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EXPLORATORY RESEARCH INTO THE EFFECT OF THE
PERCEIVED EMPLOYEE-ORGANISATION
RELATIONSHIP ON ROLE INNOVATION

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Research submitted in partial fulfilment of the requirements of the Master of
Social Science degree in Industrial and Organisational Psychology.

FEBRUARY 2002

I declare that this dissertation is my own unaided work save for the stated extent in the acknowledgements. This dissertation has not been submitted and will not be submitted for a degree at any other university.

Sharon Tighe.

University of Cape Town

Note to reader

The format, headings, figures and references have been presented according to the format of the American Psychological Association.

The spelling used is British except during quotations where the original spelling was American.

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Abstract

This research explored the relationship between role innovation and the perceived employee-organisational relationship. Role innovation is an inclusive perspective of individual innovation in the workplace. The design incorporated an qualitative preliminary phase and a quantitative survey format as suited to the exploratory nature of the research.

The exploratory component elicited detailed information from eight R&D professionals. It focused on the construct of role innovation so as to ensure that the constructs and assessment methods were relevant and meaningful for the sample population. The sample of the subsequent survey research consisted of mid level (N = 51) employees from the administration, production and research and development departments of an electrical manufacturing firm in the Western Cape, South Africa. In the questionnaire role innovation was measured using Janssen's (2000) nine item scale of role innovation, which incorporates separate sub-scales for idea generation, idea promotion and idea realisation. The perceived employee-organisation relationship (PEOR) was assessed according to six factors; three forms of organisational commitment affective, continuance and normative as measured by Meyer, Allen and Smith's (1993) 18 item scale, value congruence (measured using McDonald and Gantz's (1992) comparative values scale), perceived supervisory support (measured using the scale developed by Oldham and Cummins (1996)) and perceived organisational support (measured using the Perceived Organisational Support Scale as developed by Eisenburger (2001)). The constructs of intrinsic motivation was incorporated as a moderating factor given the strong evidence of its influence on individual innovation. This was assessed using the Intrinsic/ Extrinsic Motivation Scale as developed by Amabile, Conti, Coon, Lazenby and Herron (1996).

Few significant relationships were found, however those indicated through correlation proved statistically robust through ANOVA, regression analysis and the Kruder - Wallis test for non- parametric means. The role innovation instrument proved reliable for the South African sample, however the sub-scales of idea promotion and idea realisation were combined following strategic factor analysis. The most important finding was a negative relationship between normative commitment and role innovation (idea generation). A positive relationship was also found between intrinsic motivation and role innovation (idea generation and idea promotion and realisation). Subsequent discussion focused on the important of contextual factors as external variables moderating the importance of the PEOR factors in predicting role innovation. The primary limitations of this research are the lack of causal direction and the sample size, which limited the sophistication of the statistical analysis. The findings indicate promise for future innovation research linking affective variables with individual actions.

CHAPTER 1

Innovation is the holy grail of contemporary management. Much vaunted as the solution to socio-economic disparities in international economics, the attainment of predictable individual innovation remains elusive. An organisation's ability to be consistently innovative in both production and work processes forms the basis of competitive advantage in the global arena (Notten, 2000; Ruggles, 1998). Innovation generates unique knowledge within each organisation, distinguishing it from others. The most sustainable method of ensuring continuous knowledge creation is to integrate role innovation into every work role (Ruggles, 1998). In this way the unique tacit knowledge and perspectives of each employee can be harnessed for strategic objectives (Leonard and Sensiper, 1998). The ability to extract innovation from individual employees has received a great deal of attention in both popular management literature and academic journals, where it is presented itself in many guises, from involving the customer in planning to flexible management boundaries and more (Maurer, 1998; Ozsomer, Calatone & Benedetto, 1997).

Research Topic

The central concern of this dissertation is individual role innovation. This form of innovation refers to those actions and ideas initiated by the individual which are both novel and useful to the organisation. It is these actions and ideas that differentiate the output of one organisation from those of another. Recent research shows that the psychological work environment impacts on the likelihood of the individual to engage in innovative behaviour (Amabile, 1996; Janssen, 2000). In particular, it has been suggested that the values of the organisation and manner in which the employee relates to the organisation impact substantially on the tendency of the individual to engage in innovative behaviour (Gilmartin, 1999).

Innovation research has traditionally conceived of innovation as an objective process; a process which, if mapped clearly enough, could provide a blueprint for innovation in all organisations. It has also been assumed to be an inherently positive

phenomenon, one that is desirable for both employees and employers alike. Yet despite the exhaustive mapping of innovation adoption and sustained management enthusiasm, the ability of organisations to consistently draw innovative behaviour from their employees remains weak (Maurer, 1998). A fundamental blockage often occurs during the transferral of outward employee enthusiasm for innovation into actual on the job behaviour. This blockage suggests that other processes mediate the occurrence of individual innovation that cannot be sufficiently explained through an objective examination of the innovative organisation (West & Farr, 1989). The more valuable point of research is increasingly being seen as the individual innovator and their personal experience of work and employment (Gilmartin, 1999).

Innovation as a research construct has retained a strong management focus. Despite the broad appeal, it has largely avoided the more esoteric interest afforded its sister concept, creativity. Recent integration of the humanistic organisational psychology influence with past management centred teachings are beginning to yield a new appreciation of innovation as a human process.

Csikzentmihalyi (1990) introduced the conceptualisation of individual innovation as a product of the social domain. This author proposed that a useful conceptualisation of individual innovation might arise if it became less person and product centred. Instead research should drive towards a systemic understanding of how individual innovation may be a product of the interaction between the worker and their experience of their working environment. This interactionist understanding translates into organisational psychology research as investigations concerning how the individual's relationship with the human elements of his or her working environment impact on their individual tendency to engage in role innovation.

There is already substantial evidence to link various forms of organisational commitment with innovation (Eisenburger & Fasolo, 1990). Similarly the positive influence of supervisory and organisational support on individual innovation is becoming

increasingly certain (Amabile, Conti, Coon and Tighe, 1996; Oldham & Cummings, 1996). These and other findings indicate a pattern of interactions which suggest that a fundamental part of the individual work experience that explains innovation can be grouped under the broad banner of their relationship with their employer. This relationship is the subjective perception held by the employee of the organisation as a result of multiple impressions. The perceived employee-organisation relationship (PEOR) is manifest along a number of dimensions including affective, normative and continuance commitment, value congruence and perceived support.

The relationship between these individual variables and individual innovation is increasingly clear (Eisenburger, 2000; Janssen, 2000; Oldham & Cummings, 1996). The next step in the research process to validating Csikszentmihalyi's (1990) conceptualisation, is to investigate the individual constructs together in a single study under the broad grouping of the PEOR. This dissertation seeks to take this step with explorative, quantitative research that incorporates qualitative elements to elicit greater insight into the data obtained.

Research Context

The study of innovation at work has been conducted in a wide range of settings and countries. However the concept of harnessing individual original action for the commercial gain of the employer is primarily a Euro - American idea. In particular, the Euro - American approach has developed the idea of drawing out the innovative potential of every employee as a form of competitive advantage in a context of equal technology (Notten, 2000). No research has been done to show whether existing methods of managing innovation are effective in the South African context. This is a point of concern given that South African organisations have to compete in a global market with a workforce that has no tradition of valuing individual creativity (Notten, 2000). The technological changes occurring in the workplace increase the value of employees who are able to work independently and progressively (Wallace, 1989). As the South African

workplace gains uniformity with the same technology used in the Euro - American settings, the influence of the subjective experience of the individual SA employee will become more apparent.

An equally important contextual consideration of this research is the particular nature of the South African employer - employee relationship. The interactions between employees and employers in South Africa are governed by a tradition of antagonism. New labour legislation has done much to improve relations and facilitate conflict resolution. It has required that employers rethink their existing value systems and engage with their employees in a manner that is antithetical to their traditional antagonistic relationship. In addition the equity legislation has given immediacy to social change.

Yet the patterns of antagonism between management and workers persist. Strikes such as those in the automobile industry during August 2001 indicate that the gap between organisations and their employees is entrenched into the patterns of every day interactions. One similarity that is carried through to this research is the non-unionised sample within which it was conducted. The vast majority of innovation research dealing with factors from the PEOR has been conducted in the non-unionised environment of the USA (Meglino & Ravlin, 1998). This study was conducted within the highly unionised environment of the electrical manufacturing sector of the Western Cape. However the sample group came from middle to lower management and had few union affiliations. This subsequently proved to have an important influence on the quality of the data and resulting information obtained.

The active use of diversity to spark innovation is potentially one of the ways for South Africa to compete successfully in the global economic arena. The differing perspectives of individual employees can be utilised as a form of creative abrasion - using diversity access basic assumptions (Leonard & Sensiper, 1998). It has been proven that intellectually heterogeneous groups are more innovative than homogenous ones. Part of the reason for this may be that homogenous groups have more and more entrenched unspoken norms. These may extend to the type of problem solving process and solution

unofficially mandated by the group (Leonard & Sensiper, 1998). The creative abrasion caused by diversity can be used to challenge the South African norm of low individual innovation. However more insight into the experience of the South African worker is required before this tradition of low role innovation can be addressed.

Research Delineations

The primary goal of this research is to explore the impact of the perceived employee - organisational relationship (PEOR) on role innovation. Six constructs were included under the ambit of the PEOR. These were (see Figure 1):

1. Affective Organisational commitment (OC): the “emotional attachment to, identification with and involvement in, the organisation” (Allen & Meyer, 1990:1).
2. Continuance OC: commitment based on the perceived benefits of continued employment versus the costs with leaving the present employer (Allen and Meyer, 1990).
3. Normative OC: the “employee’s feelings of obligation to remain with the organisation” (Allen & Meyer, 1990:1).
4. Value Congruence: the degree to which all members of the organisation agree on values about organisation processes and work (Jehn, Chadwick & Thatcher, 1997).
5. Perceived organisational support: the employee perceptions of employer commitment to the individual (McFarlane- Shore & Tetrick, 1991: 637)
6. Perceived supervisory support: the perception by the employee that their supervisor is supportive of their efforts and well being (Oldham & Cummings, 1996).

The motivation orientation of the individual has been included as a moderating variable due to overwhelming evidence that it impacts significantly on individual innovation at work (Amabile 2000). The construct of motivation orientation is divided into the sub constructs of intrinsic and extrinsic motivation. The former refers to motivation based on a love of the work and internal satisfaction. The latter refers to motivation based on a desire for physical compensation of outward recognition (Amabile 2000).

Dissertation outline

The secondary goal of this research is to explore the effectiveness of an existing innovation instrument in the South African context. Given the contextual challenges outlined earlier, a less formal aim of this research is to successfully conduct innovation research in the South African context. In doing so it is hoped to gain insight into the unique experience of the South African worker with regards to role innovation. As such, the concept of innovation and its measurement are the starting point of the review section.

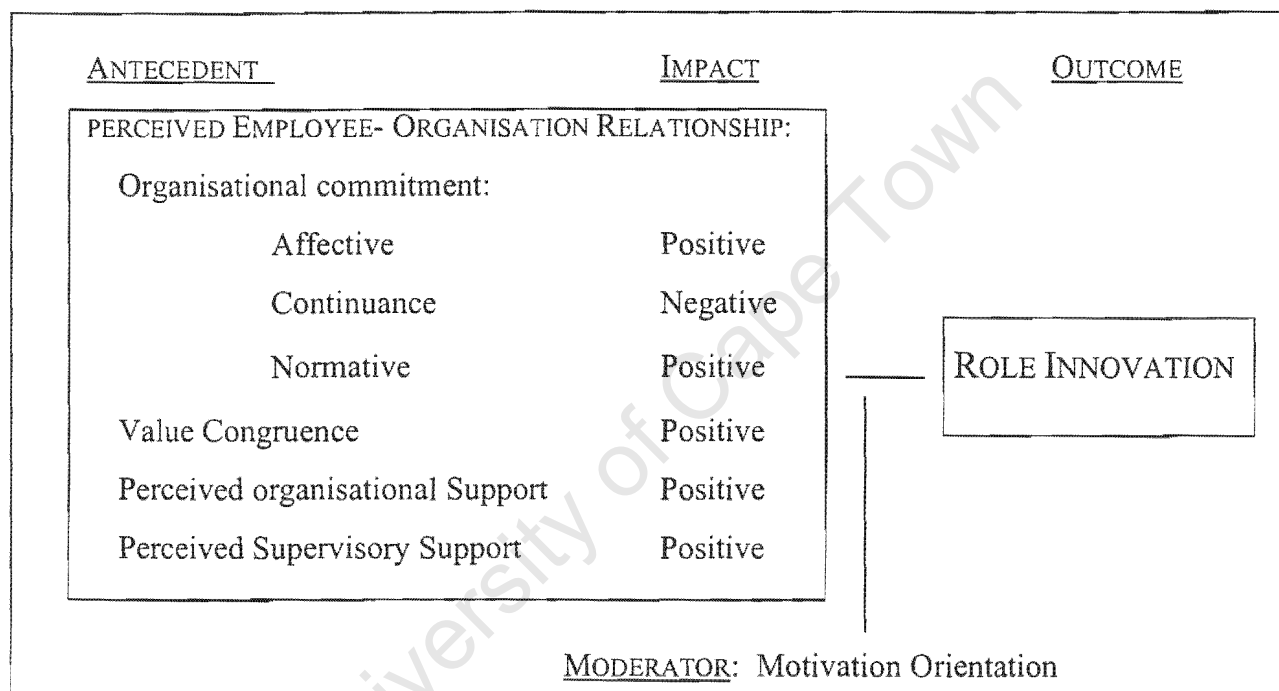


Figure 1: An Outline of the constructs of the Research Model

Chapter 2 examines the construct of innovation. It begins with a review of different conceptualisations of innovation and the primacy of role innovation. The chapter provides a review of innovation literature organised according to three levels of analysis namely organisational innovation, innovation in work groups and individual innovation. It includes a rationale of the selection of the innovation instrument.

Chapter 3 focuses on the PEOR. The central construct is broken down into the component parts. Each of these sub constructs are examined in terms of their relation to role innovation. The seven hypotheses are presented during this section.

Chapter 4 is concerned with the methodology employed in the empirical component of the dissertation. It examines in turn the organisational contexts, the sample and the procedure used in the investigation. This is followed by a description of the individual instruments used to measure the sub constructs.

Chapter 5 presents the results of the empirical research. It demonstrates both the statistical strength of the individual instruments and the success with which the data addressed the research questions.

Chapter 6 provides a discussion of the results presented in Chapter 5. It further examines how contextual variables may have influenced the data obtained. Implications for future research are discussed.

Conclusion

This chapter introduced the topic of role innovation as a basis for exploratory research concerning its relationship to the perceived employee - organisation relationship in a non Euro -American context. In doing so, this chapter has briefly examined the context within which the research is located and has given an indication of the objectives and outline of this research.

Chapter Two

The concept of innovation in organisations as found in contemporary research has emerged from a blending of many perspectives of original action at work, some more academic than others. This historical complexity renders innovation unique as a organisational psychology construct. Given this complexity this review of work innovation has been divided into four sections. The first section attempts to reach a useful definition of role innovation and through this to explore the origins and influences of contemporary innovation research. The last three sections will review the literature using the three levels of analysis as an organising framework. Thus the second section will focus specifically on organisational innovation, the third section will look at work group innovation and the final section will examine individual role innovation.

Defining Innovation

The innovation construct has been concealed under many academic and management guises during the past four decades. This is reflected in the vast and varying number of definitions of innovation. One of the challenges of this work has been to draw out from the wide body of relevant literature an appropriate and workable definition.

The importance of arriving at a deliberately chosen definition should not be underestimated. The process of uncovering past understandings of the construct provides an academic context for the present research. By tracing the origin of past definitions, the researcher is able to bring order to a fragmented body of work. The study of innovation in the context of organisations is approximately forty five years old. The process of definition investigation has been important in terms of uncovering patterns of innovation understandings and schools of thought which tend not to be delineated by the authors themselves.

The importance of this process is amplified by the impact that the chosen definition will have on the subsequent research. The implication of having different definitions of innovation go beyond simply creating different understanding of the

construct. Just as the theories define innovation differently, so the instruments developed from them measure slightly varying constructs. The results of Goldstein's (1986) study on the convergent validity of four innovation instruments suggests that the differences in definition of innovation impacts negatively on the consistency of subsequent scales. The aspect on which the four scales converged is that of the traits of sensation seeking and risk taking. Most importantly, these two aspects were also the points of similarity in the instrument's theoretical definitions of innovativeness. Mumford and Gustafson (1988) echo this concern with uniformity in definitions. These authors argue that the diversity in assessing innovation can be traced back to the difference in operational definitions upon which different studies are based.

Therefore arriving at a stated understanding of innovation is important both in terms of understanding and ordering the literature and conducting meaningful research.

There are two historic approaches to innovation which are fundamental to understanding its current conceptualisation. The first and original approach to innovation research is as a tool for management with which to increase the efficiency and effectiveness of a workforce. The second represents the more recent shift towards a the study of creative action.

Innovation as a Management Tool

Early innovation research was concerned primarily with facilitating the introduction of new processes or innovations into the organisation (Kimberley, 1981). The work in this field focused on overcoming internal resistance to innovation. With hindsight it can be seen as a fore runner of current day change management. An example of this thinking was evident in the structure of DuPont during the 1960's. DuPont created a department quite separate from their larger organisation which was a microcosm of all other functions. The task of these departments was to nurture innovation while shielding these workers from the resistance that they would otherwise face.

As the value of innovation was realised and the ability to encourage and maintain constant change became to be perceived as a competitive advantage, so the focus of

innovation research broadened. Instead of being the domain only of a particular foreword thinking section of the organisation, innovation has become to be recognised as a systemic attribute having an influence on the inputs, production techniques and outputs of the organisation. This philosophy is reflected in the observations of Kimberley (1981) who surveyed the innovation work of the 1960's and 1970's. Kimberley (1981) describes three usage's of the term: innovation as a process, innovation as discrete items, including products or services; and innovation as an attribute of the organisation. This management driven, systemic conceptualisation of innovation in organisations became known as the business school approach to innovation. The name was coined in reference to the proliferation of innovation management courses in the early nineteen eighties which endorsed this approach.

Definitions from this era conceptualise innovation as being "an idea, practise or product perceived as new to the individual" (Rodgers & Shoemaker as cited in Kimberley, 1981: 85) and the process of innovation as "the development and implementation of new ideas by people who over time engage in transactions with others within an institutional setting" (Van de Ven, 1986: 591).

There are two fundamental assumptions of the business school approach:

The first assumption is that innovation is inherently positive. This value bias underlies almost all innovation research. Kimberley (1981) argued that this bias was the result of the myth of unlimited resources. This myth endorsed the belief that innovation would drive the supposedly exponential growth of the economy. It was the belief of this author that the death of the myth of unlimited resources would signal the end of the belief that innovation is inherently positive. It is interesting to note that this link was not made. One of the enduring legacies of the business school approach to innovation is this positive assumption, which is continued in even in the most current of work.

The second assumption is that innovation is an attribute that is malleable. It can be managed and directed by those in the organisation that have been given a mandate to do so.

Generally the quality of definitions within the business school approach vary widely. Some research (e.g. Abbey & Dickson, 1983; Teece, 1989) have not even seen it as necessary to define innovation even when it is used as the central construct. While the social psychological approach grapples with the issue of exactly what innovative behaviour entails, some work from the business school approach regard it as acceptable practise to use industry experts to define innovative outcomes for each research piece. By doing this they bypass what is considered by some to be a rather academically pedantic debate. They also limit the generalisability of their work and make it impossible to replicate the research either in the same sector, at a later date or across other industries.

The business school approach is still in evidence and occasionally is still used as the basis for organisational psychology research. Sonderquist and Charanon (1997) conducted an empirical study regarding the management of innovation in small and medium sized organisations. They define innovation as “the creation, development, and introduction of new product/ services, or product / service components, or a new procedure or process for doing things to benefit one or more of the stakeholders in an organisation” (Birchall, Charanon & Sonderquist as cited and Sonderquist & Charanon, 1997: 261). Through their emphasis on inputs and processes and their focus on objective innovation, they place their work firmly within this paradigm.

The weaknesses of this paradigm can be illustrated through the work of Dougherty and Hardy (1996) who focus on defining sustained product innovation. Their concern is with larger organisations and their ability to be continuously innovative over a long period of time. Their definition of sustained product innovation is “the generation of multiple new products, as strategically necessary over time, with a reasonable rate of commercial success” (Dougherty & Hardy, 1996: 1121). Although this is one step better than simply using the opinion of experts, two shortfall issues need to be considered. Firstly this definition limits the sample only to those products which were successful and innovative. There is no indication of how many innovative products are created that are not approved by the management of the organisation and consequently are lost to the

production process. Thus the definition limits innovation to those products which are most easily accepted by the existing production processes of the organisation. Using the logic of Kirton (1987), it is suggested that the truly revolutionary products which would have required systemic change in the organisation would have been unlikely to have reached the stage of development where they would have qualified for this sample. Thus the core construct of Dougherty and Hardy's (1996) research is limited by its definition, which impacts on the sample, which in turn limits the scope of the innovation considered.

Secondly, by approaching innovation in this manner, they limit their take on the construct to that which can be objectively observed. Indeed when listing four ways in which a product can be innovative, Hardy and Dougherty (1996) mention only new users, new product technology, new manufacturing and / new distribution. These authors use these criteria to create three innovation categories: low (unfamiliar in one or two ways), medium (unfamiliar in three ways) and high (unfamiliar in four or five ways). Part of the value of innovation is that it results from a synergy of many human and environmental factors. By limiting their sample to products, Dougherty and Hardy (1996) negate the substantial contribution of human behaviour. It is with this concern in mind that this work now turns to innovation and the study of creative action.

Innovation as a creative action

The second approach to innovation which has influenced current thinking is the study of innovation as it has emerged from the study of social psychology. The baseline for this paradigm is the study of creativity.

