109
c6213 <----- F11	4.928	-0.064
c6213 <----- F5	15.832	-0.108
c6213 <----- F4	5.207	-0.072
c6212 <----- F9	4.667	-0.058
c6212 <----- F7	5.303	-0.056
c6212 <----- F8	7.412	-0.065
c6212 <----- F6	5.463	-0.064
c6212 <----- F11	4.339	-0.056
c6212 <----- F5	5.953	-0.062
c6212 <----- F1	10.176	-0.082
c6212 <----- F12	5.083	-0.057
c6211 <----- F6	5.666	0.073
c6211 <----- F2	9.691	0.107
c6211 <----- F5	5.451	0.066
c6211 <----- F1	5.905	0.070
c6211 <----- F12	5.324	0.065
c6115 <----- F9	9.885	0.100
c6115 <----- F7	14.273	0.110
c6115 <----- F8	8.474	0.083
c6115 <----- F11	4.574	0.069
c6115 <----- F2	7.072	0.098
c6115 <----- F3	6.090	0.089
c6114 <----- F6	6.113	-0.073
c6114 <----- F2	13.424	0.120
c6114 <----- F5	10.788	-0.089
c6114 <----- F4	7.383	-0.086
c6113 <----- F9	11.910	-0.087
c6113 <----- F7	11.464	-0.078
c6113 <----- F8	10.766	-0.075
c6113 <----- F6	7.914	-0.073
c6113 <----- F11	14.133	-0.096
c6113 <----- F2	5.870	-0.071
c6113 <----- F5	10.955	-0.080
c6113 <----- F4	8.674	-0.083
c6113 <----- F12	11.500	-0.081
c6111 <----- F2	6.888	-0.079

Intercepts:

M.I. Par Change

Summary of models

Model	NPAR	CMIN	DF	P	CMIN/DF
-----	-----	-----	-----	-----	-----
Default model	211	5723.867	1219	0.000	4.696
Saturated model	1430	0.000	0		
Independence model	52	119655.304	1378	0.000	86.833

Model	DELTA1 NFI	RHO1 RFI	DELTA2 IFI	RHO2 TLI	CFI
Default model	0.952	0.946	0.962	0.957	0.962
Saturated model	1.000		1.000		1.000
Independence model	0.000	0.000	0.000	0.000	0.000

Model	PRATIO	PNFI	PCFI
Default model	0.885	0.842	0.851
Saturated model	0.000	0.000	0.000
Independence model	1.000	0.000	0.000

Model	NCP	LO 90	HI 90
Default model	4504.867	4272.995	4743.497
Saturated model	0.000	0.000	0.000
Independence model	118277.304	117145.787	119415.120

Model	FMIN	F0	LO 90	HI 90
Default model	8.455	6.654	6.312	7.007
Saturated model	0.000	0.000	0.000	0.000
Independence model	176.743	174.708	173.037	176.389

Model	RMSEA	LO 90	HI 90	PCLOSE
Default model	0.074	0.072	0.076	0.000
Independence model	0.356	0.354	0.358	0.000

Model	AIC	BCC	BIC	CAIC
Default model	6145.867	6181.710		
Saturated model	2860.000	3102.917		
Independence model	119759.304	119768.137		

Model	ECVI	LO 90	HI 90	MECVI
Default model	9.078	8.736	9.431	9.131
Saturated model	4.225	4.225	4.225	4.583
Independence model	176.897	175.226	178.578	176.910

Model	HOELTER .05	HOELTER .01
Default model	154	159
Independence model	9	9

Execution time summary:

Minimization: 6.150
 Miscellaneous: 12.300
 Bootstrap: 0.000
 Total: 18.450