In the past fifty years, the study of creativity has spanned a wide variety of disciplines, from cultural anthropology to sociology to economics (Magyar – Beck, 1993; Mumford & Gustafson, 1988; Csikszentmihalyi, 1990). There have also been a wide variety of understandings of creativity within the field of psychology. Earlier approaches linked creativity to intelligence measures (Eysenck, 1994) and purported to examine both constructs simultaneously. Prior to this, studies of creativity were limited to

understanding the work habits of widely accepted creative figures - a school of thought captured in the Great man Theory of creativity (Gruber, 1989; Gruber, 1980). This school has been moderated more recently to a systems approach to understanding the creative work of highly creative individuals. This approach now seeks to demystify the creative process and by implication make it more accessible to the broader population (Gruber, 1989; Gruber, 1980). In addition to Great Man theory, other psychological approaches have ranged from cognitive approaches to ideology, trait theory, psychoeconomics, and homospatial thinking studies and more. Yet in crossing over to the organisational psychological domain of creativity and innovation, the most important strands in this context is that of social psychology. In attempting to understand the social psychological influences on the creativity and innovativeness of the individual, it became necessary to prove or validate laboratory based findings in a real world environment. Other than educational application, the workplace offers a relevant and useful place for the social psychologist to extend and test their findings. The sample is accessible in groups, similar in at least one characteristic and applicable to multiple settings.

A notable example of this shift from a clinical, experimental approach to an applied, tool focused approach can be seen in the extrinsic/intrinsic motivation work of Amabile (Amabile, Conti, Coon, Lazenby & Herron, 1996; Amabile, Hill, Hennessey & Tighe 1994;1990). From the information drawn from a series of laboratory experiments, Amabile et al (1994) developed the Work Preference Inventory and eventually KEYS - an instrument designed to assess a climate for creativity (Amabile et al, 1996).

Social psychology and the study of creativity are useful in so far as they provide boarders for the construct of innovation. In this context the importance of their work comes from delineating what innovation is not. Amabile et al (1996:1155) defines creativity as “ the production of novel and useful ideas in any domain” . More specifically Walsch (as cited in Novelli, 1993: 282) defines creativity as “ the process of generating unique products by transformation of existing products. These products, tangible and intangible, must be unique only to the creator, and must meet the criteria of purpose and value established by the creator”.

For those unfamiliar with the field these would serve equally well as a definitions of innovation. Despite the significant debate that has emerged in distinguishing between these two constructs, there is little research which actually documents the degree to which these concepts overlap or differ. The most obvious divide is the strong managerial basis of the innovation literature and the social psychological base of much of the existing creativity research (Ford, 1996; West & Farr, 1989). The call for recognising and clarifying creativity and innovation as separate constructs is illustrated in the writing of Rickards (1991) who observes that the intermingling of these two concepts leads to their mutual degeneration.

One of the delineations made between innovation and creativity is that of level of analysis. This form of distinction originates from and is perpetuated by the traditional social psychology/ management school split in the analysis of originality. Rickards (1991) encapsulates this thinking by arguing that innovation as a product is usually a socially derived artefact operating primarily at a societal or organisational level. The solution to this conceptual ambiguity is merely to regard innovation as a problem solving process operating at a fundamentally different level in the open system of organisational originality. Creativity is traditionally seen as the domain of the lone inventor, struggling against popular opinion (Ford, 1996). The struggle involved in being creative is often regarded as part of the process of giving the creative action or product value. As such the acceptance of a creative outcome may be slow. In contrast innovation is traditionally viewed as being the result of a group effort. This social basis to innovation is what guided early organisational innovation researchers to use this construct as opposed to creativity. However with the extension of creativity into the realm of organisational psychology and the emergence of such phrases as 'the creative organisation' this difference no longer truly exists.

A second important difference is that of how the creative or innovative action and process is considered to have value. Innovation is objectively valuable. Its worth is considered in relation to the extent that it helps the organisation to achieve its goals. Creative action or products have subjective value. Their worth is dependent purely on the perception of the observer. Its originality gives it a worth quite apart from any

contribution it might make to any social or commercial entity (Ford, 1996; Rickards, 1991). It was this latter difference which made innovation more appealing to the outcomes based research of the nineteen seventies and eighties. By linking an intangible human activity to organisational benchmarks, innovation could be managed and manipulated in a similar way to any human resource activity.

A third characteristic of innovation as opposed to creativity is its domain specific value. While both an innovation and a creation reflect unique actions, a creative action is completely original while an innovation builds directly upon an existing base e.g. a new way of doing an existing task. An innovation may be “a new idea, which may be a recombination of old ideas, a scheme that challenges the present order, a formula, or a unique approach which is perceived as new by the individuals involved (Van de Ven, 1986:591). In an organisation, innovation is directly linked to the domain of the formal work environment. Thus an organisation may be considered to be innovative even though there are other organisations in the same industry with similar practises (Ford 1996). In simple terms, innovation is relative, creativity is not.

Work such as that produced by Amabile et al (1996;1994;1990) stands in stark contrast to that being produced under the business school paradigm. While integrating the idea that innovation is inherently positive, the social psychological paradigm brought with it the humanistic belief that innovation is not a trait which the individual either possesses or not. The fundamental assumption of this approach seems to be that all employees are capable of being innovative, it is merely that the work environment and their past problem solving experiences which will determine whether they tend towards being innovative at work or not. Thus there appears to be a meeting of constructs with the argument to keep them apart seeming academically pedantic in the face of progressive research which merges the most useful aspects of each into a humanist, insightful perspective of innovation.

The influence of this emerging research can be seen in the work of West (1989, 1974) who defines innovation as “*the intentional introduction and application within role, group or organisation of ideas, processes, products or procedures, new to the relevant unit of adoption, designed to significantly benefit the individual, the group, the organisation or wider society.*” These authors are specific in looking at role innovation. This is defined as “*the implementation of new and different objectives, methods, procedures and working relationships and skills.*” (West & Farr, 1989:23). Role innovation is simply a way of understanding innovation in its broadest sense so as to incorporate the actions of the individual in addition to the outward, evidence of innovation.

Indeed the work by West and Farr (1989) is progressive in drawing together the two approaches of the social psychology of original action and traditional innovation research into the meaningful paradigm of *role innovation*. This integration of social psychological influences and traditional innovation research paradigms is deliberate. West and Farr (1989) argue that it is the combination of the intention of benefit inherent in innovation together with a recognition of its potential social impact, that makes their role innovation approach valuable. Earlier forms of role innovation focused specifically on the period immediately after the individual entered the particular working environment. Research aimed to formulate a theory whereby transition periods could be managed according to the amount of role innovation which was deemed desirable (Nicholson, 1984). This broader idea of role innovation is designed to facilitate understanding of the construct in general, rather than being a product or management tool used during socialisation (Ostroff and Kozlowski, 1992).

In West and Farr's (1989) model of individual innovation at work, seven characteristics of the individual that impacts on role innovation are drawn from past research. These are confidence/ dominance, the strength of the individual's need for growth, their internal work motivation, their creativity/ innovativeness, whether they have

been successfully innovative before, their specific task skill and their organisational commitment.

This research draws on the last link noted by West and Farr (1989) in their model of role innovation at work, namely that between organisational commitment and innovation. In essence it seeks to confirm the effect of organisational commitment on innovation. It secondly aims to extend this understanding by hypothesising that perceived value congruence between the individual and the worker, job complexity and intrinsic motivation also have a positive impact on role innovation.

Perhaps the key problem is that innovation is a human subjective phenomenon. In order to understand its impact in the sphere of work, the researcher has to operationalise it in some way. It is during the process of making the subjective a quantifiable or academically defensible entity that the variety of definitions has proliferated. Role innovation is a broad-spectrum term encompassing individual innovations in behaviour and production. It is from this base of academic understanding that this work can proceed. The review will now proceed to an overview of innovation research, beginning with the research conducted using the organisation as the primary unit of analysis.

The Innovative Organisation

The traditional focus of analysis in innovation research has been that of the organisation. However the understanding of innovation in organisations remains weak, bedevilled as it has been with research findings that are weak, inconsistent and lacking in insight (Damanpour, 1991; Fiol 1996; Kimberley and Evanisko, 1981; Wolfe, 1994). Research has generally been useful in so far as it provides data on a particular situation but a lack of depth to the material has limited the generalisability of the work. Researchers re-cover much of the same material from slightly different angles with different terminology. This makes it difficult to actually use the findings and link them to other organisational psychology constructs. Wolfe (1994) argues that the inconsistency in organisational innovation research can be rectified with clarity as to the characteristics of

the innovation studied, the stage of the innovation process and the type of organisation under investigation. Research using organisations as the unit of analysis can be divided into two broad streams: Innovation adoption and diffusion research determinants and moderators of organisational innovation (Wolfe, 1994). This review will utilise this framework and examine these two streams in turn.

The Diffusion of Innovation

Research concerning the diffusion of innovation seeks primarily to understand how innovation moves through the organisation and is integrated into its repertoire of production norms. The goal of diffusion research is to predict rates and patterns of innovation adoption. Innovation adoption refers to the nature of the innovation process, how and why innovations emerge, develop, prevail or fail. The examination of innovation adoption as a static process characterised by a series of predictable stages is consistent with a serial system of production. Here responsibility is allocated to different sectors in turn thus rendering manageability to an otherwise complex process (Teece, 1989). Wolfe (1994) records a wide range of factors that have been found to influence diffusion. These include: adopter characteristics, the existing social network, the characteristics of the innovation, various environmental characteristics, the manner in which the innovation is communicated to the adopters and the characteristics of those that are promoting it. The innovation adoption rate has been shown not to be linear, but to form a S- shape. It would appear that there is a limit to the amount of innovations which one group of adopters can accept in any given period before a stage of negative/ zero innovation occurs.

The process of innovation adoption has been explored from a range of perspectives. A simple division can be made between those that view the organisation in relation to innovation adoption as an objective, scientifically predictable process (Dewar and Dutton, 1986; Henderson and Clark, 1990) and those that view it as a subjective function of the members of the organisation (Souder and Moenaert, 1992). Kimberley and Evanisko (1981) attempted to bring both perspectives together into a single piece of work and in doing so created a seminal study in innovation research.

The approach of innovation adoption as an objective process has been consistently weakened by a plethora of widely conflicting results. Dewar and Dutton (1986) argued that one of the reasons that innovation adoption theory produces inconsistent results was that it takes little cognisance of different types of innovation. This assumption of a single generic innovation unit has been shown to be inappropriate (Damanpour as cited in Dewar and Dutton, 1986; Kimbrey and Evanisko, 1981).

In a study typical of this genre, Dewar and Dutton (1986) attempted to explore which type of innovation an organisation was most likely to adopt according to its size. These authors categorised innovation into either radical (requiring a large degree of new knowledge) or incremental (requiring a small amount of new knowledge). However no significant association was found either way. Instead their results indicated that larger firms were more likely to adopt radical innovations by virtue of the fact that they had a larger base of technical knowledge to draw from - indicative that knowledge depth might be a better predictor of innovation adoption than the size of the organisation.

Henderson and Clark (1990) extended the work on the categorisation of innovations as either radical or incremental. Their research explored how the form of innovation could impact on subsequent adoption rates. Their argument focuses on how an innovation that impacts on the structure of the organisation carries quite a different adoption risk than one that does not. Radical and incremental innovation are merely extreme points along the same continuum. Instead, these authors assert that a more important distinction is whether the change in technology of the innovation is such that its adoption requires the basic systems architecture of the organisation to change. A reconfiguration of existing systems requires both a breakdown of existing competencies as well as the acquisition of new skills and procedures. Architectural reconfiguration thus adds a greater degree of cost and risk into the adoption equation. This assertion proved true in a longitudinal study in the semi conductor industry. Interestingly the authors found that the impact of architectural change was moderated by other variables most importantly organisational learning patterns (Henderson and Clark, 1990). Dewar and Dutton (1986) confirmed these findings but noted the moderating effects of managerial

attitude to change and technical knowledge resources as facilitators of radical innovation. In contrast structural complexity and decentralisation operated as facilitators of incremental innovation.

This research increased the complexity of innovation adoption research by firstly, questioning the existence of a universal innovation unit and secondly recognising complexity of the connection between the organisation and the innovation. Adoption process theory drew its value from being able to reduce the integration of innovation into relatively stable, predictable, simple stages (Wolfe, 1994). Inconsistent results caused by the less predictable human element undermine this genre and complicate its models out of the realm of practical management. Works such as that by Henderson and Clark (1990) have been seminal in breaking down the linear, uni-dimensional model of innovation.

Both Henderson and Clark (1990) and Dewar and Dutton (1986) were forced to recognise the impact of human interaction with knowledge as a confounding variable in their research. The recognition of human variables has driven researchers such as Souder and Moenart (1992) to explore how this influence can be harnessed at the level of the organisation's structure in order to maximise innovation. Souder and Moenart (1992) studied how managing the relationship between the R&D and marketing functions can be used to maximise organisational innovation. Following on from the recognition of the role of organisational learning patterns (Henderson and Clark, 1990), this research focuses on how information is shared and built on between these two groups and the impact that this has on innovation. R&D and marketing are by nature interdependent in terms of information. An innovation produced by R&D will only succeed and be adopted if it satisfies the needs of the end user or improves the service of the organisation in a manner relevant to the consumer. By drawing together these two sectors, the organisation can better manage informational uncertainty and increase the likelihood of consistently successful innovations. The sharing of information during product planning and development needs to be tailored according to the needs of the specific stage. Task

specification and organizational design were found to act as moderating variables that have the potential to be managed in a manner conducive to innovation adoption.

The work on innovation adoption has sought to provide a static blueprint for what has been found to be a vastly complex, multi dimensional organisational process (Dewar and Dutton, 1986, Henderson and Clark, 1990). Charting the organisation - innovation interface as if it were a scientifically predictable process has proved to be an unachievable goal. Recent attempts at this genre have included human elements in their models, most notably the manner in which information flows can be managed and structured (Souder and Moenart, 1992). However the inclusion of human elements also brings in a degree of unpredictability, a factor which undermines the function of this process - documentation orientated research. A seminal point in organisational innovation research was reached when the individual was integrated into organisational innovation research in a manner which created value rather than detracting from its external validity. The first research of this nature was that conducted by Kimberley and Evanisko (1981). It was one of the first studies to systematically investigate organisational innovation from both the perspective of the individual and the organisation.

Kimberley and Evanisko's (1981) primary level of analysis remained the organisation, in this case 210 hospitals. Their research focused on how the adoption of technological and administrative innovations was influenced by individual, organisational and contextual factors respectively. These variables were further specified as follows: Individual (characteristics of organisational leaders particularly tenure, education level and cosmopolitanism), organisational (centralisation, specialisation, size, functional differentiation and external integration) and contextual factors (competition, size of city and age of hospital). Technological innovation was measured according to the presence or absence of 12 new developments in the area of the diagnosis, treatment or prevention of respiratory diseases. Administrative innovations were determined according to hospital responses regarding the use of electronic data processing for eight managerial functions. These included accounting, admissions, discharges etc.

Kimberley and Evanisko (1981) found that organisational variables were significant predictors of both technological and administrative innovation adoption - accounting for twice the variance of either individual or contextual factors. None of the nine individual variables were found to be significant predictors of innovation. Their findings with regards to technological adoption foreshadow those of Dewar and Dutton (1986), indicating it is more likely in larger, specialised, functionally differentiated hospitals. Administrative innovations were more likely to be adopted in hospitals that were larger in size. The influence of size and knowledge depth were thus shown to be the strongest predictors of technological and administrative innovation (Kimberley and Evanisko 1981). The importance of Kimberley and Evanisko (1981) is threefold. Firstly, it included individual variables on a level of equal significance to those of the context and the organisation. In doing so they proved that it was possible to chart human influence in innovation adoption within the restraints of academic rigour despite the complexity which individual factors introduce. Secondly it pioneered the use of multiple innovation measures in a single piece of research. Thirdly, it took an important step forward from the generation of static innovation adoption models and attempted to understand the organisation - innovation interface in the light of its complexity rather than despite it. Kimberley and Evanisko (1981) have inspired much subsequent work on innovation in the health sector (Bunce and West 1995; Goes and Park 1997; West 1989). This piece of research will be returned to later in this research for the purposes of examining their innovation assessment techniques.

Determinants of organisational innovation.

The second sub category of innovation research where the organisation is the primary level of analysis is that concerning determinants of organisational innovation. This category is closely linked with the previous section but is concerned with the generation rather than the adoption of innovation. taken simply this section asks the question: *what characteristics of the organisation act as determinants or moderators of innovation?*

The research in this field has been concerned with a number of characteristics including the organisation's structure (Teece, 1989), the organisation's culture and context (Kitchell, 1995; Weiss and Belbecq, 1987) size (Dougherty and Hardy, 1996), and external links (Goes and Park, 1997). This section will first present a piece of research which provides a clear overview of the field before looking at specific determinants in turn.

The most comprehensive meta-analysis in this genre is that conducted by Damanpour (1991) which sought to analyse the effects of a range of determinants and moderators on organisation's innovation. Those determinants expected to have a *positive* relationship with innovation were: variety of specialists on staff, functional differentiation or links between organisational units, professionalism, the attitude of management to change, managerial tenure, technical knowledge resources, proportion of managers (higher = more innovation), an amount of slack resources, external communication and internal communication. Those determinants expected to have a negative relationship with innovation were: formalisation, centralisation and vertical differentiation. Four streams of categorisation were used: type of innovation, type of organisation, stage of adoption and scope of innovation. Literature covered was from the years 1960 to 1988. All of the hypotheses expecting a positive relationship with innovation were confirmed with the exception of managerial tenure which was non significant. As expected, centralisation had a negative impact on organisational innovation, however the other two anticipated negative relationship variables of formalisation and vertical differentiation proved non -significant. The type of organisation and the scope of the innovation were found to be the most significant moderators of the determinant - innovation relationship. Besides its importance in providing one of the few maps of organisation innovativeness as found up until 1988, Damanpour (1991) was remarkable in its finding that contrary to common belief (Fiol, 1996; Kimberley and Evanisko, 1981; Wolfe, 1994), the impact of innovation determinants was relatively stable. Subsequent research has been able to move beyond this point and further explore the effects of particular determinants with greater

cognisance taken of the type of innovation and the impact of the organisation's setting and type.

Inter organisational links as a determinant to innovation

In a study spanning ten years and four hundred hospitals, Goes and Park (1997) sought to examine how the effects of pluralism might compensate for the problems which individual organisations face in their attempt to be innovative and thus competitive. Specifically Goes and Park (1997) studied the effect of inter-organisational links and their impact on organisational innovativeness. The threats of pluralism which were identified included dispersion of technical competence, and increasing uncertainty and complexity of technical production. Their hypotheses were confirmed in so far as it was found that hospitals that linked into multi hospital systems and that regularly shared resources with similar hospitals were more likely to engage in innovation. Specifically their leader's understandings of innovation trends were enhanced and their exposure to innovations of industry leaders both contributed to a positive relationship between innovation and inter - institutional links (Goes and Park 1997).

The organisations' culture as a determinant to innovation

Organisational culture has been examined both as a moderator and a determinant of innovation. As a moderator, some research of innovative organisations has sought to understand how the culture of the organisation may predispose it or may limit it by virtue of the commonalties imposes upon it by industry requirements. Weiss and Belbecq (1987) examined the culture of innovative, high technology organisations who shared the characteristic of close geographical proximity and found that the culture of the innovative organisation's were similar in part due to the nature of their production requirements. These authors argued that certain cultural characteristics are similar for organisations operating in the same high technology environment. Using a qualitative interview methodology, the authors engaged with 21 executives in positions of leadership from two different geographical zones within California - Silicon Valley and Route 128. All but three of the interviewees provided evidence in support of the authors

hypothesis. Each of the two groups indicated specific management culture traditions and different approaches to the management of change.

This result is corroborated by Chatmand and Jehn (1994) who found that the differences between the culture of organisations is limited by their use of common technology and their similar growth opportunities. As a solution to this problem Damanpour (1991) argues clearly in favour of innovation research being conducted only within a single sector. In this way the cultural differences towards innovation as dictated by industry characteristics can be controlled for.

The research using organisational culture as a determinant of organisational innovation has indicated that a positive causal relation exists. Specifically a perception of equitable reward for performance, experimentation and flexibility has been positively linked to a successful R&D environment (Abbey and Dickson, 1983). Kitchell's (1995) research in the marketing environment found that the deliberate management of the organisation's culture could encourage innovation. However the culture which was most successful in achieving consistent innovation was not humanistic ideal encouraged by management literature (Blanchard, 1999). This contradicts popular innovation management literature which advocates empowering strategies such as entrepreneurship, less conditional management support and the use of small independent work groups (Blanchard, 1999).

Organisational structure as a determinant to innovation

The structure of the organisation has been examined in relation to innovation as a static entity and as a fluid set of interrelationships. The former approach examines the organisation as a series of maps along which the innovation travels. Teece (1989) illustrates this approach in a theoretical examination of the inter-organizational requirements of the innovation process. This mapping of models and chains of innovation is useful to a point. When translated into structure and work processes it can create a residue of past behaviours that need to be eliminated before more models or structures are

introduced, particularly in the older organisations. As Van de Ven (1986) points out, the management of innovation is as much about the management of human attention as it is about the creation of relevant work structures. This fundamental problem with the static mapping of organisational structure in relation to innovation is illustrated in the latter approach of examining structure as a set of fluid interrelationships. The major work in this genre is that of Dougherty and Hardy (1996) which examined the problems with sustaining innovation in large, mature organisations. It was found that in these older organisations new products and processes struggled to link in with existing resources and processes. Internal innovators lacked the power to reconfigure their work environment and thus to make these connections. Dougherty and Hardy (1996) remarked that in such instances when innovation was successful, it occurred in spite of the organisation rather than because of it. This is confirmed by Van de Ven (1986) who noted that many programmes intended to encourage innovation in larger organisations seemed to exacerbate the problem of excessive bureaucracy (Starbuck as cited in Van de Ven, 1986). Instead, the larger, older and more successful an organisation, the more likely they are to have a web of systems and procedures that actually stifle innovation and merely encourage a record keeping of its death (Starbuck as cited in Van de Ven, 1986). The key to breaking this pattern appears to be the ability of leadership to focus away from procedure and create values which emphasis change, experimentation and responsiveness to environmental shifts (Starbuck as cited in Van de Ven, 1986). Dougherty and Hardy (1996) argue that one of the challenges facing large, older organisation is that it needs to be able to facilitate both the birth and death of products and processes. Without the structure for both these functions, layers of meaningless processes can form. The key to keeping the structure of the organisation fresh and relevant appears to be to make resources available for new products, provide collaborative structures and processes to solve problems creatively and connect innovations with existing businesses (Dougherty and Hardy, 1996).

Further evidence against the investigation of a static organisational structure comes from Ozsomer, Calatone and Di Benedetto (1997). Their research examined the impact of the structure of the organisation on its ability to innovate both rapidly and radically. In

particular their work examined how organisational structure and strategic posture encourages or inhibits innovation. A strategic posture is the manner in which the organisation selects and interprets its environment and responds to new environmental requirements (Ozsomer et al, 1997). An example of a posture might be an aggressive strategic posture where the organisation initiates actions to improve their competitive position rather than reacting to the posturing of its competitors. Their research involved 146 organisations in a mailed survey methodology with information elicited from the individual who had the primary responsibility for new product innovation, development and management. Results of this study indicated that both proactive organisational structure and strategic posture had a positive impact on innovation. The authors concluded that this meant that these two factors needed to be carefully aligned. Organisational structure, by itself, had only a moderate effect on innovativeness. The flexible structures needed to be backed up with proactive strategies - emphasising the interaction of these two factors (Ozsomer et al 1997). A working environment characterised by loosely coupled decision linkages and loosely identified job descriptions encourages innovation and entrepreneurial activity. Firms that have a more flexible structure will have a higher rate of internal innovation (Minzberg as cited in Ozsomer, Calatone and Benedetto 1997).

The overriding conclusion which can be reached is that the positive relationship between innovation and organisational structure can be neither sufficiently explained nor implemented without taking cognisance of the impact of human behaviour (Dougherty and Hardy, 1996; Ozsomer et al, 1997; Van de Ven, 1986).

A small body of work has taken the opposite approach and looked at the negative impact of organisational innovation and the subsequent impact of the resulting technology shifts, e.g. Barley (1990). Kitchell (1995) found that in high technology environments, innovation manifested in the constant adoption of new technologies. The resultant culture deemed innovation as tedious and a necessary evil. Senior staffs

frequently resisted the constant pressure to upgrade their skills and were consequently asked to leave.

These pieces of research challenge the assumption that innovation is inherently positive. However they remain overwhelmingly in the minority.

Research concerning innovation using the organisation as the basic level of analysis has been inconsistent in its approach and results. Despite this much is made of existing findings as the demand for understanding product generation from the management sector is so great. It appears that a balance needs to be struck between using the knowledge that has emerged and recognising the limitations of our current understanding of organisational innovation (Fiol, 1996).

Innovation and the Working Group

The third part of this review of the innovation literature will look at research conducted into innovation using the work group as the unit of investigation. Of the three levels of analysis (individual, group and organisation) this has received the least attention (King and Anderson 1990). The neglect of group innovation can be understood given the prevailing norms of the two streams of innovation research. Management based innovation research has tended to focus on the organisation as the unit of analysis. The emerging social psychological perspective has traditionally taken the perspective of the individual. The furthest that this has been stretched is through the work of Amabile (Amabile, Conti Coon, Lazenby and Herron, 1996; Amabile, Hill, Hennessey and Tighe, 1994; Amabile, 1990) and her colleagues who have investigated the link between work climate and innovation.

Much of the existing study of innovation in work groups has been prompted by the prevalence of group based structures in many R & D type environments (King and Anderson, 1990; Leonard and Sensiper, 1998). The downsizing of many firms in the late eighties and early nineties has also inspired group research. Through the dismissal of

employees whose impact on the innovation process had been undervalued, organisations came to realise that the worth of the individual to innovation could not just be valued according to pure work outcomes but that their position in the work group also needed to be taken into account (Leonard and Sensiper, 1998). This awareness of the value of group based understandings of innovation has yet to be translated in rigorous academic research. Consequently meaningful group research is still scarce.

Group innovation is defined as “ the emergence of, import, or imposition of new ideas which are pursued towards implementation by the group through interpersonal discussions and successive re - mouldings of the original proposal over time (Anderson as cited in King and Anderson, 1990). Depending on whether the innovation is imposed, imported or emergent, different processes are likely to be followed in the group during the innovation period. Through this understanding innovation is conceptualised as a process involving a negotiated result rather than a single event or eureka moment. This recognition of innovation as result of human interaction is conceptually distinct from the organisational based understanding of innovation presented in the previous section. Here innovation is approached as a work process outcome which can be managed in a deliberate manner. It is interesting to note that it was this perspective which failed in practise during the downsizing era and which sparked off a demand for functional group and individual based understandings of innovation. Ways of managing innovation tend to bring people together in groups even where they are not part of the formal work environment. For instance, brainstorming sessions might be used to expose a variety of viewpoints and ideas. This creates a group dynamic which at present is not sufficiently understood in relation to innovation to be harnessed in any meaningful way. A particular area in need of research is the interface between the explicit knowledge which the individual brings to the group and the implicit or tacit knowledge which it appears is best exposed in a group environment (Leonard and Sensiper, 1998).

The section will now proceed to a review of the findings of innovation in relation to groups.

Antecedents of innovation in working groups:

Five primary variables are currently documented as possible antecedents of group innovation. These are: leadership, cohesiveness, group longevity, group composition and group structure.

Findings indicate that a democratic, collaborative style of leadership encourages group innovation. The highest levels of innovation tend to present in groups where the leader maintains a moderate degree of control over the group (Farris and Pelz and Andrews as cited in King and Anderson, 1990). The findings regarding cohesiveness as an antecedent of innovation have been contradictory. While some argue that it increases the degree to which the individual will gain satisfaction from group performance, others point out that it also distances the individual responsibility for failure and encourages homogeneity and thus conformity (Jehn, Chadwick and Thatcher, 1997; Nystrom as cited in West and Farr, 1989; Leonard and Sensiper, 1998). There is a recognition that the convergence of ideas necessary for the adoption of an innovation should not occur too early in the process of conception. Rather that there is a requisite variety of inputs which ensures the quality of the end action (Leonard and Sensiper, 1998). It would seem that cohesiveness decreases group innovation but may impact positively on smaller scale individual innovations (Jehn et al, 1997).

The research with regard to group longevity is equally contradictory. Katz and Lovelace (as cited in King and Anderson, 1990) found that relatively short lived groups as optimum for innovation, the former study being conducted with R&D teams. However it has been argued that more permanent group arrangements have the positive effect of increasing cohesiveness, thus indirectly stimulating innovation (King and Anderson, 1990).

The results with regards to group composition have also been varied. Nemeth and Wachtler (as cited in West and Farr, 1989) found that a minority of dissenters may encourage the exploration of more possibilities and may result in better quality decisions. It also discourages such phenomena as group think. This research was however conducted

in a non work environment and generalising it to a work context may be problematic. Conventional wisdom holds that six to eight members is optimal (King and Anderson, 1990).

Tentative finding's regarding group composition indicate that the closer the design of the group to an organic structure, the higher the perceived innovativeness of group performance). This particular study has the added credibility of having been conducted in an R&D environment using structured work teams. Organic structure being identified in this study as a team with blurred boundaries of authority and influence, mixed professional commitments and an integrative, team based approach to tasks (Meadows, 1980).

Studies of group processes and innovation have been sparse. They have been vulnerable to the simple transferral of theory from individual level understandings of innovation. For instance Amabile (1983) states that her social psychological understanding of creativity can be applied to small groups. A possible starting point for process studies might be from decision process theory which already includes a specific established group level of applicability.

A critique of work group innovation research:

King and Anderson (1990) constructed a comprehensive critique of work group innovation research. These researchers argued that existing group innovation research is limited in coverage. This problem is compounded by the fact that the majority of existing research takes a univariate approach, thus minimising the discovery of other, potentially important independent variables.

Group research raises again the issue that innovation may not necessarily be desired or needed in the workplace. As mention earlier, implicit in much research is an assumption that innovation is desirable. Little cognisance is taken of situations where innovation might not be appropriate and thus may be a negative social process which may need to be contained rather than encouraged. Kimberley (1981) stated it succinctly in the

quote “ The most useful prescription for managerial innovation is to avoid the assumption that innovation is good and more innovation is better” (pg81). Innovation is by nature a deviation from the norm and is thus disruptive. The degree to which this process can be managed through existing mechanisms is not known. Group research might benefit from a counter balancing of emphasis, where the maintenance of existing functional behaviour is examined in addition to the facilitation of innovation.

Group innovation research has frequently been conducted using qualitative research techniques in an ad hoc manner. Both the literature reviews by West and Farr (1989) and King and Anderson (1990) refer to informal observation based findings as if to imply that they were academically sound. While this is understandable given the dearth of group research, it does weaken the quality of the review.

A final criticism must also be levelled at the manner in which group innovation research has frequently utilised concepts from the individual level of analysis and transferred them across without consideration for the unique nature of the group dynamic. Again this is understandable given the lack of material. There is a danger that social psychology research, conducted in a laboratory with an individual might first be extrapolated to the workplace and then to the work group. Each extrapolation by itself might be acceptable, however taken as a chain the generalisation takes the findings past that which is academically viable.

Despite the small amount of studies, group innovation research has provided some concrete if slightly inconsistent findings. Knowledge such as that regarding group content, size and longevity provides definite insight which can be transferred into practise with solid results (Amabile, 1998). The review will now continue with the final innovation section - innovation and the individual.

Innovation and the Individual

The fourth and final section of innovation literature is that which is concerned with the individual at work. Innovation research in relation to the individual worker has been the most dynamic of the three streams of innovation research. Despite being less numerous, the investigations have been richer and the methods more rigorous than either group or organisation work. Contemporary results indicate an emergence of strong, useful understandings of innovation, something that arguably has been lacking in innovation research thus far. The field has been enhanced by the transferral of individual learning and intelligences to the paradigm of organisational learning. Current research views individual innovation not as a isolated phenomenon, but values the reflection that it provides of a larger social and organisational function (Glynn, 1996). The understanding of individual innovation thus has the potential for transferral to the level of the organisation, an applicability which organisational innovation is by nature unable to reciprocate.

In order to facilitate a logical review, this section will first document a particular school which although slightly divergent its definition of innovation has contributed immensely to contemporary research. Following this will be a more general review of the individual level innovation literature, organised primarily by variable.

Kirton's theory of Innovators and Adaptors

Kirton's theory of innovators and adaptors is essentially a theory of individual innovation based on the individual's typical problem solving style. An integral part of the theory was the quantitative measure of individual innovation known as the Adaption - Innovation scale developed by Kirton (1976) alongside the original theoretical work. This body of work was influential in innovation research until well into the nineteen eighties and is still referred to and used in organisations today. The theory is based on the underlying assumption that there are two distinct types of cognitive style which come into play during decision making and problem solving. These two styles are categorised as adaptors and innovators. Adaptors are individuals who tend to approach problems using

convention, past practises and established rules as a baseline for their solutions. When the problem is unique then they will merely adapt a past response and thus their solutions are usually incremental improvements on past practises. Innovators are individuals who approach problem solving by questioning the manner in which the problem is perceived and thus approaching it as a unique case. Their behaviour is thus less predictable and their solutions tend to meet with resistance as they may deviate from accepted practise (Kirton, 1976).

The difficulty with this theory in terms of contemporary innovation research is that it is concerned with innovation as a problem solving style rather than an outcome of behaviour. This paper has shown that a strong definition of innovation at work is that provided by West and Farr (1989:16) where innovation is defined as “the intentional introduction and application within a role, group or organisation of ideas, processes, products or procedures, new to the relevant unit of adoption, designed to significantly benefit role performance, the group, the organisation or the wider society”. The underlying assumption being that all workers have the ability to be innovative given the correct combination of determinants. This is in direct conflict with the idea that people can be categorised as either innovators or non-innovators. Surely the most adept problem solver is one that works within existing paradigms when it is most appropriate but is also able challenge the accepted cognitive framework when necessary. The classification of individuals may be useful for obtaining a degree of self insight but does not serve to help organisations to understand and encourage innovation through the cultivation of favourable antecedent conditions. Nevertheless, Kirton’s (1976) theory of Innovation-Adaption has spawned a large body of work, much of which has compared the two categories with other measures of innovation and actual work behaviour (Isaksen and Puccioi, 1988; Clapp and De Ciantis, 1989)

Kirton (1987) argued that conventional organisations have a tendency to encourage bureaucracy and thus minimise risk. The working environment especially in larger organisations may thus favour the methodical, visually disciplined and uniform

behaviour characteristic of the adaptor style. Individuals with an adaptor style will produce solutions which are less threatening as they work within internal organisational boundaries and accepted task allocation frameworks. Innovators may be seen as producing instability as their solutions require behaviour outside of the norm. Their actions will impact more broadly in a domino manner with widespread, if subtle, implications on the structure of work in large parts of the organisation (Kirton, 1987). Adaptors improve existing paradigms while innovators challenge existing cognitive frameworks (Kirton and Pender, 1982). Yet the stability of the adaptors behaviour and the freshness of the innovators approach are both prerequisites for the contemporary organisation attempting to gain competitive advantage. They are thus both the compliment and the opposite of each other.

Kirton's (1976) theory of Adaptors and Innovators is measurable using the 32 item Adaption - Innovation Inventory. The instrument asks respondents how difficult it is to present themselves to others. Each item has a response range of 1 - 5 from 'very easy' to very hard'. Those completely adaptor in style would score 32 and those firmly on the innovator side of the continuum would score 160 (Kirton and Pender, 1982;). One of the distinct advantages of this instrument is that it has been thoroughly researched and concrete statistical data can be obtained on a variety of its applications (Goldsmith and Matherly, 1986; Goldsmith, 1986; Holland and Bailey, 1991). A singular disadvantage is that the KIA has become difficult to gain access to for research purposes in the past decade (Jannesson, 2000). It would appear that as the very data which makes it such a solid instrument has also made it a valuable product in the management consulting industry.

Antecedents of Individual Innovation

Intrinsic motivation theory

A strong stream of research has examined the influence of types of motivation on original action. Innovation and motivation research has been conducted primarily by social psychologists under the auspices of creativity. The social psychological study of creativity in laboratory environments began to cross over into the workplace in the early nineteen nineties. At this point the traditional definition of creativity as “ the production of novel and useful ideas in any domain” (Amabile et al, 1996: 1155) was extended to include the criteria that the action, idea or product be useful or relevant specifically for the organisation within which it is produced (Oldham and Cunnings, 1996: 608). This objective component of creative action is included in the particular definition of creativity as “ the process of generating unique products by transformation of existing products. These products, tangible and intangible, must be unique only to the creator, and must meet the criteria of purpose and value established by the creator” (Walsch: Novelli, 1993: 282). Thus the conceptualisation of creativity used by social psychologists as an action taken by the individual within the organisation which is both novel and useful is so close to role innovation as to make the distinctions between them redundant.

Intrinsic motivation refers to “ the motivation to engage in an activity primarily for its own sake, because the individual perceives the activity as interesting, involving satisfying or personally challenging” (Collins and Amabile, 1999:299). It has been shown to be linked to the psychological needs for self - insight, work control and emotional mastery (Cangelosi and Schaeffer, 1992). Intrinsic motivation has been proven to be a positive antecedent to innovation in the workplace. Laboratory and workplace studies have illustrated that simply thinking of the intrinsic motivation increases the creative content of subsequent tasks (Amabile and Collins, 1999; Sansone, Weir, Harpster and Morgan, 1992).

In contrast extrinsic motivation is characterised by the expectation of reward and the undertaking of a creative task primarily as part of an explicit reciprocal relationship

where something will be received in return. Extrinsic motivation has been investigated through research designs including the manipulation of financial rewards (Eiseinberger and Armeli, 1997) or the threat of expected performance evaluation (Amabile, Goldfarb and Brackfield as cited in Collins and Amabile, 1999). The expectancy of external reward has been consistently shown to decrease creativity, although the degree of influence depends upon the amount of intrinsic motivation already in existence and the extent to which attention is split between the task and the expected reward (Amabile, Hennessey and Grossmand, 1986; Collins and Amabile, 1999; Eiseinberger and Armeli, 1997). In addition the two forms of motivation have been shown to be fairly stable orientations (Amabile et al, 1994). In summation intrinsic motivation encourages creativity at work while extrinsic motivation decreases work creativity but within a greater number of moderating variables.

Perceived work climate

The effect of organisational culture on innovation has already been discussed when the outcome is organisational innovativeness (Damanpour, 1991; Chatman and Jehn, 1994; Kitchell, 1995; Weis and Belbecq, 1987). When approaching work climate and culture research from the level of the individual, there are two main differences. Firstly the climate is examined according to how it is perceived by the individual and not according to some objective measurement. Secondly the outcome in question is individual role behaviour not a more general organisational or systemic response.

Perceived work climate has been found to be moderator of individual innovation in an R&D climate (Abbey and Dickson, 1983) and during a broader re-analysis of the literature (Scott and Bruce, 1994). In Abbey and Dickson (1983) work climate was measured according to 10 dimensions. These were: autonomy, co-operation, supportiveness, structure, reward system, performance reward dependency, achievement motivation, status polarisation, flexibility, decision centralisation. It is interesting to note that these dimensions included some which were explored individually in later research under different labels. Most notably the effect of performance reward dependency has

been examined from the perspective of intrinsic/extrinsic motivation (Amabile et al, 1986; Eisenburger and Armeli, 1997) and autonomy and decision decentralisation have been explored under the guise of non controlling supervision (Oldham and Cummings, 1996). The findings are also a precursor to later supervisor style research. They suggested that the most effective perceived work climate was one characterised by a reward system that recognised and rewarded excellence and encouraged risk taking and experimentation (Abbey and Dickson, 1983). Abbey and Dickson (1983) were progressive in that they included a measurement of work climate stability and in this way counteracted the criticism of much non longitudinal work which has plagued later climate and culture linked research (Oldham and Cummings, 1996; Randall, 1990). The findings in relation to perceived group climate have not been as strong. Bunce and West (1995) examined perceived group climate as a predictor of individual innovation in the health care industry. They divided perceived group climate into four climate factors. These were vision clarity, participative safety, task orientation [accountability, inter team feedback, evaluation and co-operation] and support for innovation [articulated and enacted]. While no significant relationship was found, Bunce and West (1995) speculated that perhaps the mixture of individual perceptions of a group process had weakened the analyses. Instead the perception of the group might be more applicable.

Later research on perceived work climate sought to develop a quantitative measurement scale for assessing the work climate for creativity. Emerging from the same school as the intrinsic/extrinsic motivation work described earlier, Amabile et al (1996) developed KEYS: Assessing the Climate for Creativity. This instrument was one of the first aim specifically at providing management with a concrete tool for facilitating creativity (Amabile, 1998). According to the conceptual framework of this model, the creative work environment is assessed according to five categories: autonomy and freedom, resource sufficiency, work pressures, organisational impediments to creativity and encouragement of creativity (by organisation, supervisor and work group) (Amabile et al, 1996). This instrument draws together and harnesses much of the knowledge gathered in innovation research. Interestingly it includes both negative and positive

aspects e.g. the organisational impediments created by excessive politics, time pressures and routine criticism and the facilitating influence of supervisory encouragement and fair, constructive judgement. Despite the range of the conceptual constructs covered by KEYS, the perception of the individual remains the central focus of investigation. Thus the humanistic element brought in by social psychology has persisted and its influence can be seen in the increased volume of research on individual innovation.

Type and style of leader/supervisor

The impact of the leader or supervisor has been explored from a number of angles, the sophistication of the constructs has increased dramatically over the past two decades. A positive predictive attribute has been shown to exist along a variety of dimensions.

In Kimberley and Evanisko's (1981) seminal work on innovation adoption within hospitals, one of the dimensions that they considered was the differing roles of the administrative and hospital leaders and the impact that this might have on the innovations adopted by their institutions. These characteristics were more specifically: job tenure, educational background, cosmopolitanism and organisational involvement. With regards to technological innovation, a positive relationship was found with hospital administrators with high educational levels, low involvement in committees but high involvement in medical affairs and long tenure. Similar results were found for the medical head with the inclusion of high involvement in administrative affairs. Individual level influences were found to account for 15% of the variance in adoption of administrative innovations.

Further research on supervisory style and innovation in the health sector was conducted by West (1989) who examined the effect of supervisory support as a predictor of innovation amongst nurses. This piece of research used the four item scale of social support as developed by Payne and Jones (as cited in West, 1989) to measure how much support and from whom facilitated innovation. It was found that the majority of nurses did receive support from their supervisors but only after seeking support from spouses, relatives and friends. While health care professionals were most innovative when their

supervisors provided high levels of support, this accounted for only 5 percent of the variance of total innovation scores (West, 1989).

The influence of supportive supervision was further explored by Oldham and Cummings (1996), here used in light of the opposing variable of controlling supervision. Oldham and Cummings (1996) postulated that supportive supervision encourages informational feedback, boosts the individual employee's self worth and promotes skills development and thus encourages individual innovation. In contrast a controlling supervisory style reduces the freedom of the individual employee to feel, think and act in a certain way. It thus limits real feedback and voluntary work enhancement activities and thus stifles innovation. These basic assumptions are corroborated by Scott and Bruce (1994) whose research found that employees who reported having high quality relationships with their supervisors (characterised by support trust and autonomy), were more likely to engage in role innovation. Using a combination of objective patent counting, a suggestion programme and subjective self-assessment, Oldham and Cummings (1996) measured innovation and compared it to the results obtained from a 12 item scale of supportive - controlling supervisory style. Results indicated that individual innovation was highest when individual's supervisors were supportive and non-controlling. The findings that positive leader/supervisor interactions can positively influence innovation (Oldham and Cummings, 1996; Scott and Bruce, 1994; West, 1989) are consistent with the interactionist approach taken by creativity theorists with regards to the positive predictive variable of intrinsic motivation (Collins and Amabile, 1999).

Perceived Organisational Support

The impact of leader/supervisor support on individual innovation has been extended to the variable of perceived organisational support. Eisenburger, Fasolo and Davis - Lamastro (1990) found that a positive relationship exists between employees perceptions of being cared about and valued by the organisation and individual innovation for the benefit of the organisation without expected reward. This research will be further extensively commented under the auspices of affective commitment and

innovation. However the absence of expected reward as a non moderating variable is interesting in the light of the research concerning job demands and complexity (Janssen, 2000).

Job demands and complexity

Evidence has shown that workers may use innovative activities as a way of dealing with a heavy workload (Bunce and West, 1994; West, 1989). The rationale behind this is thought to be either the fact that higher work demands require a higher state of worker arousal thus triggering innovative work behaviour (Bunce and West, 1994) or that innovative work behaviour is simply an effective focused problem solving behaviour (Lazarus and Folkman as cited in Janssen, 2000; Oldham and Cummings, 1996). Oldham and Cummings (1996) confirmed the relationship between innovation and job demands specifically in relation to job complexity. Contrasting evidence is posited by Amabile et al (1996) who argue that while work complexity may increase innovation, a heavy workload under perceived unreasonable time frames will decrease innovation.

Janssen (2000) examined how the relationship between job demands and innovative work behaviour was moderated by perceived fairness of the rewards. Using Van Veldhoven and Meijman's (Janssen, 2000) eight item scale of job demands, Van Yperen's (Janssen, 2000) six item scale of effort- reward fairness and a composite scale of innovation drawn from Scott and Bruce (1994), the hypothesis was confirmed. It was found that workers did respond more innovatively to higher levels of work demands when they perceived that their efforts were fairly rewarded. When effort - reward equity did not exist then the increased job demands did not lead to increased innovative work behaviour. It should be noted that this sample did not include management level staff. . Janssen (2000) also found that a second moderating variable of education emerged. The higher the level of education, the more likely that innovative work behaviour would be the response to increased work demands. It was postulated that this might be due to the increased job control given to those of higher education. Alternatively those with higher education levels might have an enhanced ability to generate, promote and realise novel

ideas (Mumford and Gustafson, 1988) and thus have a better ability to make underlying potential for innovative work behaviour manifest. Nevertheless the moderating influence of job discretion has been positively linked to innovation in prior research (West, 1989) and indications are that further research needs to be done on the moderating effects of job control before the relationship between innovation and job demands and complexity can be properly mapped.

The review of the research findings surrounding individual innovation consistently return to the theme of respect for the individual worker and support for their ideas no matter whether they are immediately applicable to the organisation or not. Facilitators such as a perceived conducive organisational culture and perceived organisational support for the individual underline the theme that innovation has to be seen as important both by the individual and the organisation in order to consistently occur. Innovation has been found to be generally contrary to the agenda of upper management (Dougherty and Hardy, 1996). In such cases the action of being innovative is seen as contrary to organisational norms and the action may simply fall into a vacuum. The key to success appears to be for the product and process to be translated into a form which makes them meaningful and thus understandable to other members of the organisation. A shared value system may facilitate this process of transferring meaning. Dougherty and Farr (1996) found that even within larger organisations, whose function is innovation, individual innovation projects tend to depend more on the networking ability and personal power of the individual than any formal management strategy.

Two constructs, which chart the relationship between the individual and the organisation according to the perception of the individual, are commitment and value congruence. It is to these two constructs that Chapter 3 will turn. The remaining section of this chapter will review the assessment of role innovation and the selection of an appropriate instrument for this research.

Review of individual innovation measurement techniques

The measurement of innovation has been conducted using a wide variety of measures, many of which were neither scientifically rigorous nor academically defensible. Instruments that quantitatively measure role innovation in a valid, reliable manner are difficult to uncover. There seem to be two primary reasons for this difficulty.

The first problem relates to the level of analysis from which the innovation instrument approaches the construct. Until very recently most innovation research followed the management school paradigm. This perspective views innovation as an organisational function. The contribution of the individual is only worth understanding according to their contribution to a greater whole. Accordingly, individual behaviour is broken down and classified according to where it fits into the input - transformation - output model. The present focus on individual and group innovation behaviour is derived from the influence of social psychology and is still fairly new. A related difficulty is that while organisational innovation can be considered to be fairly objective and quantifiable, individual role innovation is far more subtle and perception dependant.

The second problem relates to the tradition of conceptualising innovation not as an ongoing everyday behaviour. The influence of social psychology has also brought a humanistic bent to recent innovation research. Coupled with the realisation that individual innovation facilitates competitive advantage has been a shift to the appreciation of the contribution of smaller, less spectacular individual innovative behaviours. This too is fairly new. Existing measures still tend to focus on more conventional conceptions of innovation such as problem solving.

At this point it is useful to review some methods that have been used to measure individual innovativeness. Up until the late nineteen eighties almost all researchers had used one of three methods; professional recognition, overt production criteria, awards or the opinions of knowledgeable others Mumford and Gustafson (1988). In line with the first difficulty noted, questionnaires designed for the self report of individual innovation are a relatively contemporary development.

Earlier individual innovation research favoured the use of expert devised benchmarks. A good example of this is that conducted by Abbey and Dickson (1983) in the R&D semiconductor industry. Their questionnaire required R&D managers to assess the innovation according to ten Likert style items (1) commitment of resources to risky projects, (2) flexibility, (3) ability to change, (4) creativity, (5) opportunities for R&D personnel, (6) Use of a wide variety of approaches, (7) willingness to let R&D personnel be autonomous, (8) search for new approaches to problems, (9) Budget for R&D, (10) concern with innovativeness over profit (Abbey and Dickson 1983).

Another study which used the technique of expert devised benchmarks was the seminal work by Kimberley and Evanisko (1981). Their research in the healthcare industry assessed technological innovation according to the presence or absence of 12 new developments in the area of the diagnosis, treatment or prevention of respiratory diseases. These 12 developments were determined according to experts from an initial inventory of 300 items. The basis of their selection was judged according to their current importance, the ease with which their benefits could be communicated and the amount of philosophy change their use might be expected to entail. Administrative innovations were determined according to hospital responses regarding the use of electronic data processing for eight managerial functions. These included accounting, admissions, discharges etc.

The use of this measurement method is problematic in these studies in that they combine individual innovation with that of the organisation without distinguishing between the two. As such they falls victim to the first problem identified, in that the level of analysis is unclear.

Another technique which has been used to assess individual innovation is the request for suggestions box submissions. Eisenburger et al (1990) used this technique in their examination of the relationship between individual innovation, affective commitment and perceived organisational support. The instrument which they used was an open ended survey asking for any "suggestions that you might have for ways management can be kept better informed of your ideas for small or large changes that will improve productivity at [your plant name]" (Eisenburger et al 1990:55). The responses were

evaluated for constructiveness. They were then retyped and categorised on a 1 - 9 scale by graduate psychology students who had been given general information about the relevant industry.

A number of measures have been developed to measure individual innovation based on the premise that innovation is a personality trait, cognitive style or problem solving style. They assume that innovation is a constant which can be measured and assessed in the individual and hold true to the behaviour across all situations. These measures of individual innovation include:

1. Open processing Scale (OPS) developed by Leavitt and Walton (as cited in Goldsmith 1986). Designed for the analysis of consumer behaviour it attempts to measure a distinctive cognitive style which it hypothesises to underlie innovative behaviour. Individuals who have this style are known as open processors. They are hypothesised to be more open to new experiences, and use more, new and novel cues to make sense of the world around them. The OPS is a 24 item self report scale with 12 content reversed items. It has two parallel forms. The response is a 5 - point Likert- type requiring the respondent to indicate how well the statements fits with their own views.
2. Innovativeness Scale as developed by Hurt, Joseph and Cook (1977) (as cited in Goldsmith 1986) attempts to measure a normally distributed, generalised personality trait identified as the willingness to change and thus the adoption or rejection of new ideas. It is a 7 point Likert response format.
3. The Jackson Personality Inventory (Jackson as cited in Goldsmith 1986) contains an innovation subscale. According to this scale an innovator is “ a creative and inventive individual, capable of originality of thought, motivated to develop new ideas [and who] likes to improvise” (pg83). The scale consists of 20 items. Half of the items are negatively worded. A true/ false format is used.
4. The Kirton Adaption-Innovation Inventory. Kirton's(1976) theory of Adaptors and Innovators is measurable using the 32 item Adaption - Innovation Inventory. Eleven of the items are reversed. The instrument asks respondents how difficult it

is to present themselves to others. Each item has a response range of 1 - 5 from 'very easy' to very hard'. Those completely adaptor in style would score 32 and those firmly on the innovator side of the continuum would score 160 (Kirton and Pender 1982; Goldsmith 1986). One of the distinct advantages of this instrument is that it has been thoroughly researched and concrete statistical data can be obtained on a variety of its applications (Goldsmith and Matherly 1986; Goldsmith 1986; Holland and Bailey 1991). However it is not appropriate for this research due to its fundamental assumption that innovation is a permanent behavioural pattern with which the individual engages in all problem solving. Thus, as mentioned earlier, it approaches individual innovation as a behavioural style rather than level of response.

One of the first pieces of research to truly look at and place value upon individual innovation was that conducted by West and Farr (1989). This work, again in the healthcare industry, examines the content of individual innovations in addition to the social psychological influences and work attitudes associated with innovation. In order to gain a picture of the individual innovations this research utilised a questionnaire with Likert style responses. Responses were summed to a Cronbach alpha and correlated with open ended questions. In this way West and Farr (1989) obtained both a quantifiable assessment of the individual's innovation as well as a qualitative picture of this behaviour. Senior nurses were asked to rate their subordinates in terms of their innovation so that some degree of validation could be achieved. The questions were as follows:

1. How much do you need to develop new and improved ways of doing things and initiate changes in your daily work
2. How important is it to you to have the chance to develop improved ways of doing things and to initiate changes in your daily work
3. How would you rate your innovativeness as an individual
4. Please rate your actual current innovativeness at work.
5. Within the last year, have you :
 - changed your work objectives or introduced new objectives ?

- changed your working methods or introduced new working methods ?
- changed who you deal with or how you deal with people ?
- learned new skills ?

In relation to each area please indicate the extent of the impact of these changes on your job, clients and colleagues on a scale from minor impact(1) to major impact (3).

Open ended questions:

1. Please indicate new and improved ways of doing things you have introduced in your work life in the past year.
2. Please indicate any new and improved ways of doing things that you would like to introduce in your work
3. Please indicate the main barriers at work to introducing new and improved ways of doing things.

These questions were considered for the role innovation measure in the pilot phase of this research. However the questions were inconsistent in their gradations of response and were far better in obtaining a picture of the innovativeness of the individual than creating an index of role innovation.

The major contribution of the work by West and Farr (1989) in terms of its measurement method is the combination of quantifiable responses with open ended questions. King and Anderson (1990) recommend the administration of open response reports of innovation when examining the influence of antecedents of innovation. Their argument is based on the point that qualitative information yields important insights into the type and level of innovation. For this reason this research will include open ended questions. They were also found in the pilot phase to slow down the respondents and thus avoid response set patterns.

In the face of a plethora of innovation assessment techniques with varying degrees of success, some researchers have responded by combining a variety of instruments and techniques within single studies. An example of this is Oldham and Cummings (1996) whose work within two manufacturing facilities combined four measures of innovation.

The variables they examined were creativity (defined in a manner extremely close to the current researcher's definition of innovation), supervisory style (controlling versus non controlling), job complexity and intentions to quit.

Their combination of assessment tools were for the consistency and comprehensives that they could lend the research. The four techniques were:

- Formal quantitative instrument: The creativity - relevant personal characteristic section of the 30 -item Creative Personality Scale (Gough 1979). Employees completed a checklist of adjectives, marking which ones they thought could be applied to them.
- Supervisor ratings: Supervisors rated the extent to which each employee produced work that was novel and useful to the organisation. Ratings were made on a 7 point Likert -type scale and were then averaged to form a rated creativity index.
- Suggestion box submissions: Invitation to employees to submit recommendations to a formal organisation suggestion programme. The suggestions were reviewed by a multi- functional committee who accepted only those suggestions deemed to be novel and appropriate. When an employees suggestions were accepted they were coded 1; when not accepted they were coded as 0.
- Miscellaneous idea collection: Invitation to employees to write a patent disclosure for any product or process ideas that were deemed by their supervisors to be very original and relevant to the organisation or the industry in general. It used the same two year period. Measures ranged for 0 to 2.

Their analysis showed that the Creative Personality Scale (CPS) rating had only a partial correlation with the other three creativity indicators. Specifically CPS correlated positively and significantly with the patent indicator but not with the remaining two indicators, that of rated creativity and suggestions. The CPS also proved insignificant in its relationship to the other research outcomes.

Oldham and Cummings's (1996) research gives an indication of the uncertainty with which researchers have approached innovation instruments. Yet if the researcher is

specific about what type of innovation they are measuring and the angle and level of analysis, then the task becomes less complex.

Innovation instrument of this research

Using the awareness obtained through the above review, the requirements which delineate this instrument search are thus:

1. This research is specifically looking at role innovation i.e. all innovation in behaviour, production and ideas which is both novel to that particular context and useful to the organisation.
2. The level of analysis is the individual worker.
3. The angle of the research is of the perceived relationship with the organisation. The innovation assessment is thus of the individuals innovation from their subjective perspective (completed by themselves).
4. Due to the nature of the research, the instrument should be primarily quantitative, with some mechanism for obtaining further information as to the type and extent of the innovative action.

Using the above points as criteria for the selection of the role innovation instrument, the measure used by Scott and Bruce (1994) and again by Jansson (2000) emerged as the instrument of choice.

Scott and Bruce (1994) developed a six item scale to measure individual role innovation in their research in a large centralised R&D facility of a major U.S.A industrial corporation. The other variables in their study included leadership, individual problem solving and group relations which were investigated as moderators on the effect of the perceived work/innovation climate. This was in turn investigated as an antecedent for actual innovative work behaviour. While the basis of their research design is quantitative, with instruments used for each variable, they preceded the actual study with a qualitative investigation. This consisted of a series of interviews with the director and vice presidents in order to get an idea of how innovation was viewed in the organisation. They also engaged in semi structured interviews with a stratified sample of 22 R&D

engineers, scientists, and technicians. The actual questionnaires were sent out via email. Analysis of their responses revealed a Cronbach alpha of .89 for the innovation instrument.

Scott and Bruce's (1994) innovation instrument was as follows:

Instructions:

Innovation is a process involving both the generation and implementation of ideas. As such, it requires a wide variety of specific behaviours on the part of individuals. While some people might be expected to exhibit all the behaviours involved in innovation, others may exhibit only one or a few types of behaviour. Please rate each of your subordinates on the extent to which he or she:

1. Searches out new technologies, processes, techniques and /or product ideas.
2. Generates creative ideas.
3. Promotes and champions ideas to others.
4. Investigates and secures funds needed to implement new ideas.
5. Develops and secures funds needed to implement new ideas.
6. Is innovative.

[Likert scale of 1 to 7]

The innovation instrument developed by Scott and Bruce (1994) was used by Janssen (2000) in research exploring the relationship between role innovation, job demands and reward fairness. This research was located in a Dutch food manufacturing organisation using a sample of 170 non management employees. The work done by Janssen (2001) is useful in terms of this research in that it takes the scale developed by Scott and Bruce (1994) and adapts it so that it can be done just by the actual employee rather than by both the supervisor and the employee.

Janssen (2000) also moderated the scale to include three additional items. These items are derived from sticking more strictly to the original inspiration for the scale namely the work by Kanter (as cited in Scott and Bruce 1994). Kanter (as cited in Janssen 2000)

conceptualised individual role innovation as consisting of three sets of behaviours: idea generation, idea realisation and idea promotion. Janssen's (2000) research added an additional item for each form of role innovation. Items 1,2 and 3 refer to idea generation., items 4 to 6 refer to idea promotion and items 7 to 9 refer to idea realisation.

Janssen's (2000:292) instrument to measure role innovation:

Response recorded on a 7 point scale from 1 (never) to 7 (always).

1. Creating new ideas for difficult issues
2. Searching out new working methods, techniques or instruments
3. Generating original solutions to problems
4. Mobilising support for innovative ideas
5. Acquiring approval for innovative ideas.
6. Making important organisational members enthusiastic for innovative ideas.
7. Transforming innovative ideas into useful applications
8. Introducing innovative ideas into the workplace in a systematic way.
9. Evaluating the utility of innovative ideas.

Intercorrelations between the three types of innovative behaviour ranged from .76 (idea generation and idea realisation) to .85 (between idea realisation and idea promotion) and an overall Cronbach alpha of .95 was obtained. It is this 9 point scale of role innovation which is used in this dissertation.

The selection of this scale satisfies all except the final requirement of the role innovation assessment criteria outlined earlier in this section. Still outstanding is a mechanism to obtain more information about the type and nature of innovation perpetrated by the respondents. Kitchell (1995) and King and Anderson (1990) raise the issue that qualitative research methods are better suited to the complexity of the interaction between humans, technology and innovation. This is a point that should not be ignored given the increasing importance attributed to the human side of innovation

adoption and the effect of workplace dynamics. In response to this concern and to counterbalance the self report nature of the questionnaire, items a, b, and c, were included. These items consist of open ended questions which require the respondent to give concrete examples of idea generation, realisation and promotion respectively. Items a, b, and c slow down the respondent, increase the amount of thought put into the responses and act as a precaution against response set answering. They also give a general indication of the individual's perception of their own innovativeness. The responses can be compared with a general score for the rest of the section to look for inconsistencies.

These open-ended questions are:

- a. Please indicate any innovation (product or process) that you personally have generated in your work in the past year at
- b. Please indicate any way that you have promoted good ideas in the past year at
- c. Please indicate any innovation generated by yourself that you have managed to have integrated into accepted work practice during the past year.

In conclusion, a wide variety of instruments and assessment techniques exist with which to measure innovation. Through clearly delineating the requirements of this research, the 9 point individual role innovation measure developed by Scott and Bruce (1994) and utilised by Janssen (2000) was selected. This is supplemented with three open ended questions which reveal additional insight into the nature of the reported innovations. In this way the quantitative, subjective nature of the instrument is counterbalanced with concrete examples of actual behaviour. The dissertation will now proceed to Chapter 3: a review of the perceived employee - organisation

Chapter Three

This dissertation focuses upon the effects of the perceived employee-organisation relationship on individual innovation. The construct of innovation was examined in chapter two. The task of this chapter will be firstly to examine the constructs that fall under the domain of the employee- organisation relationship and to review their previous research findings, with specific emphasis on those findings related to individual innovation.

Delineating the Perceived Employee Organisation Relationship

The employee-organisation relationship (PEOR) is an important determinate of work behaviour. This psychological relationship forms the basis of both in role and extra role or pro-social acts (O'Reilly & Chatman, 1986). Individual factors of the PEOR have been linked to innovation in separate pieces of research (Amabile, Conti, Coon & Tighe, 1996; Eisenburger, 2000; Eisenburger & Fasolo, 1990; Janssen, 2000; Oldham & Cummings, 1996). However, this research attempts to explore these factors in relation to role innovation, within the greater relationship of the PEOR. This exploratory research is conducted within the unique context of the South African working environment

The outward manifestation of the PEOR is the performance of the employee and the resulting compensation given by the organisation. However the relationship between employee and employer is characterised by more than just an economic exchange of resources. To the individual worker it also includes a plethora of emotional interactions which combine to create their subjective work experience. It is this subjective perception of the organisation with which the worker interacts. Mowday et al as cited in O'Reilly and Chatman (1986:493) claims that "there are many instances where organisations need individual members, especially those in critical positions to perform above and beyond the call of duty for the benefit of the organisation." As employees increasingly become a source of competitive advantage, so the importance of examining the relationship between this perceived relationship and individual role innovation grows (Chesbrough &

Teece, 1996). The manner in which the worker experiences their relationship with the organisation in relation to innovation can be broken down into a number of constructs. These constructs are arrived at through the review of the innovation literature, in particular that done by Amabile et al (1996) regarding the perceived work climate and individual innovation.

Organisational commitment is one of the manifestations of the psychological relationship between the employee and the organisation (O'Reilly & Chatman, 1986). It charts the degree of attachment felt by the worker. However to examine organisational commitment as a single construct is simplistic. Strong evidence already exists to show that the varying forms of organisational commitment impact on individual innovation in different ways (Meyer, Allen & Topolyntsky 1999). Thus affective, continuance and normative commitment are considered separately in this research. Value congruence is the fourth manifestation as it maps the degree to which the employee has internalised the values or involved themselves in a common framework with the organisation (O'Reilly & Chatman, 1986).

A fundamental antecedent for individual innovation is support. Support is experienced in the employee's relationship with their organisation from two sources; their immediate supervisor and the organisation as a whole (Amabile et al, 1996). Thus the fourth and fifth constructs are perceived organisational support and perceived supervisory support respectively.

Moderating the causal effect of the various constructs of the employee - organisation relationship is the motivation orientation of the individual. The impact of an intrinsic or extrinsic motivation on role innovation is so strong that it cannot be ignored as part of an exploration of individual innovation in the workplace (Collins & Amabile, 1999). In this dissertation it is included as a moderating factor between the various constructs of the employee-organisation relationship and role innovation. The inclusion of the intrinsic/ extrinsic motivation orientation enhances the design of the research by

providing a means of checking the quality of the results. Of all the variables included, intrinsic motivation orientation has the most consistent and most positive relationship with role innovation. The finding of this link in the results may act of a indication of the validity and reliability of the results.

This research aims to examine those constructs in the PEOR which a review of the literature has indicated are or might be related to role innovation. These constructs provide a succinct yet thorough exploration of this multifaceted construct. The primary variables under investigation are the various commitment constructs and value congruence. The bulk of the review of these variables will occur in this section. The remaining constructs have also been covered in some depth in the previous section and will be referred to here in less detail.

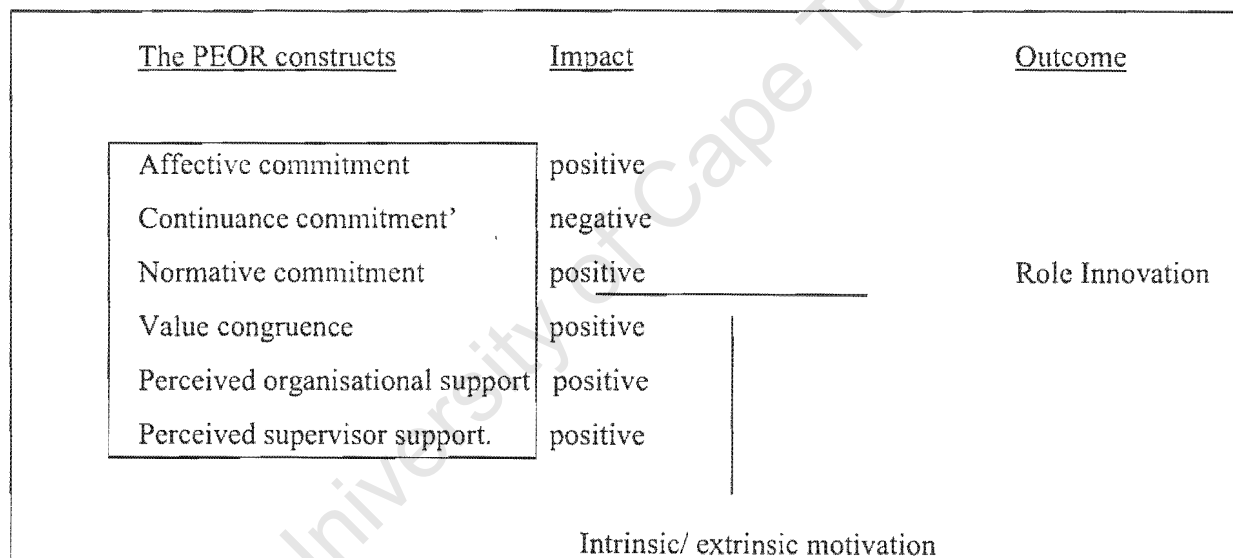


Figure 3.1 Research Model

Organisational Commitment

Defining Organisational Commitment

The construct of organisational commitment has been one of the more durable features of organisational research over the last thirty years. It has a strong, unified base of research work and is characterised by broad agreement over key definitional elements.

Commitment at work has been applied to a broad range of foci (Meyer, Allen & Smith, 1990). From the original concept of organisational commitment has arisen work on commitment to unions, professions, careers, constituencies and employment (Leong, Randall & Cote, 1994; Meyer, Allen & Smith, 1990; Meyer, Allen & Smith, 1993; Millward & Hopkins, 1998; Randall & Cote, 1991). Work by Randall and Cote (1991) identified five different work commitment constructs: work group attachment, organisational commitment, job involvement, Protestant work ethic and career salience. In exploring the relationships between these constructs, Randall and Cote (1991) established the remarkable independence of organisational commitment.

The construct of organizational commitment has also been diversified into the varying foci upon which it can be manifest. Work by Besser (1993) organised organizational commitment into three varieties: commitment to the organisation, commitment to the small work group and commitment to a specific task. Besser (1992) explores these varieties of commitment in relation to the relative importance of the different foci of employee commitment. This research found a positive relationship between commitment to top management, supervisor and work group and the work outcomes normally attributed to organisational commitment.

This dissertation is concerned only with three forms of organisational commitment: affective, normative and continuance. Early research on commitment to the organisation used organisational commitment as a broad spectrum term which could be manifest in a number of ways; pride in the organisation, willingness to exert personal effort for the sake of the organisation and loyalty to the organisation (Cook & Wall, 1980; Hunt & Morgan, 1994). Until the late nineteen eighties organisational commitment was viewed as a unidimensional construct (Meyer, Allen & Topolynsky, 1999). Typical definitions of commitment from this earlier phase include "the relative strength of an individuals identification with and involvement in a particular organisation" (Porter, Steers, Mowday & Boulinas cited in Shaub, 1991:421) and "a strong belief in and acceptance of the organisation's goals and values, a willingness to exert considerable

effort on behalf of the organisation and a definite desire to maintain organisational membership” (Porter as cited in Shaub, 1991: 421). However more recent research has included a recognition that commitment is a complex and multifaceted concept whose varying manifestations are actually indicative of divisions in the meaning of the term (Meyer et al, 1990; Mathieu & Zajac, 1990). Three forms of organisational commitment are currently recognised: affective commitment, which refers to an emotional attachment to and identification with, the organisation; continuance commitment, which refers to the perceived cost associated with discontinuing employment and normative commitment, which refers to the individuals belief that that it is their moral obligation to stay with the organisation. (Meyer et al, 1999).

Research has been conducted to establish the degree to which these three conceptualisations of commitment are distinct constructs and how this has affected the findings of past work (Randall, 1990). Affective and continuance commitment have been proven to be empirically distinguishable constructs with different correlates. Affective and normative commitment are less so and may possibly be related (Allen & Meyer, 1987). At the heart of this concept fragmentation is a realisation that the employees can be committed to the organisation in different ways. While low levels of all forms of commitment may have the common consequence of termination, the impact of their commitment on job performance varies and the type of commitment has differing antecedents and different results (Finnegan, 2000; Hunt & Morgan 1994; Mathieu & Zajac, 1990). The distinction of affective, normative and continuance commitment has been reconceptualised by Akhtar and Tan (1994) who argued that a more accurate description of these different constructs would be in terms of their cognitive, emotive and conative meanings.

This fragmentation process has meant that for a period, definitions of commitment varied widely between works, making comprehensive, meaningful reviews difficult. It has become a requirement of work in this area that the researcher be quite specific about the form of commitment with which they are working and that their instrument be

designed or selected accordingly (Randall, 1990; Meyer et al, 1990). However the primary point is that each of the three forms of commitment bind the individual to the organisation in a different manner and each has varying consequences on on- the- job behaviour (Meyer, Allen & Topolyntsky, 1999). This is important in an era when commitment that is beneficial to the organisation is not necessarily reflected in tenure but rather in action. Organisations can no longer guarantee life long tenure as part of a reciprocal commitment with their employees. Yet some form of commitment is still desirable as it impacts on work behaviour. The key is to establish which form of commitment elicits which particular positive work behaviour, (in this case role innovation) and to nurture it (Meyer, Allen &Topolyntsky, 1999).

This research therefore uses the three forms of organisational commitment as individual constructs. Through this the research can conduct a focused examination of which particular form of commitment acts as a antecedent to role innovation. This review will therefore proceed with an individual examination of affective, normative and continuance commitment respectively. The presentation of review, research findings and instruments will progress accordingly.

Affective Organisational Commitment

Affective commitment is the employees “emotional attachment to, identification with and involvement in, the organisation” (Allen & Meyer, 1990:1).

In comparison to normative and continuance commitment, affective commitment has by far received the most attention in the literature (Allen & Meyer, 1987).This emphasis is due to the pre-eminence of the most enduring organizational commitment measure: Mowday, Steers and Porter’s (1979) Organisational Commitment Questionnaire (OCQ). The OCQ has formed the measurement cornerstone of a large amount of commitment research, both in its original 15 point form and the abbreviated 9 point version (Allen & Meyer, 1987; Akhtar & Tan, 1994; Boxx, Odom & Dunn, 1991; Eisenburger, Fasolo & Davis – LaMatro, 1990; Gregerson & Black, 1992; Huselid & Day, 1991; Meglino, Ravlin & Adkins, 1989; Millward & Hopkins, 1998; Pretorious,

1993; Randall & Cote, 1991; Shaub, 1991; Shore, Thornton & Shore, 1990; Vandenburg & Lance 1992; Wittg- Berman & Lang, 1990). The scale is designed to measure three aspects of commitment: motivation (a willingness to exert considerable effort on behalf of the organisation), intention (a definite desire to maintain organisational membership) and values (a strong belief in and acceptance of the organisation's values and goals). The statistical strength of this instrument has contributed positively to the statistical quality of affective organisational commitment research and organisational commitment as a whole (Randall 1990). However while the OCQ measures affective commitment, it does not measure this specific construct intentionally. The fragmentation of commitment had not yet occurred during the time of its development and thus its use in this regard could be argued to be accidental. A more recent measure of affective commitment is that of Meyer, Allen and Smith's (1993) six item scale. This scale is a sub scale of their 18 item commitment measure designed so that each third of the instrument measures one of the three forms of commitment : affective, continuance and normative. It is this measure which will be used in this research.

Affective commitment has been show to relate to a number of variables. It creates conditions of low turnover (Millward & Hopkins, 1998), is predictive of general good performance (Meyer, Paunonen, Gellatly, Goffin & Jackson, 1989; Mayer & Schoorman, 1992) and relates positively with job involvement (Huselid & Day,1991).

The study of affective commitment has been inherently linked to that of work values by virtue of its underlying values based nature. Knoop (1994) extends this causal chain arguing that as affective commitment is based on an identification with the values and goals of the organisation, a degree of value congruence is a prerequisite for affective commitment. Knoop (1994) establishes the link between affective organisational commitment, individual values and value congruence in a study conducted in the nursing profession. The research conducted by Knoop (1994) sought to explore the extent to which values and commitment are linked in the minds of employees and in particular which values would best predict affective commitment to the organisation. The subjects of the research were 171 female nurses from seven different hospitals. The instruments

used were the OCQ (Organisational Commitment Questionnaire) and a set of 21 work values as identified by Elizur (1984). Four particular values were found to be predictors of commitment. The first, pride in the organisation, accounted for 66% of the variance and was by far the strongest predictor. The three other variables together accounted for a further 6% of the variance. These values were having a supportive supervisor, having influence in the organisation and receiving recognition. Thus by focusing specifically on the affective form of organisational commitment, this research found that work values accounted for 72% of the variance in organisational commitment amongst a sample of health workers. Twenty one separate work values were found to be statistically related to commitment including having responsibility, being valued as a person, getting a sense of achievement from work and doing work that is meaningful. Significant in terms of this research is that value congruence and affective performance are intricately linked in their prediction of performance and that a perceived supportive supervisor and a supportive organisation were significant constructs in explaining the remaining variance.

Further corroboration for the link between affective commitment and perceived organisational support is provided by Meyer, Allen, Topolyntsky (1999) who prove that affective commitment is positively influenced by measures taken in the organisation to improve the comfort of the individual worker (e.g. good interpersonal relations) as well as their sense of competence and self worth. In a seminal work, Eisenburger, Fasolo and Davis - Lamastro (1990) examined the interaction of affective commitment, role innovation and perceived organisational support. Their research found that affective commitment was positively related to role innovation. Their concept of innovation being broadly defined as individual discretionary actions designed to benefit the organisation for no definite recognition or reward. Respondents who reported high levels of affective commitment and who demonstrated high role innovation also tended to perceive the organisation as supportive. Eisenburger, Fasolo and Davis - Lamastro (1990) postulated that perceived organisational support is an antecedent to affective commitment and that this in turn is a major factor in facilitating role innovation. While this causal chain has yet to be proved, the underlying recognition of the importance of perceived organisational

support in predicting role innovation remains. It will be referred to later in this chapter under a separate section.

Further research has confirmed that a positive relationship tends to exist between role innovation and affective commitment. Allen and Smith (as cited in Allen & Meyer, 1990) documented this positive relationship using a self-report measure of individual innovativeness. In the same study, affective and normative commitment scores but not continuance commitment scores were positively related to self-report measures of employees' consideration for co-workers and their efficient use of time. The link between role innovation and affective commitment has been further documented by King and West (1987) who found that there is a tendency for a positive orientation towards individual innovation when affective organisational commitment is high

In conclusion, affective commitment has received comparably more research attention than either continuance or normative commitment. It has been positively linked to perceived organisational support, low turnover and work value congruence. Most importantly for this research is that affective commitment has been positively linked to role innovation.

Hypothesis 1: There is a positive relationship between affective organisational commitment and role innovation

Continuance Commitment

Continuance commitment refers to the employee's commitment to the organisation based on the associated costs with leaving their present employment (Allen & Meyer, 1990). These associated costs include material and financial factors as well as the perceived impact of social identity changes. While the existence of the three forms of commitment have the common consequence of continued association with the organisation, continuance commitment assesses the commitment of current employee based upon how receptive they are to the prospect of changing employer.

Prior measures of continuance commitment tested respondents desire to stay against various inducements to leave (Hrebiniak as cited in Allen & Meyer, 1990). However, these measures have recorded unnaturally high levels of continuance commitment, suggesting that they may measure affective commitment either in addition to or instead of continuance commitment (Allen & Meyer, 1990). Indeed Mayer and Schoorman (1992) propose that affective and continuance commitment are closely related and Milward and Hopkins (1988) go so far as to propose that they exist at the opposing points of a continuum. That which requires a positive amount of the latter may require a negative amount of the former.

The strongest predictors of continuance commitment have consistently been shown to be situational factors. Continuance commitment increases in relation to actions taken inside or outside of the organisation that make the retention of valued assets dependant on their continued employment (Allen & Topolnytsky, 1999). High levels of continuance commitment have been shown to impact negatively on general work performance and promotability (Meyer et al, 1989). It has also been strongly correlated with turnover, however it has no specific effect on absenteeism (Mayer & Schoorman, 1992). Employees who report higher levels of continuance commitment than affective commitment have been shown to demonstrate relatively lower work performance than that demonstrated by employees who record higher affective than continuance commitment (Mayer & Schoorman, 1992).

Past research has indicated that a negative relationship exists between continuance commitment and role innovation. The same research of Allen and Smith (as cited in Allen & Meyer, 1990) which recorded a positive relationship between affective commitment and role innovation in the previous section, also recorded an negative relationship between continuance commitment and role innovation. The implied relationship would seem to be that an employee, who assesses the value of their relationship with the organisation primarily according to the material and emotional costs to self, would not

voluntarily engage in behaviours such as role innovation where there would not be a direct reward.

Hypothesis 2: There is a negative relationship between continuance commitment and role innovation

Normative Commitment

Normative commitment refers to the “employee’s feelings of obligation to remain with the organisation” (Allen & Meyer, 1990:1). It ties to the employee’s feelings of responsibility towards their employer and the personal norm of an internalised moral obligation to stay (Meyer, Allen & Topolyntsky, 1999). Normative commitment is influenced by the individuals social and cultural beliefs. It has been shown to be more closely linked to affective than continuance commitment and is relatively independent from the latter (Allen & Meyer, 1990).

In general the construct of normative commitment has received the least attention and little research exists upon which the researcher can base their predictions (Allen & Meyer, 1990). Butler and Vodanovich (1992) argue that little is known of whether the internalised values of normative commitment is transferred into actual behaviour. In order to explore this relationship, normative commitment was set against instrumental (reward based) commitment in relation to intrinsic and extrinsic work values. A strong correlation was found between employees with long term tenure and high normative commitment. The patterns found in this research suggest that employees who feel a responsibility to work as part of their internalised acceptance of general life and work ethics will also feel an obligation of loyalty to their employer. (Butler & Vodanovich, 1992) These findings with regard to tenure corroborate those found by O’Reilly and Chatman (1986).

While no research exists upon which to base the predictions of the relationship between normative and continuance commitment, the similarities between the constructs as commitment by default not intent, indicate that there may be a negative relationship

between it and role innovation. If an individual is only part of the organisation due to an externally developed norm of loyalty, then the deduction can be made that they will not be less likely to perform innovatively where this deviates for the behaviour expected by the organisation.

Hypothesis 3: There is negative relationship between normative commitment and role innovation.

Value Congruence

The fourth construct, which will be examined in this research as an antecedent of role innovation, is value congruence. Value congruence has been increasingly linked to organisational commitment through the psychological contract as implicit in affective and normative commitment. Without the promise of long-term tenure, organisations have sought to find other mechanisms for encouraging emotional ties between the employees and themselves. One of the ways of doing this is to ensure that the work values of the employees are similar to their own. This can be done retroactively through identification of employees with the applicable work values or through deliberate recruitment and organisational intervention strategy (MacDonald & Gandz, 1992).

The review of value congruence will begin with a clear definition of the construct before proceeding to a review of the relevant research and in particular that relating to role innovation.

Definition of Value Congruence

The construct of value congruence refers to the degree to which the values of one group are similar to those of another. In the context of organisational commitment the relevant values are generally work values and the groups are entities within the ambit of the organisation. Work values are defined as: “*preferences for various modes of work behaviour, in particular, modes of behaviour which are socially desirable*: (Ravlin & Meglino, 1989) or “*evaluative standards relating to work or the work environment by which individuals discern what is right or assess the importance of preferences*” (Dose as

cited in Finegan, 2000:149). Value congruence (VC) thus examines the degree of fit between the work values of one party and those of another within the organisation with the aim of examining how the existence of similar work values impacts on work outcomes. VC is defined as *“the degree to which all members of the group agree on values about group processes and group work”* (Jehn, Chadwick & Thatcher, 1997: 288). The concept of value congruence can be applied to the individual versus the work group, the supervisor or the broader organisation.

Prior to presenting a review of value congruence, a brief overview of the study of values at work will be included so as to provide a background to the value congruence work.

The study of values at work as a basis of value congruence

Values are individual's fundamental beliefs regarding the desirability of behavioural choices. They are based on an internalised framework that dictates how the individual believes they ought to behave according to some socially accepted guidelines. They become relevant at work because this judgement of desirability transfers into preferred ways of working. (Meglino & Ravlin, 1998). Work values are primarily person rather than object based. They are also instrumental in so far as they dictate a mode of behaviour to achieve an end state rather than the end state in itself. The similarities and differences observed between values in a work context can be attributed largely to socialisation and personal experiences. During organisational entry when socialisation occurs, the individuals receptiveness to these new value systems vary, possibly according to their self esteem, cognitive style, and specific attitude structures. Work values are relatively stable although they are capable of being changed under certain conditions. It has been argued that people undergo a period of discomfort during the process of acquiring new values and therefore become something to which the individual is attached. They may also remain more stable if the organisational environment acts as a continual reinforcer.

Meglino and Ravlin (1989) raise the interesting point that it is fundamentally impossible for the organisation to possess values separate from those of their members.

The values of the organisation will always be rather those of influential individuals whose power makes their work values appear pre-eminent. Furthermore there is no reason why work value congruence should result in enhanced organisational performance or greater task productivity unless the work values encourage behaviour that is appropriate for both the external challenges facing the organisation and the tasks which need to be achieved in the internal setting. Thus the identification of the work values upon which the congruence will be based is as important as the actual degree of fit. Without the solid baseline of a relevant list of work values (such as that provided by MacDonald & Gantz, 1992), the resulting congruence score is essentially meaningless (Finegan, 2000).

Bearing in mind the fundamental importance of work values to value congruence, the review will now proceed to the fourth dependant variable, value congruence.

The theory of value congruence

The usefulness of value congruence is located in the subjective nature of work values. The individual's behaviour is determined by their perception of external stimuli according to their internalised framework of accepted norms (Finegan, 2000; Judge & Cable, 1997). When individuals have similar values, they will perceive external stimuli in similar ways. This reduces the uncertainty in interpersonal relations and facilitates the achievement of common goals. The similarity of work values also reduces ambiguity and conflict, thus resulting in greater satisfaction in interpersonal relationships (Meglino & Ravlin, 1998).

One of the earliest forms of the study of work value congruence developed separately from that of work values per se. Instead it was concerned with ethics and the allocation of blame in the case of criminal activity. The reasoning behind this form of value congruence was that if it could be established how much of the organisation's values were shared by the individual then the degree of blame which could be allocated to the individual employee could be discerned.. Liedtka (1989) forms the basic research of this school. This particular perspective of work values is delineated by the basic goal of being able to differentiate between the values of the individual and those of the

organisation for the purposes of being able to assign responsibility in the context of an ethical dilemma. Liedtke (1989) is primarily concerned with the value conflicts experienced by *managers* during the process of *decision making*. The definition of a value system used in this research is : “an enduring organisation of beliefs concerning preferable modes of conduct or end states of existence along a continuum of relative importance” (Rokeach as cited in Liedtka, 1989: 806).

Liedtka (1989) generates a model of value congruence which seeks to map out the possibilities of value congruence or consonance between the organization and the individual manager. This model thus reduces the infinite states or degrees of value congruence down to four definitive states. The simplistic nature of this end understanding of the state of congruence is used as a criticism of this research by later work. I.e. you do not end up with a figure illustrating the degree of congruence but rather a yes or no answer. In support of this research, one does end up with insight as to on whose part the contention originates - is it internal to the individual or is it external, as in the organization?

		Organizational Values	
		Consonant	Contending
Individual Values	Contending	I	II
	Consonant	III	IV

Figure 3.2: The Value Congruence Model (Liedtka, 1989)

The research conducted by Liedtka (1989) is extended by Posner and Schmidt (1993) who sought to extend the narrow four way typology of the value congruence model into a measurement of clarity and certainty, is to add a element of degree. Their work confirmed the value of the model particularly in relation to the congruence of shared optimism and ethical responsibilities.

The contemporary study of value congruence rose in large part from that of socialisation and value attrition work. Other perspectives on work value congruence include that of Chatman and her colleagues (Chatman, 1991; O'Reilly, Chatman & Caldwell, 1991) which comes from the perspective of socialisation and person - organisation fit examines VC in relation to commitment.

Value Congruence Research Findings

Job satisfaction: Job satisfaction has been positively linked to shared values between supervisors and subordinates within a manufacturing environment, although the order of causation remains unclear (Kemelgor, 1982). The author speculated that the subordinate who shared their supervisors view of effective performance, would receive a positive evaluation from the latter and thus be more satisfied in their work. Similarly, Boxx, Odom and Dunn (1991) found a positive link between VC and job satisfaction in their study in the public sector. This was confirmed by Adkins, Ravlin and Meglino (1996) who found that the association was even stronger when the length of tenure was taken into account. Employees who had been employed for a longer period of time demonstrated a more positive link between VC and job satisfaction. As the length of tenure increased so the relationship between these variables weakened. This might be explained through socialisation. Recent employees are active in their desire to seek out and match the values of the organisation. As the period of employment lengthens so less effort is put into value exploration (Morrison as cited in Adkins et al, 1996; Adkins, 1995).

Subordinate performance: VC between supervisor and subordinate has been explored in order to examine its effect on the performance of the latter. While findings have been mixed (Adkins, et al, 1996; Adkins & Russell, 1997), Kemelgor (1982) pointed out that there is an inherent difficulty in extricating actual effective performance from the illusion of good performance evaluation created through VC. Tenure appears to be a moderating variable in this relationship. The link between subordinate - supervisor VC and subordinate performance appears strongest in lower tenured employees (Adkins

et al, 1996). The influence of tenure on the interaction of these two constructs may explain the varying results that have been reported.

Commitment: One of the earliest links found between another construct and value congruence was that with organisational commitment. Before VC had even been cemented as a construct, qualitative research linked VC to commitment at middle and upper management levels. Further than this, managers who shared the values of the organisation also demonstrated significantly more commitment to the goals of the organisation - both in terms of the end achievement and the efficiency and effectiveness of the work processes involved in getting there (Posner, Kouzes & Schmidt, 1985).

One of the most important studies linking value congruence with affective commitment was that of Chatman (1991). This study approached the issue from the perspective of person - organisation fit. It found evidence to support the assertion that those whose values are similar to those of the organisation are likely to show high levels of affective commitment. This work required subjects entering the organisation to order 54 values into 9 categories ranging from most desirable to least desirable. This data was compared with what current employees believed to be the values of the organisation, using the same list of 54 values. The data supplied by employees was averaged and used as a point of comparison for the individual responses supplied by the new recruits. O'Reilly, Chatman and Caldwell (1991) extended this study using the same data and found that the person - organisation fit score could still predict affective commitment a year later.

This link is corroborated by Boxx, Odom and Dun (1991) who explored the impact of value congruence on affective commitment in a public service (not -for -profit) setting. It was found that respondents who demonstrated strong value congruence with the values of the organisation also reported high levels of affective commitment. Oliver (1990) found that value congruence was a necessary precondition for affective

commitment even when the employees own the organisation themselves also corroborates it.

Meglino, Ravlin and Adkins (1989) have also found that value congruence between workers and their supervisors is positively related to affective organisational commitment.

Given the strong links shown between value congruence and affective commitment, this research postulates that there may be a link between value congruence and innovation. Empirical evidence suggests that value congruence may be an antecedent to role innovation in a similar manner to the role played by affective commitment.

Hypothesis 4: There is a positive relationship between value congruence and role innovation.

Perceived Organisational Support

Organisational support forms part of the psychological exchange inherent in the employee-organisation relationship. An increase in support given by the organisation has been shown to increase the likelihood of positive reciprocal action by the employee (Eisenburger, Armeli, Rexwinkel, Lynch & Rhoades, 2001). The literature surrounding POS theorises that POS creates a feeling of indebtedness in the employee who responds through increased affective commitment (Eisenburger et al, 2001). This is corroborated by research which indicates that POS creates a sense of obligation in the employee to return the amount of care and to go beyond that which was formally required to help the organisation achieve its stated objective (Eisenburger et al, 2001). While some evidence has been found to link POS with high discretion job conditions (Eisenburger, Cummings, Armeli & Lynch, 1997) and superior extra role performance (Lynch, Eisenburger & Armeli, 1997), the relationship with job satisfaction is less clear (Eisenburger et al, 1997).

The relationship between perceived organisational support (POS) and role innovation has been discussed under the review of individual innovation. The action of

reciprocal effort that occurs under conditions of POS has been shown to extend to role innovation. (Eisenburger et al, 1990). This may inter-link closely with the increase in affective commitment and extra role behaviour which are also consequences of positive POS (Lynch, 1997). The emotions of obligation and indebtedness felt by the employee under conditions of POS increase their contribution towards the objectives of the organisation. Where role innovation is able to facilitate this, it is likely that it will occur. Finally, this relationship between role innovation and POS is corroborated by the work of Amabile et al (1996) who included POS in the KEYS questionnaire under the auspices of organisational encouragement. This questionnaire sought to assess the work climate for creativity.

Hypothesis 5: There is a positive relationship between perceived organisational support and role innovation.

Perceived Supervisory Support

The relationship between perceived supervisory support (PSS) and role innovation has been extensively discussed in the section referring to individual innovation.

The importance of PSS in relation to role innovation has been shown through a variety of research starting with the seminal work by Kimberley and Evanisko (1981) through to the KEYS instrument developed by KEYS to assess the workplace for creativity. PSS has in particular been linked to role innovation under conditions of health care (West, 1989), technology adoption (Kimberley & Evanisko, 1981) and R&D (Scott & Bruce, 1994).

PSS provides a smaller, more intimate reciprocal work relationship than POS yet the impact in relation to role innovation appears to be similar. The supervisor is uniquely placed to provide clarity to organisational goals, communicate organisational values and provide feedback on performance. Amabile et al, (1996: 1164) describes the encouraging supervisor as being one who “serves as a good work model, sets goals appropriately, supports the work group, values individual contributions and shows confidence in the work group”.

Using these findings as the guide for this hypothesis it can be stated that:

Hypothesis 6: There is a positive relationship between perceived supervisory support and role innovation.

Intrinsic/ Extrinsic Motivation Orientation (Moderator)

The influence of intrinsic motivation on role innovation has been addressed in the previous chapter under the ambit of individual innovation. As was indicated there, intrinsic motivation has been proven to directly increase role innovation., while extrinsic motivation has a more complicated but generally negative impact on role innovation. The strength of the evidence linking motivation orientation and role innovation indicates that it is an important moderator in any study concerning the attitudes of the individual in relation to their innovation.

Intrinsic motivation is the desire to engage in a task simply for the pleasure or satisfaction received (Collins & Amabile, 1999). The primary motivation is neither financial, nor any other contracted for reward. Intrinsic motivation has been found to be a powerful precursor to role innovation in the workplace (Collins & Amabile, 1999; Sansone, Weir, Harpster & Morgan, 1992). Even the subtle introduction of implied intrinsic motivation has been shown to increase both the amount and quality of role innovation. Extrinsic motivation refers to the completion of a task primarily for an expected reward. It may include orientations towards money, competition, recognition or the expectations and needs of other people (Amabile et al, 1994).

Extrinsic motivation has been investigated through research designs including the manipulation of financial rewards (Eisenberger & Armeli, 1997) or the threat of expected performance evaluation (Amabile, Goldfarb & Brackfield as cited in Collins & Amabile, 1999). The expectancy of external reward has been consistently shown to decrease creativity, although the degree of influence depends upon the amount of intrinsic motivation already in existence and the extent to which attention is split between the task

and the expected reward (Amabile, Hennessey & Grossmand, 1986; Collins & Amabile, 1999; Eiseinberger & Armeli, 1997). In addition the two forms of motivation have been shown to be fairly stable orientations (Amabile, Hill, Hennessey & Tighe, 1994). In summation intrinsic motivation encourages creativity at work while extrinsic motivation decreases work creativity but within a greater number of moderating variables.

Hypothesis 7a: Respondents who record positive links between PEOR factors and role innovation will also report high intrinsic motivation.

Hypothesis 7b: Respondents who record negative links between PEORE factors and role innovation will also report high extrinsic motivation.

This section has examined all the constructs falling under the auspices of the perceived employee- organisation relationship in relation to role innovation and stated all resulting hypotheses. The dissertation will now proceed to the method of the actual research. This will be outlined in Chapter four.

Chapter Four: Methodology

This chapter is concerned with the presentation of the methodology employed during the study. The chapter begins with an outline of the preliminary investigation concerning the appropriateness of the chosen measures and approach and continues with an overview of the methodology of the quantitative empirical research. This includes an overview of the organisational and environmental context, as well as a description of the sample, procedure, and instruments employed.

Preliminary Investigation

The majority of research into innovation has been conducted in the United States of America or Europe using structured questionnaires (Abbey & Dickson, 1983; Janssen, 2000; Scott & Bruce, 1994). One of the aims of this research was to assess the appropriateness of using existing measurement scales in the South African context. In order to be able to obtain insight into the nature of role innovation in the SA context and to obtain meaningful results, a preliminary qualitative investigation was conducted. Kitchell (1995), King and Anderson (1990) and Romano (1990) advocated this approach and argued that innovation researchers need to use mixed methods (qualitative and quantitative) when the innovation construct or context are not fully understood.

In the preliminary investigation, the sample consisted of eight R & D professionals employed in a medium-sized weaponry R&D organization. The eight participants were identified by their Human Resource Officer as being willing and informed enough to participate. These respondents completed the full questionnaire (See Appendix C) in addition to an Exploratory Questionnaire (see Appendix A). They also received a covering letter (Appendix B). The Exploratory Questionnaire was designed to provide feedback on the questionnaire and yield insight into role innovation in the South African workplace. It also provided practical feedback on the perceived level of intrusion of the questions and possible areas of ambiguity. With one exception, none of these respondents found the questions intrusive or ambiguous. The single concern raised related to the possible loss of anonymity inherent in giving examples of personal innovation. In response to this additional measures were taken to reassure respondents that their identity was secure. These included distributing questionnaires in blank envelopes and providing

a sealed collection box. No negative feedback was forthcoming in connection with wording, structure, layout, or content of the innovation instrument itself.

The qualitative information obtained during this preliminary research will be further discussed in Chapter six in relation to the results obtained in Chapter five.

Quantitative Research

Contextual issues

In considering the context of the empirical research, two basic elements are taken into consideration, the context of the organisation and the broader environmental context within which the organisation is located.

Organisational Context

The subject organisation is a medium size industrial concern in the electronics industry. Its primary business is the development and manufacture of electronic smoke detecting and fire fighting equipment. The organisation is one of only two smoke detection system manufacturers in South Africa. The organisation is thirty two years old. It has adopted a deliberate strategy of investment in research and development. The organisation has recently undergone a number of changes. Two years ago it was sold by the family who began it and bought by a large multinational with a broad portfolio of business interests. This multinational is represented in thirty countries world-wide and has a diverse range of interests from vehicle component manufacturing to service solutions. The change in ownership impacted directly on individual employees. There has been a dramatic culture shift from a medium -sized family based concern to a profit and performance driven organisation. As a result working practises have become far more profit focused. For example, it was accepted practise for the line staff to bring books to read if there was not enough work to fill their shift. Now worker's shifts are shortened if there is less work, with resulting cuts in pay. This shift in the culture of the organisation was acknowledged by the Human Resources Department but proved to be more of a issue to employees than they had anticipated.

Environmental Context.

The subject organisation is located along an emerging arterial node of industrial development on the Cape Flats of the Western Cape. Prior to its take-over, it was professionally acknowledged as a leader in industrial relations in the local electronics industry. This, together

with its focus on a deliberate pattern of research and development, made the organisation an ideal candidate for innovation research. Three contextual issues should be noted.

The first is that South African organisations have no precedent of consistently innovative organisations (Notten, 2000). Unlike organisations in the United States who have role models in the form of DuPont and 3M to model their practises upon, there is no tradition for individual innovation within the culture of the South African workplace (Notten, 2000). Any attempt to create an organisational culture that values innovation and experimentation would be hindered by a broader national value system at odds with the deliberate cultural re-engineering.

The second contextual issue is that the factory floor workforce in the subject organisation is predominantly coloured, a historically disadvantaged population. Limited education opportunities have meant that coloured workers form large proportions of the factory floor staff in the Western Cape but have limited representation at management level. Limited local statistics make the problem difficult to quantify however the national statistics demonstrate the fundamental problem (See figure 4.1).

				African	Coloured	White
Senior Officials and managers				26.66%	8.25%	56.37%
Professionals				48.98%	8.62%	36.40%
Technicians and associate professionals				32.60%	10.26%	49.32%
Clerks				34.91%	14.81%	41.49%
Service workers				62.47%	11.39%	20.92%
Plant and machine operators and assemblers				73.25%	13.99%	6.98%
Elementary occupations				80.61%	15.65%	2.26%

Figure 4.1: Occupation by Race and Gender in South Africa (Annexure 1: Regulations to the Employment Equity Act).

Prospects of promotion in the post apartheid era have been hampered through the employment equity legislation that classifies coloured workers alongside blacks as part of the targeted disadvantaged group. The requirements of the Employment Equity Act are that the demographics of the workplace should aim to match those of the regional population (Employment Equity Act No.55, 1998). While this theoretically implies that the coloured population should benefit greatly in comparison to their current employment opportunities, ignorant application of the act has sidelined this grouping.

Unfortunately, it was simply impossible to request the respondents to record their race. Ten percent of the questionnaires had to be discarded, largely due to incomplete demographic

information. Many more potential respondents voiced their dissatisfaction with having to reveal information that they perceived to be sensitive or might indicate their identity. It could be foreseen that requesting racial categories would have resulted in an even lower usable response rate.

	W.Cape	Nat.Total
Employed	1374 174	9113 847
Unemployed	299 114	4671 647
Total	1673 288	13785 493

Figure 4.2: Economically active population of the Western Cape (Annexure 1: Regulations to the Employment Equity Act).

The third contextual factor that needs to be taken into account is unemployment. While the employment /unemployment ratios of the Western Cape are substantially better than the national ratio, 18% of the potentially economically active population of the Western Cape is unemployed (See Figure 4. 2). This is significant in terms of this research as the limited opportunities may complicate the employees' relationship with the organisation. For instance, the cost benefit analysis inherent in continuance commitment becomes more loaded and the employee may stay far longer than they would otherwise if outside employment opportunities were good. Similarly the importance of being intrinsically motivated by work may diminish in significance in comparison to the alternate scenario of long-term unemployment.

One moderator of contextual effects in this research is that the sample was controlled for lower education levels. The value congruence and innovation instruments in particular required a basic competence in English in order to be completed. The sample was therefore confined to those employees who have at least a school leaving certificate or equivalent.

Sample

Questionnaires were distributed to 150 employees at the subject organisation. Of these 57 returned the questionnaire, yielding a response rate of 35,3. However only 50 of these questionnaires were fully completed, the remaining 7 were discarded. This yielded a usable response rate of 33,3%. 19 ½ % (N=10) of the respondents were female and 80,½% (N =40) were male.

Gender	female 10	male 40					
Tenure	1 - 3 yrs 19	4 - 6 yrs 21	7 - 9 yrs. 4	4 - 10 yrs. 3	13 - 15yrs 1	15 yrs plus 2	
Age	21 - 25yrs 6	26 - 30yrs 13	31 - 35yrs 14	36 - 40 yrs 9	41 - 45yrs 4	46 - 50yrs 3	51yrs plus 1
Department	R & D 11		Production 21			Administration 18	
Education Level	Matric/equiv. 27		Post Matric Technical Dipl. 10			Degree 13	

Figure 4.3 : Details of Quantitative Sample

Procedure

Questionnaires were distributed and collected by a junior member of the Human Resources Department. Each questionnaire was distributed in a blank envelope to ensure that respondents could be confident of remaining anonymous. The distributor was instructed to assure the respondents that their responses were completely confidential and anonymous and that no individual questionnaire would be shown to any member of the organisation. In addition, a collection box with a postal slot was used to collect the questionnaires, thus preventing them from being viewed by the organisation. The distributor was also requested to make it known that participation was voluntary. A contact telephone number was provided on the questionnaire. Four respondents made use of this facility primarily for assurance of the confidentiality of their responses.

Measures

The questionnaire consisted of a total of ninety-seven items all of which required the response to be recorded using a five point Likert format. For a sample of the questionnaire please see Appendix (C).

Role Innovation.

Role innovation was measured using a Janssen's (2000) 9 item scale of innovation presented in a 5 point Likert format (1 = rarely, 5 = often). Three open-ended questions were inserted so as to increase the reliability of this self report information and to minimise the danger of response biases. These questions were designed to capture the three components of role innovation as conceptualised by the original instrument; idea generation, idea promotion and idea realisation (Scott & Bruce, 1994). A Cronbach alpha of .95 has been obtained for this scale

(Janssen, 2000). Further details of the research from which the instrument has been derived have been given in chapter two.

Organisational Commitment

Each of the forms of the three forms of organisational commitment were measured using the 18 item scale developed by Meyer, Allen & Smith, (1993). In this instrument six items are allocated to affective commitment, continuance commitment and normative commitment respectively.

Affective Organisational Commitment (items 34 - 39). This scale has been widely used in the field and has median reliabilities across many scales of .85 (Allen & Meyer, 1993). A Cronbach Alpha of .82 has been reported on this scale (Meyer et al, 1993)

Continuance Commitment (items 40 - 45). This scale has been shown to have a median reliability of .79 (Allen and Meyer 1996) A Cronbach Alpha of .74 has been reported on this scale (Meyer et al, 1993)

Normative Commitment (items 46 - 51). A Cronbach Alpha of .83 has been reported on this scale (Meyer et al, 1993). For details of the studies with which these Cronbach Alphas were obtained please refer to Chapter Three.

Value congruence (items 1 - 24 and 52 - 75)

Value congruence was measured using the 24-item instrument designed by McDonald and Ganz (1992). This instrument consists of 24 items which the respondent is required to rate according to a 5 point Likert scale (1 = Completely unimportant, 5 = Very Important). The list of values is presented twice, once in relation to the respondents own values and secondly in relation to their perception of the organisation's values. In McDonald and Ganz (1992) a test retest reliability of .76 was recorded. In this research, the value lists were not presented consecutively but rather split by the role innovation and organisational commitment measures. This avoided the potential danger of respondents rating the organisation's values in terms of their own rather than as a separate entity.

Perceived organisational support (items 84 - 89)

This construct was measured using selected items from the Survey of Perceived Organisational Support (Eisenburger et al, 2001). Six items with the highest factor loadings in Eisenberger et al's (1990) study were isolated and included in this questionnaire. Previous

research using this scale has yielded Cronbach alphas of .97 (Eisenberger et al, 1990) and .90. (Eisenberger et al, 1997). There are several studies evidencing the reliability and validity of the Survey of Perceived Organisational Support (e.g. Eisenberger et al 1990, 1997).

Perceived Supervisory Support (items 90 - 97)

The items measuring perceived supervisory support were selected from the composite scale of supportive supervision designed by Oldham and Cummings (1996). This instrument has received a Cronbach Alpha of .86 by Oldham and Cummings (1996). As a factor of a larger scale, these items achieved an eigenvalue of 4.57 (Oldham and Cummings, 1996).

Intrinsic/Extrinsic Motivation (items 76 - 83)

Sections of the Work Preference Inventory(WPI) were used to assess the motivation orientation of the respondents (Amabile et al, 1994). This research was concerned specifically with whether the respondents were primarily motivated in either an intrinsic or extrinsic manner. For this purpose the four items with the highest factor loadings relating to intrinsic and extrinsic motivation were included. They are measured using a 5 point Likert scale (1 = strongly disagree, 5 = strongly agree). In the original WPI context, intrinsic motivation yielded a Cronbach Alpha of .75 and extrinsic motivation of .70. they also yielded a test retest reliability (n = 36 mnths) of .89 and .80 respectively (Amabile et al, 1994).

Description of Statistical Techniques

The data obtained through the survey research described in this chapter will be subjected to analysis using a variety of statistical techniques. While the results of this analysis will be presented in the following chapter, it is useful to present a list of these statistical techniques and the reason for their use. These techniques are ordered and designed to extract findings that are both reliable and robust.

1. Factor Analysis

The variables upon which this research is based are composed a variety of subscales, some of which are closely linked in their measurement. Normative, affective and continuance commitment are subscales of a composite instrument as are the scales for intrinsic motivation and extrinsic motivation. The Role innovation scale also consists of three distinct components,

which measure different aspects of the construct. Factor Analysis allows the researcher to assess the appropriateness of the use of particular scales by detecting thematic trends across individual items (Rosnow & Rozenzthal, 1999). Furthermore, Factor Analysis guides the researcher in editing the scales until only the one clear intended theme emerges. This serves to increase the construct validity of the research (Rosnow & Rozenzthal, 1999).

2. Cronbach Alpha Reliability Procedure:

The Cronbach Alpha is a generalised reliability procedure which yields a composite indicator based on the analysis of the variance of the test items. The more homogeneous the items of the subscale are, the higher the composite internal consistency (Rosnow & Rozenzthal, 1999). The acceptability of the Cronbach alpha is determined according to precedents achieved using the subscales in other research. This provides a point of comparison for the later discussion of findings and the replication of research.

3. Correlation Analysis

The second technique to be used will be to correlate all relevant variables within a single framework. For this purpose, the variables will be correlated to produce Pearson's correlation coefficients from which statistical significance will be assessed. This provides a primary indication of probability value, i.e. the existence of a relationship between two of the variables (Allen and Meyer, 1990). Correlation coefficients will be evaluated as significant at the p-value of less than or equal to .05%. Behavioural researchers commonly use this as a basis for deciding whether to reject the null hypothesis (Rosnow & Rozenzthal, 1999).

For the purpose of this research the patterns relevant in the correlation matrices are those observed between the variables of the PEOR and individual role innovation. However the correlation matrix will include correlations between all the variables in order to detect possible evidence of multicollinearity (see next section). The correlation matrix presents an index of the strength of association between the variables. However, it does not give an indication of causality or any other relationship dynamic.

4. Regression Analysis

Regression analysis allows the researcher to assess the amount of variance explained in Role Innovation by particular PEOR variables (Rosnow & Rozenzthal, 1999). For instance, should a statistically significant relationship be found to exist between Intrinsic motivation and Role Innovation (Idea generation), then regression analysis will help calculate the level of the latter according to the score on the former. It is important that the correlation matrix be done prior to

the regression analysis in order to ensure that the relationships which are examined have an acceptable baseline level of significance (Howell, 1998).

5. One – way ANOVA

ANOVA (analysis of variance) is a statistical technique for testing the differences in the means of several different groups (Howell, 1998). Due to the size of the sample, this research is restricted to the use of one-way ANOVA, where the groups are defined according to one independent variable (Keohane and Verba, 1994). As with the regression analysis the ANOVA will only be conducted on those relationships found to have statistically correlation coefficients. The relevant PEOR factor will be broken down into equal groupings according to the scores achieved (i.e. high, medium or low) to assess whether the population of scores obtained under one grouping has a mean greater or less than that obtained under another condition (Rosnow & Rozenenthal, 1999).

The intended outcome of this research requires that the factors of the PEOR be specifically analysed in terms of their relationship to the single variable of innovation. Given this and the small sample size, this technique is appropriate for this research. If the data does not meet the assumptions of ANOVA (such as normality) then non-parametric tests will be conducted.

6. Tests for Nonparametric Means

The technique of one- way ANOVA makes a number of assumptions about the data that may not be true. It assumes that the observations are normally distributed and that each grouping of scores has the same variance (Howell, 1998). The Kruskal – Wallis test for non – parametric means has been selected as it does not assume that the populations are normally distributed nor that they have similar variances (Van den Horne, 1999). It will further minimise the chance of the researcher making a type B error of rejecting the null hypothesis without due reason (Rosnow & Rozenenthal, 1999).

This chapter has provided an overview of the methodology of the empirical component of this research. Attention has been drawn to the organisational and contextual factors that may influence the outcome of the research. In addition, the preliminary stages of the research have been presented. Finally, the sample, procedure, and instruments contained in the questionnaire have been presented, as have the statistical techniques through which the data obtained in the survey research will be analysed. The next chapter will present the results of the study.

Chapter 5

This chapter will present the statistical analysis of the data resulting from the quantitative component of the study outlined in Chapter Four. The primary objective is to set the groundwork for future research in South Africa. The qualitative stage of the research provided some insights into the manner in which the respondents might approach the innovation instrument. The purpose of this chapter is to present the findings of the survey research and the manner in which they analysed.

The statistical analysis of the quantitative data will follow the analysis procedure presented in the Chapter 4:

1. Factor analysis
2. Cronbach Alpha generalised reliability indicators
3. Correlations using Pearson's probability value
4. Regression Analysis
5. One Way Analysis of Variance
6. Kruskal - Wallis test for Non – Parametric Means.

1. Factor analysis

As indicated in Chapter 4, factor analysis provides a means of ensuring that the subscales of the PEOR act as independent, unified measures of their own particular constructs. This is particularly important with regards to those constructs which are closely linked, for example the three forms of commitment. This has been discussed in Chapter 4. The only scale on which factor analysis was not conducted was the Value Congruence instrument. Due to the design of the instrument whereby each item reflects a separate value, factor analysis was inappropriate (Finnegan, 2000).

a. Role Innovation: Janssen's (2000) 9 item scale of role innovation.

Factor analysis (Figure 5.1e) revealed weaknesses in subscale 2 and 3.. Through the removal of items 4 and 8, the factor loadings were contained to two themes. The first is the subscale of idea generation (items 1 to 3) and second it a combined theme of sub scales 2 and 3 into a single theme of idea promotion and realisation.

The possible reasons as to why the first sub scale (idea generation) of the role innovation instrument proved to be statistically stronger will be examined in Chapter Six.

Extraction: Principal components		
(Marked loadings are > .700000)		
	Factor	Factor
	1	2
INNOV1	0.126642	0.883135
INNOV2	0.052967	0.76589
INNOV3	0.29573	0.733125
INNOV5	0.823954	-0.12555
INNOV6	0.776817	0.2104
INNOV7	0.68341	0.339752
INNOV9	0.751904	0.257337
Expl.Var	2.421053	2.145672
Prp.Totl	0.345865	0.306525

Figure 5.1: Manipulated Factor Loadings of Innovation Instrument (Varimax normalised)

b. Commitment Measures: Meyer, Allen and Smith's 18-item scale (1993)

As can be seen by the table below, the initial analysis revealed that items of the three commitment constructs of affective, continuance and normative commitment were clustering around five themes. This has been previously recorded in commitment research most notably by McGee and Ford (as cited in Meyer et al, 1989). Strategic editing of the items produced a clear continuance commitment theme (See figure 5.4). The affective commitment scale was reduced to items 1,3,4 and 5. The continuance commitment scale was reduced to items 4 and 6. The normative commitment scale was reduced to items 2,3 and 6. The weaknesses of the normative commitment scale has been noted by Allen and Meyer (1990).

Factor Loadings (Varimax normalized) (ziton.sta)

Extraction: Principal components

(Marked loadings are > .700000)

	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5
AC1	0.747553	0.24143	0.033815	0.085824	-0.04837
AC2	0.459098	0.04366	-0.16575	0.478914	-0.25814
AC3	0.804947	0.017002	-0.05202	-0.01781	0.082152
AC4	0.838593	0.034429	0.143702	-0.06409	0.135931
AC5	0.629884	-0.03026	0.181674	0.081248	0.253624
AC6	0.679551	0.203347	-0.1113	0.343394	-0.06152
CC1	0.2343	0.632723	0.323199	-0.12552	0.00022
CC2	0.423092	0.176777	0.473381	-0.01209	0.554933
CC3	0.285488	0.526204	0.414969	0.063343	0.346936
CC4	0.082364	0.117987	0.85814	-0.09083	0.079144
CC5	0.383536	-0.09217	0.545694	0.187685	-0.17656
CC6	-0.22967	0.142827	0.709181	0.071981	-0.12069
NC1	-0.05373	-0.10331	0.289969	-0.31751	-0.74123
NC2	0.020307	0.835863	-0.02678	0.210457	0.143437
NC3	0.033773	0.859751	-0.0051	0.223822	0.019797
NC4	-0.01567	0.029111	0.088175	0.828935	0.177881
NC5	0.201464	0.243218	-0.05021	0.71589	0.31825
NC6	0.021657	0.506263	0.184119	0.627525	-0.12996
Expl.Var	3.54711	2.620048	2.264256	2.222859	1.362834
Prp.Totl	0.197062	0.145558	0.125792	0.123492	0.075713

Figure 5.2 Initial factor loadings of Commitment items

Factor Loadings (Varimax normalized)

Extraction: Principal components

(Marked loadings are > .700000)

	Factor 1	Factor 2	Factor 3
AC1	0.73945	0.208575	-0.10468
AC3	0.819297	0.01753	-0.07866
AC4	0.901594	-0.00905	0.129908
AC5	0.731754	0.036811	0.10997
CC4	0.178025	0.052587	0.869409
CC6	-0.13566	0.119781	0.868553
NC2	0.0755	0.879339	0.012684
NC3	0.063807	0.892358	0.031874
NC6	0.054824	0.746972	0.151047
Expl.Var	2.629245	2.189868	1.580362
Prp.Totl	0.292138	0.243319	0.175596

Figure 5.3 Factor Analysis of Commitment scales post editing.

C: Perceived Organisational Support and Perceived Supervisory Support :Eisenburger et al's (2001) 6 item scale

Items OS 5 – 8 appeared splintered over a number of themes. Unlike OS 1 – 4 they consider support in terms of tangible aspect such as contribution and loans.

Factor analysis indicated the need to edit item SS7 (see figure 5.6), which seemed to load on an independent theme. This item was also the only reversed scored item in this scale.

Extraction: Principal components		
(Marked loadings are > .700000)		
	Factor	Factor
	1	2
OS1	-0.12424	0.838067
OS2	0.385556	0.722707
OS3	0.081458	0.812729
OS4	0.271637	0.836454
SS1	0.797668	0.113202
SS2	0.786825	0.183939
SS3	0.771131	-0.12321
SS4	0.869059	0.224505
SS5	0.810502	0.178046
SS6	0.826945	0.102354
SS8	0.721441	0.475917
Expl.Var	4.711015	2.965751
Prp.Totl	0.428274	0.269614

Figure 5.4: POS and PSS Factor Analysis

d. Intrinsic and Extrinsic Motivation: Work Preference Inventory (Amabile et al, 1994)

The Intrinsic motivation scale returned a clear theme on its first three items and only needed the four item to be edited. However factor analysis of the Extrinsic Motivation Scale revealed that the items were loading along two distinct themes (see figure 5.9). As there was no way of distinguishing between them, they were retained for further analysis as two grouped sub-scales, EM1 & 3 and EM 2 & 4.

Factor Loadings (Varimax normalized)			
Extraction: Principal components			
(Marked loadings are > .700000)			
	Factor	Factor	Factor
	1	2	3
IM1	0.904761	0.068846	0.209817
IN2	0.883244	0.182715	0.182384
IM3	0.912547	0.073275	0.131691
EM1	0.022456	0.820349	0.315558
EM2	0.212374	-0.00373	0.859554
EM3	0.200248	0.880961	-0.05053
EM4	0.173145	0.235727	0.791864
Expl.Var	2.547141	1.548139	1.562642
Prp.Totl	0.363877	0.221163	0.223235

Figure 5.5: Extrinsic and Intrinsic Motivation Factor Analysis

B. Cronbach Alpha Reliability Indicator

As the second stage of analysis, Cronbach Alphas were generated for the edited scales. The Cronbach Alpha gives a solid generalised indicator of reliability. By comparing it with previously with the Cronbach Alphas obtained in previous research using the same scales, it is possible to assess the reliability of the test findings in this particular study.

Role Innovation (idea generation)

Summary for scale: Mean=12.8627 Std.Dv.=2.07865 Valid N:51					
Cronbach alpha: .754493 Standardized alpha: ---					
Average inter-item corr.: 0.00000					
	Mean if	Var. if	Stdv. if	Item-Totl	Alpha if
	deleted	deleted	deleted	Correl.	deleted
INNOV1	8.725491	1.885429	1.373109	0.676622	0.557912
INNOV2	8.45098	2.208381	1.486062	0.524003	0.738858
INNOV3	8.54902	2.247597	1.499199	0.556484	0.702018

Figure 5.6: Cronbach alphas, means and Standard deviations for Innovation [idea generation subscale]

The idea generation subscale obtained a Cronbach alpha indicator of .75. Prior Cronbach Alpha values are not available for the role innovation subscales. However this indicator is significantly lower than the .95 obtained by Jannsen (2000).

Role Innovation (idea support and promotion)

Summary for scale: Mean=15.8824 Std.Dv.=3.12184 Cronbach alpha: .782338 Standardized alpha: .7858 Average inter-item corr.: .483263					
variable	Mean if deleted	Var. if deleted	StdV. if deleted	Item-Totl Correl.	Alpha if deleted
INNOV5	11.74510	5.601692	2.366789	0.557473	0.747426
INNOV6	11.88235	6.025375	2.454664	0.631380	0.712290
INNOV7	12.01961	5.783930	2.404980	0.566092	0.740627
INNOV9	12.00000	5.647059	2.376354	0.608838	0.718342

Figure 5.7: Cronbach alphas, means and Standard deviations for Innovation [idea support and promotion]

Affective Commitment

Summary for scale: Mean=12.5882 Std.Dv.=3.00783 Cronbach alpha: .816183 Standardized alpha: .8153 Average inter-item corr.: .534565					
variable	Mean if deleted	Var. if deleted	StdV. if deleted	Item-Totl Correl.	Alpha if deleted
AC1	9.784314	5.424068	2.328963	0.574583	0.798270
AC3	9.156863	4.955786	2.226160	0.659801	0.758495
AC4	9.607843	4.591311	2.142735	0.790034	0.689834
AC5	9.215686	6.208381	2.491662	0.543507	0.810565

Figure 5.8: Cronbach alphas, means and Standard deviations for Affective Commitment

Affective commitment demonstrated the highest reliability of all the commitment scales. The Cronbach alpha recorded is only slightly lower than the .82 obtained by Meyer et al, (1993) and significantly higher than that achieved by Meyer, Paunonen, Gellatly, Goffin & Jackson (1989)

Continuance Commitment

It was not possible to obtain a Cronbach Alpha for the modified scale as it contained less than three items.

Normative Commitment

Summary for scale: Mean=8.21569 Std.Dv.=2.58700 Cronbach alpha: .799836 Standardized alpha: .8029 Average inter-item corr.: .588964					
variable	Mean if deleted	Var. if deleted	StDv. if deleted	Itm-Totl Correl.	Alpha if deleted
NC2	5.490196	3.034218	1.741901	0.686686	0.681196
NC3	5.803922	3.177240	1.782481	0.728286	0.644240
NC6	5.137255	3.412534	1.847304	0.532790	0.844975

Figure 5.9: Cronbach alphas, means and Standard deviations for Normative Commitment

In this research, the normative commitment scale produced a Cronbach Alpha of .79. While this is still relatively strong, past Cronbach Alpha's have been higher; Meyer et al (1993) recorded a .83 and Allen and Meyer (1990) a .79.

Perceived Organisational Support

Summary for scale: Mean=13.1176 Std.Dv.=2.66569 Cronbach alpha: .837969 Standardized alpha: .8394 Average inter-item corr.: .575271					
variable	Mean if deleted	Var. if deleted	StDv. if deleted	Itm-Totl Correl.	Alpha if deleted
OS1	9.64706	4.149942	2.037141	0.606654	0.824625
OS2	10.09804	4.206074	2.050872	0.640845	0.807587
OS3	9.56863	4.206074	2.050872	0.679520	0.791133
OS4	10.03922	3.959247	1.989786	0.760650	0.754807

Figure 5.10: Cronbach alphas, means and Standard deviations for Perceived Organisational Support

The POS scale obtained a Cronbach Alpha of .83 in this research. This is lower than the .97 recorded by Eisenburger et al, 1990), the .95 recorded by McFarlane Shaore and Tetrick (1991) and the .90 recorded by Eisenburger et al (1997). The wording of this item "Ziton strongly considers my goals and values" is slightly different from the others in that it is the only item to link organisational support with an intangible aspect of the individual (values). However item OS4 did withstand the factor analysis where thematic differences would have further highlighted a departure from the theme.

Perceived Supervisory Support

Summary for scale: Mean=24.3725 Std.Dv.=6.18372 Cronbach alpha: .915645 Standardized alpha: .9164 Average inter-item corr.: .618251					
variable	Mean if deleted	Var. if deleted	Stdv. if deleted	Item-Totl Correl.	Alpha if deleted
SS1	20.64706	28.81661	5.368110	0.722129	0.905059
SS2	20.70588	27.38408	5.232980	0.744871	0.902670
SS3	21.09804	28.71588	5.358720	0.625158	0.915496
SS4	21.01961	26.80354	5.177213	0.849766	0.891239
SS5	20.70588	27.38408	5.232980	0.775610	0.899233
SS6	21.07843	27.28796	5.223788	0.759891	0.900981

Figure 5.11: Cronbach alphas, means and Standard deviations for Perceived Supervisory Support

This scale achieved a substantial .91 Cronbach alpha. This compares favourably with the .86 recorded by Oldham and Cummings (1996).

Intrinsic Motivation

Summary for scale: Mean=12.9412 Std.Dv.=2.03383 Cronbach alpha: .903868 Standardized alpha: .9149 Average inter-item corr.: .782235					
variable	Mean if deleted	Var. if deleted	Stdv. if deleted	Item-Totl Correl.	Alpha if deleted
IM1	8.568627	2.049212	1.431507	0.839787	0.846529
IM2	8.588235	2.085352	1.444075	0.821394	0.861357
IM3	8.725491	1.532487	1.237937	0.819351	0.885098

Figure 5.12: Cronbach alphas, means and Standard deviations for Intrinsic Motivation

The Cronbach Alpha of .90 is very high, particularly in relation to the .75 achieved by Amabile et al (1994) in the article in which the instrument was first presented. This is notable particularly as the scale used in this research was an abbreviated version.

Extrinsic Motivation

It was not possible to obtain a Cronbach Alpha for the Extrinsic Motivation modified scale as it contained less than three items.

Value Congruence

The scale of value congruence yielded a Cronbach Alpha of .912. This compares extremely favourably with the range of .7 to .89 recorded by Finnegan (2000). Finnegan (2000) used separate Cronbach Alphas for own values and organisation's values. However by summing the difference of the two scores, it was possible to create a single score for each individual reflecting the degree of distance between their values and the organisation's values.

3. Correlation Analysis

This study sought to examine the relationship between the perceived organisation – employee relationship and the role innovation of the individual worker. Pearson's linear correlations provide a means of determining the extent to which these variables are proportional to each other

Given that $n-2 = 48$, the appropriate significance indicator at the generally accepted level of .05 would be .28 (Roznow & Rozenhal, 1999). The .05 demarcation point has been accepted by behavioural researchers as a reasonable level of risk for whether or not to reject the null hypothesis and accept the hypothesis where one variable does impact at a level so as to indicate some relationship (Howell 1989). The .05 indicator also has a precedent for use in organisational commitment research most notably Allen & Meyer (1990) and Meyer, Paunonen, Gellatly, Goffin & Jackson (1989) as well as in value congruence research (Meglin, Ravlin & Adkins, 1992). Thus according to the sample size, the correlation coefficient should be greater than .28 in order to be considered significant.

A note of caution should also be added in relation to multicollinearity. Multicollinearity occurs when the predictors are highly correlated with each other. The close relationship between some of the predictors including affective commitment, continuance commitment and perceived organisational support has been previously noted (McFarlane Shore & Tetrick, 1991). This has been mentioned in the previous chapter.

With regard to the hypotheses as outlined in Chapter Three, the following results were evident following the Pearson's Correlation analysis (see figure 5.10):

Hypothesis 3: There is a negative relationship (- .328) between normative commitment and role innovation (idea generation). Thus the null hypothesis that there is no relationship between these two variables is rejected.

Hypothesis 7:

a. There is a positive relationship (.302) between intrinsic motivation and role innovation (idea generation). Thus the null hypothesis is rejected.

b. There is a positive relationship (.370) between intrinsic motivation and role innovation (idea support and realisation). Thus the null hypothesis is rejected For all other correlations between the two role innovation subscales and the factors of the PEOR no significant correlations were observed. Therefore, the null hypotheses were accepted in all other cases except hypotheses 3 and 7a and b.

4. Regression analysis

For each of the correlations found to have significant p values in the correlation matrix, a regression analysis was conducted. The regression equation is a linear analysis producing forecasted criterion scores of the selected relationship (Rosnow & Rozenhal, 1999). For instance, in this particular study, regression analysis will allow the researcher to predict the incremental increase in role innovation according to the score achieved on the intrinsic motivation. It is pertinent to use regression analysis in this research given the firm theoretical foundation upon which the link between role innovation and intrinsic motivation is based (Amabile et al, 1996).

	AC	CC	NC	IM	EM13	EM24	SS	OS	TEN	VC	VC1	IDEA GEN	PROM REAL
AC	1	0	-0	0.231	0.28	-0.18	-0.08	0.15	0.11	-0.22	-0.13	-0.01	0.22
CC		1	-0	0.054	0.163	-0.1	0.09	0.41	-0.11	-0.25	-0.36	0.02	-0.09
NC			1	-0.25	0.072	-0.16	-0	-0.03	0.37	0.12	0.18	*-0.32	-0.08
IM				1	-0	0	-0.15	0.14	0.03	0.19	0.08	*0.30	*0.37
EM13					1	0	-0.13	0.28	0.16	-0.29	-0.16	0.02	-0.03
EM24						1	-0.06	-0.05	0.14	0.13	0.08	0.10	0.04
SS							1	0	-0.08	-0.28	-0.22	-0.12	0.05
OS								1	-0.03	-0.41	-0.34	0.05	0.16
AGE									0.27	-0.11	-0.11	0.15	0.16
TENURE									1.	0.14	0.27	0.02	0.04
VC										1.	0.84	0.01	0.02
VC1											1.	-0.05	0.06
IDEAGEN												1.	0.00
PROM REA													1.

* $p > 0.28$ (significance Level using .05 as indicator in Pearson's probability values)

Figure 5.14: Correlations of Role Innovation and PEOR variable

The finding that there is a negative relationship between role innovation (idea generation) and normative commitment was confirmed through regression analysis (see figure 5.11). So too was the relationship between intrinsic motivation and idea promotion & realisation (see figure 5.12).

Regression Summary for Dependent Variable: IDEA_GEN (ind.sta)						
R= .32790832 R ² = .10752387 Adjusted R ² = .08931007						
F(1,49)=5.9034 p<.01882 Std. Error of estimate: .95430						
		St. Err.		St. Err.		
	BETA	of BETA	B	of B	t(49)	p-level
Intercept			1.19E-15	0.133629	8.88E-15	1
NC	-0.32791	0.134959	-0.32791	0.134959	-2.4297	0.018822

Figure 5.15: Regression analysis of Innovation (Idea gen.) and normative commitment

Regression Summary for Dependent Variable: PROM_REAL (ind.sta)						
R= .36960924 R ² = .13661099 Adjusted R ² = .11899080						
F(1,49)=7.7531 p<.00760 Std. Error of estimate: .93862						
		St. Err.		St. Err.		
	BETA	of BETA	B	Of B	t(49)	p-level
Intercept			-2.3E-15	0.131433	-1.7E-14	1
IM	0.369609	0.132741	0.369609	0.132741	2.784438	0.0076

Figure 5.16 Regression analysis of Idea support and realisation and Intrinsic motivation

5. Tests for non parametric means

It was not possible to use ANOVA given the nature of the data and the Kruskal-Wallis test was therefore used. This test is a non parametric statistical technique analogous to a standard one way analysis of variance (Howell, 1989). It can be used where there are three or more samples to test the null hypothesis that the different samples in the comparison were drawn from distributions with the same median (*Statistica* 6.0). It is appropriate for this data due to the fact that it does not assume that the populations are normally distributed nor that they have similar variances (Van den Horst, 1999). The Kruskal – Wallis test is superior to ANOVA for this data set because it works with specific population means and is thus able to indicate which means differ from the rest (Miller, 1984). Standard techniques of transformation include Bartlett's, Hartley's and Cochran's tests, however each of these is extremely sensitive to

departures from normality (Miller, 1984). In order to conduct the Kruskal – Wallis test the scores are ranked and then summed. Following the calculation, the value attained is compared to a set of critical values for given levels of significance (Van den Horst, 1999). The hypothesis that the means of the population are identical is rejected if the calculated value of H is greater or equal to the table value of H.

Using this test, the correlation between the second sub –scale of innovation [idea support and realisation] and intrinsic motivation stayed significant (figure 5.15). The correlation between the first innovation sub-scale [idea generation] and intrinsic motivation did not remain significant (see figure 5.16).

Promotion and realisation			
Kruskal-Wallis ANOVA by Ranks (anova.sta)			
Independent (grouping) variable: GIM			
Kruskal-Wallis test: H (2, N= 51) = 14.71441 p =.0006			
	Valid	Sum of	
Code	N	Ranks	
IM med	101	17	452
IM low	102	17	271
IM high	103	17	603

Figure 5.17 Kruskal – Wallis test between Innovation (Idea Promotion and Realisation) and Intrinsic motivation

Inov Gen			
Kruskal-Wallis ANOVA by Ranks (anova.sta)			
Independent (grouping) variable: GIM			
Kruskal-Wallis test: H (2, N= 51) = 1.454341 p =.4833			
	Valid	Sum of	
Code	N	Ranks	
IM med	101	17	497
IM low	102	17	393
IM high	103	17	436

Figure 5.18 Kruskal Wallis test between Innovation (Idea Generation) and Intrinsic Motivation

Conclusion

This chapter has presented the statistical analysis and findings derived from the data generated in the empirical component of this research. It focused specifically on those relationships that emerged in relation to role innovation. Further discussion of these results will continue in the following chapter where cognisance of the context and the qualitative information generated will be taken.

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CHAPTER SIX

This dissertation has explored the relationship between the employees perceived relationship with their employer and the impact that this has had on their individual innovation. The exploratory empirical research conducted was designed so as to include a quantitative survey preceded by a qualitative preliminary investigation of the construct of role innovation and the instruments utilised in the quantitative analysis. It has done this within the unique context of the South African workplace; a context within which little similar research has been conducted (Notten, 2000). The experience of the South African worker brought external influences into established relationships and produced results which, while reliable and valid, were significantly different in part from that which might be predicted from previous research.

This chapter will draw together the results obtained and discuss their implications in light of the review presented in chapters two and three. It will examine the possible reasons for the results obtained and examine the strengths and weaknesses of the empirical research. As a final point in the discussion a critical analysis concerning the implications of this research for future South African innovation study will be conducted.

A Summary and Explanation of the Empirical Results

An Analysis of the Success of the Role Innovation Instrument.

The first aim of this research was to conduct statistically sound quantitative research with a South African sample. Janneson's (2000) scale of individual innovation proved to be a reliable measure of individual innovation, however there were mixed results between the three sub-scales. The first sub scale (idea generation) proved to be statistically robust, however the other two sub-scales (idea promotion and idea realisation) had to be combined into a single sub-scale to maintain the integrity of the analysis. This indicated that the idea of being innovative and the nucleus of individual innovative action was more prevalent than the actual carry through into practical

application or final product. Part of an explanation for this can be found in the qualitative information yielded in the preliminary investigation.

In the responses given on the Exploratory Questionnaire, not single negative indication of individual innovation was given. All agreed that it was important to their work, either for the organisation or their clients. The respondents in the preliminary investigation commended the value of investigating individual innovation. They indicated that role innovation was fundamental to achieving group innovation as it was this that created a baseline for innovative team work and set the norm for work behaviour. Part of its importance was its aspect as a facilitating behaviour in work groups: *"I think innovation is something that 'rubs off' and cannot easily be taught, like enthusiasm. Therefore individual innovation is important to gain group innovation"*. Innovation is perceived by the respondents as being a shared responsibility of the individual and the organisation; one respondent stated that *"where individuals are innovative and [innovation is] seen as part of their tasks, then it is the responsibility of an organisation to provide the correct framework to make maximum benefit of that innovation"*. The individual can take an innovative idea to as far as possible within the limitations of the organisation but it is the responsibility of the organisation to encourage and nurture the actions of the their individual employees. Thus there may be far more ideas used than generated not only due to natural attrition but also possibly due to the abdication of personal responsibility for ensuring that the ideas reach fruition. This may in part be a function of the form of innovation required of the worker. One respondent stated that: *"the [South African] R&D environment is more slanted to the development side, which requires less responsibility."*

Thus the onus for innovative ideas to be promoted and realised is seen as a combined function of the individual and the organisation. This external variable may be the cause of the thematic congruence and relative weakness of those sub-scales in comparison to that of Idea Generation.

The application of the role innovation instrument presupposes that the individual worker has the opportunity to be innovative. The questions as to whether South African R&D workers had enough opportunity to be original received a mixed response in the preliminary research. In response to question 8: "In your experience, does the average South African R & D worker have the leeway to be original?" one wrote: "*Yes but innovation must be promoted and defended in the least threatening manner which places burdens on free thinking individuals*". Another responded to the same question with: "*To a limited extent, [the SA worker] normally has a high workload and [is] subjected to stringent deadlines and customer requirements*". The mean level of role innovation reported in the survey was 37 out of a possible 45. Given the difficulties experienced with the idea realisation and promotion sub scales during the analysis of the survey data, it is clear that some external variables have influenced the respondents to record possibly unrealistically high responses. This observation is supported by the fact that many respondents failed to fill in the open ended questions which required them to give examples of their innovative behaviour. While these questions were superfluous to the statistical analysis, they were intended to provide corroboration of the reported behaviour. Kimberley (1981) indicated that innovation is a quality which is deemed to be socially desirable. Consequently self report innovation measures may produce results which are an over-exaggeration of the individual's innovative ideas and activities (West, 1989).

One way in which the social desirability factor may have been contained was that the scale used in this study does not include intention to be innovative. The strength of this is that it increases the validity of the research by measuring innovativeness in relation to concrete behaviours (Ettlie and O'Keefe, 1982). It thus limits the influence of social desirability factors which may come into play during the self report of own innovativeness.

The Relationship between Role Innovation and Normative Organisational Commitment

Normative commitment refers to the employee's feelings of obligation to remain with the organisation due to an internalised moral obligation of loyalty (Allen & Meyer, 1990, Meyer, Allen & Topolyntsky, 1999).

In this empirical research, a significant negative relationship was found to exist between normative commitment and the idea generation component of role innovation. From a purely rational deductive perspective this makes sense. An individual who is committed to the organisation because they believe that such commitment is a moral duty are unlikely to feel enthused to challenge and expand on their role in the organisation. This is corroborated by the lack of evidence to show that normative commitment translates into positive work behaviour (Butler and Vodanovich, 1992).

Meyer and Allen (1991) suggest that normative commitment may result in beneficial outcomes only when the employee perceives that they are indebted to the organisation. When the obligation is repaid, the beneficial outcomes cease. The changes in the subject organisation with regards to an increased emphasis on production and efficiency at the expense on employees, may have created work conditions where the employees no longer feel a moral obligation to reward the organisation with good labour. For employees who have been employed in the subject organisation for more than two years, the psychological contract changed unilaterally. The attitude of the new owners of the subject organisation is perceived by the workers as being more concerned with profits at the expense of workers. This contrasts with the 'family business' atmosphere of the previous owners. Through this shift, the organisation unilaterally changed the psychological contract from relational to transactional (Millward & Hopkins, 1998; Robinson, 1996; Robinson, Kraatz, & Rousseau, 1994), a shift which may have caused to employees to feel as if their indebtedness to the organisation had come to an end. The results indicate that possibly it is these individuals, whose sense of obligation to the organisation has ended, which are the lower role innovators.

Evidence of the validity of the normative commitment scale is strengthened by the strong relationship found between this construct and tenure. This finding with regard to tenure corroborate that found by O'Reilly and Chatman (1986).

The Relationship between Role Innovation and Intrinsic Motivation

The results of this research found a strong relationship between intrinsic motivation and both the idea Generation and Idea Promotion and Realisation sub-scales. This finding is particularly important. Of all the relationships hypothesised, it is this one which has the most evidence in its favour. Through the work of (Amabile, 1990, 1998; Amabile et al 1996; Amabile et al 1994; Amabile, Hennesy & Grossman, 1986; Collins & Amabile, 1999; Sansone, Weir, Harpster & Morgan, 1992), the relationship between role innovation and intrinsic motivation has been proven numerous times in a wide range of settings. The finding of this relationship further strengthens the validity of this research. It indicates that the innovation element of the research was strong and that the external factors need to be taken into account when analysing the small range of correlations which were found with other factors.

Interestingly, the relationship between role innovation and intrinsic motivation was stronger for the Idea Promotion and Realisation subscale than for the Idea Generation subscale. This is surprising given that even the indication that external reward would be forthcoming, could weaken the positive impact of intrinsic motivation in innovation (Collins & Amabile, 1999). One would expect that the stronger relationship would be with Idea Generation where the possibility of external reward and recognition is less remote (Sansone, Weir, Harpster and Morgan, 1992). Informal feedback from individual workers indicated that wages and promotion opportunities are limited. This may dampen the influence of these extrinsic motivation variables and provide space for intrinsic motivation to be carried through into the idea promotion and realisation. It may also explain the lack of expected negative relationship between extrinsic motivation and role innovation.

It is notable that the workers have been able to maintain a sense of intrinsic motivation through the change in ownership of the subject organisation. Interesting information could have been obtained if the research had been longitudinal over the period of change in ownership. In the original research model (see figure 3.1), it was envisaged that intrinsic motivation would be a moderating variable by virtue of strength of its influence in individual innovation. Unfortunately it was impossible to explore this aspect further due to the limited number of correlations that were found.

The relationship between Role innovation and Affective Commitment.

A weak but promising relationship was found between role innovation and affective commitment. While outside of the borders of statistical significance, the .22 correlation between these two constructs indicates possibilities for future research. In the study conducted by Allen and Smith (as cited in Allen & Meyer, 1990) which also used a self report measure of innovation, a positive relationship was found. A possible reason for the lack of correlation found in this research is the mediocre level of affective commitment. King and West (1987) found that there is a tendency for a positive orientation towards individual innovation only when affective organisational commitment is high. While the mean percentage level of affective commitment (65%) recorded in this research is significant according to the guidelines of Allen and Meyer (1990), it may not be high enough to compensate for the negative effects of the change in the psychological contract.

A significant relationship was found between the variables Education, Idea Generation and to a lesser extent Idea Promotion and Realisation. This correlation is to be expected, being in line with the results obtained by Janssen (2000), whose research used the same assessment tool.

Limitations

Context related error

One of external variables that needs to be considered when seeking an explanation for the results achieved, is the culture and context of the organisation. The factors which make up the PEOR have been almost exclusively studied within a western context. The most cross culturally studied factors are that of organisational commitment and work values (Posner, Kouzes & Schmidt, 1993; Randall, 1993; Shadur & Kienzle 1999). Through the work of Hofstede, a framework was set up to classify the different forms that commitment might take in different geographical cultures (Randall, 1993). However research using this framework has been primarily focused on USA, Canada, Japan and the European cultures. Using the three- way typology of commitment in South African research requires that cognisance be taken of a number of external variables which may have influenced these results.

Within the context of the Western Cape there is a high rate of unemployment. This leaves employees with fewer options of alternative employment when considering leaving the organisation. The subject organisation had recently undergone a dramatic change in its shift from family owned business to multinational subsidiary. Employees, which would in times of higher employment have chosen to leave the organisation, may instead have stayed due to lack of viable alternatives. Similarly, employees who do not feel a moral obligation to stay, may feel obligated to dependants who would otherwise be destitute. Thus the levels of continuance and normative commitment recorded in this study may be influenced by socio - economic variables. This may cause them to have less bearing on role innovation.. The hypotheses reached through the literature review was based on the context of greater employment opportunities. Artificially high recordings of continuance commitment may have obscured any link to role innovation. With more employment options, the link between role innovation and commitment might have been easier to observe.

From the organisation's perspective some elements of the PEOR may become less important in time of high unemployment. The retention of staff is facilitated by poor socio - economic factors and less effort needs to be expended on attracting and keeping good quality staff. Given the unique context of the organisation, the research could have been stronger if the exploratory component and the survey research had been conducted in the same organisation. The primary focus of the research was role innovation. However by concentrating on this in the preliminary stages, the researcher missed the amount of sensitivity surrounding the type of information required to determine the PEOR. This sensitivity resulted in the respondents being reticent to answer questions which could indicate their identity e.g. Demographic information and examples of innovation. If one organisation had been used, this would have been determined and dealt with prior to the second stage.

Limitations through conceptualisation of innovation

Chapter 2 examined the literature surrounding the concept of innovation. Through this review it is evident that there are a multitude of ways in which this construct can be approached. By virtue of the approach used in this research, there are a number of limitations which need to be mentioned.

The fundamental assumption underlying this research is that innovation - relevant personal characteristics cause employees innovative actions. This assumption forms the framework for the research design, the instrument selection and the analysis of the results however it is not technically justified (Oldham & Cummings, 1996). The product and adoption orientated approach of the business school style of studying innovation made the assumption that organisational structure could facilitate organisational innovation (Drucker, 1998). The humanistic organisational psychology approach makes the assumption that innovation is precipitated by a variety of softer functions including core values (Gilmartin 1999), attitudes (Ettlie and O'Keefe, 1982). Both schools of thought have made strides towards understanding innovation, however it is useful to be clear as to the approach taken. This research has not considered systemic management processes in the subject organisation, as they are largely irrelevant in terms of this approach.

In defining innovation and obtaining data, this research has considered the widest possible range of individual innovative action. It has sought examples of idea generation, the promotion of the ideas of others and the actual implementation of the innovative idea. The data obtained has drawn from this entire spectrum of innovative activities and thus covers a vast range of behaviour. Examples of idea generation given in the survey included a new bar-coded labelling system, ideas for improved EVA meters, an automated quotation system and the redesign of a product using new technology. Examples of idea promotion and realisation included a "Free to grow" training intervention, promoting staff as a result of innovations, reconfiguring the test facilities for new product assessment and designing new reporting formats for colleagues with good ideas. Using this spread of behavioural data increased the likelihood of obtaining information on innovation. However it also leads through to the second conceptual limitation.

The second limitation is the broad spectrum of innovative behaviour which is drawn upon. No distinction has been made between incremental versus radical innovation (Damanpour, 1991). There was no weighing of the self report innovations nor emphasis on more spectacular activities. It might be argued that this research could have been improved by drawing upon a narrower range of innovativeness measures. The elimination of incremental innovation and the isolation of radical innovations might have brought the findings into sharper focus. Van de Ven (1986) counters this limitation with the argument that making distinctions in the innovation process fragments the construct beyond the point that it is useful. Additionally, the use of specific types of innovation is limited by the fundamental weaknesses of existing individual worker innovation assessment techniques. The problem of fragmentation has been recorded even when four different assessment techniques were used (Oldham and Cummings, 1996). It is a limitation of the entire field and suggests a possible area for future research.

Past critiques of individual innovation research have noted that it has generally taken a top down approach (King & Anderson, 1990). A conceptual strength of this research is that it has emphasised the view of the less empowered employee and has sought a wide range of perceptions within one context.

Limitations through research design

The empirical research conducted for this dissertation sought to explore the links between two constructs using a survey research design supplemented with qualitative contextual information gathering.

The most important limitation of this research is that the direction of causation is not established. While other research can give hints as to the path of causation, only a longitudinal research design or a quasi -experimental design could give true causation information (Oldham & Cummings, 1996). Both of these designs are beyond the scope of this work. Ideally an improved design might identify individuals of high or low value congruence or commitment and then track their innovativeness over a period of time using both scores in relation to innovative activity. By identifying key PEOR subjects and measuring the innovation levels of these individuals, the research could avoid the fragmentation of the innovation construct while still improving on validity and reliability. However, the longitudinal research design also has flaws for PEOR characteristics. Past commitment research has been weakened by the use of longitudinal work where situational and personal characteristics may change over the period of the study (Angle & Lawson, 1993; Randall, 1990).

Another possible limitation is that of subjectivity. While an effort was made to confirm the data provided by the individual respondents (through requesting behavioural examples of innovation etc.) the point remains that all of the PEOR constructs are based on self-perception to a greater or lesser degree. The limitation of subjectivity is exacerbated by the self report nature of the innovation instrument. This is a problem noted by both innovation and organisational commitment researchers alike (Randall, 1990; West, 1989). One of the ways that past commitment research has dealt with the

issue of subjectivity is to couple commitment with an objectively measurable work outcome (Randall 1990). These include turnover, absenteeism and labour costs (Huselid and Day 1991).

The third problem associated with the research design was the manner in which the sample for the empirical research was selected. In the preliminary research, the intention was to target individuals in the R&D field who had the necessary interest and concern to provide useful insights into individual innovation and to vet the questionnaire. They were identified by their Human Resources practitioner as being candidates and actively pursued to complete the Exploratory Questionnaire. The respondents in the survey phase were self-selected. By virtue of the fact that they chose to participate, they are likely to have brought with them a number of biases. Individuals who were willing to complete a questionnaire that asked them to detail their relationship with their employer may be those with a good relationship with their employer and as a sample, report artificially high PEOR scores. The positive bias may also result either from the respondents desire to impress their employer or a lack of trust as to the confidentiality of the results. Given that a number of the questionnaires had to be discarded due to missing demographic details, indications are that the latter factor could have come into play. Together with the exclusive reliance on self report measures, the above concerns combine to raise questions around possible common method bias (Ashforth & Saks, 1996). This was pre-empted to a degree by splitting the Value Congruence Scale and including qualitative questions in the Role Innovation Instrument. However, the thematic problems experienced with the commitment scales and the necessary elimination of the negatively scored supervisory support item in the factor analysis, indicate that when the scales did run consecutively, common method bias may have occurred.

The constructs of the PEOR are related in so far as they describe various aspects of the employee's patterns of psychological interactions with their employer. Many of them have been examined in relation to one another and their discriminant validity has been established (Akhtar & Tan, 1994; Allen and Meyer, 1996; Box, Odom & Dunn,

1991; Oliver, 1990; Shore, Posner & Schmidt, 1993; Thornton & Kienzle, 1990). However the degree of overlap between affective commitment and value congruence is uncertain. The former construct is concerned with the employees commitment to the organisation based on their identification with its values and beliefs. The former is concerned with the similarity between the values of the employee and their perception of the values of the organisation. One of the limitations of this research is the possible convergent validity between the variables of the PEOR (Bacharach, 1989). External validity is limited due to the particular context within which the research was conducted and the results should be extrapolated with care.

Implications for Future Research

Role innovation is an organisation- wide function (Basadur, 1987). The importance of originality and inventiveness by individuals is underscored by the accessibility of technology and the expectations of the modern market place (Ruggles, 1998). This research has attempted to explore the impact of the employees perceived relationship with their employer with their level of individual innovation at work. It has drawn in the broadest range of innovative behaviour possible including the generation of innovative ideas, the promotion of the ideas of others and the actual realisation of the innovative idea into an established work process or product.

The first finding of this research is that normative organisational commitment is negatively linked to role innovation. The second finding is that intrinsic motivation is strongly linked to role innovation. The latter relationship was already strongly established (Amabile, 1990, 1998; Amabile et al 1996; Amabile et al 1994; Amabile, Hennesy & Grossman, 1986; Collins & Amabile, 1999; Sansone, Weir, Harpster & Morgan, 1992). Its finding in this research is significant as it was conducted with a South African sample, a population and context quite different to that in which similar research has been previously conducted.

The implications of the link between normative commitment and role innovation are potentially worrying. It has already been established that differing forms of organisational commitment impact on work performance in different (Leong, Randall & Cote, 1994; Randall & Cote, 1991). Normative commitment is a social value driven form of attachment. It implies an obligation or debt to the organisation. When the sense of obligation is balanced by performance given, the commitment is nullified (Meyer & Allen, 1991). It is possibly at this point that individual innovation is lowered. Future research may need to be conducted to examine the various levels of normative commitment to determine the point where role innovation is less likely to occur. The research also suggests a quandary for managers following current employment outsourcing trends. While outsourcing may make the organisation more flexible, it may also indirectly inhibit its ability to nurture innovative activity through the weakening of the employee - employer relationship. While the traditional form of commitment seems old fashioned and inappropriate, affective commitment helps to create a working environment where innovation may be more likely to occur. Simply being aware that high normative commitment is likely to inhibit innovation makes the traditional long term employment relationship seem less functional for the organisation wishing to encourage consistent innovative behaviour.

As significant as the relationships that were found, are those that were not. The weak but promising relationship between affective commitment and role innovation indicate an area for future research, particularly within the South African context. Related to this was the absence of a relationship between value congruence and role innovation. Taken together, these two missing findings point to a need to explore the aspects of work culture which may differ in a non Euro - American context. More specifically the individual constructs of the PEOR need to be examined from the perspective of the South African worker so that extrapolations of their relationships with constructs such as innovation, during hypothesis building, can be more accurate. Local research such as that by Pretorious (1993) into commitment and support begins to provide such insight. However the sample, like much other South African work is in an educational setting.

There is a dearth of insight into the South African office worker which makes effective theory formulation difficult. The comprehensive validation of an instrument such as the KEYS (Assessing the climate for creativity) instrument developed by Amabile et al (1996) would provide a useful starting point from which more insightful work could be developed.

This research found significantly more statistical strength in the idea generation subscale of the innovation instrument. In Chapter 1 it was noted that a fundamental blockage appears to occur during the transferral of innovative ideas into practise. Given the thematic difficulties experienced during the data analysis of the idea promotion and idea realisation sub-scales, it appears that this phenomenon is also experienced by this sample population. In this research, the factors of the PEOR have only been able to explain part of the tendency towards individual innovation. Perhaps in this context it is more appropriate to take a step backwards and re-explore the mechanics of individual innovation and its manifestation in South Africa.

The intensely competitive and hostile market environment might lead managers to be tempted to surround themselves with like minded individuals whose ideas reinforce rather than challenge their own. Past research has indicated has hinted at the dangers for innovation in nurturing a comfortable, stable work environment (Ozsomer et al, 1997).

Conclusion

This chapter has examined the results of the empirical research. It has used the qualitative information generated in the preliminary phase to provide insights into the results derived from Chapter 5. It has further examined the limitations of the research and the implications of the insights for future research and management practise.

Summation

The purpose of this research has been to conduct exploratory research into the relationship between role innovation and the employee- organisation relationship as perceived by the individual worker. The literature surrounding innovation was examined in some depth. This provided delineations as to the aspect and approaches of innovation which are relevant to organisational psychology and the individual level of analysis. The factors of the perceived employee-organisation relationship (PEOR) were examined with emphasis on their relationship to innovation and past research findings. The research was conducted in two phases. The first phase consisted of a small preliminary examination of the experience and manifestation of individual innovation. It ensured that the constructs and the questionnaire were relevant and appropriate for the South African sample. The second and central, phase consisted of survey research incorporating instruments assessing role innovation and the factors of the PEOR.

The role innovation instrument which was chosen proved reliable and useful in this sample population. Two relationships emerged through initial correlations and prevailed through factor analysis, regression analysis and the Kruskal - Wallis test for non parametric means. The first was the relationship between intrinsic motivation and role innovation [idea generation and idea promotion and realisation]. This confirmed already significant evidence and served as evidence for the underlying integrity of this research. The second relationship was the negative relationship between normative commitment and role innovation [idea generation]. This relationship can be explained through the origins of normative commitment as a debt or obligation to the employer. A weaker but promising relationship was observed between affective commitment and role innovation [idea promotion and realisation]. The interpretation of the observed relationships has taken cognisance of the context within which the research was conducted. This context limits the generalisability of the results.

Certain aspects of the nature of the relationship between the employee and the organisation impact on the role innovation of the individual worker. Contextual variables moderate this relationship and impact on the expected patterns of innovative activity.

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List of Appendices

Appendix A: Exploration Questionnaire

Appendix B: Letter accompanying Exploration Questionnaire

Appendix C: Main Questionnaire

University of Cape Town

Appendix A

Exploration questionnaire:

1. Did you find the format of the questionnaire easy to follow?

☐ Yes ☐ No

If no, please elaborate with reference to specific items or aspects: _____

2. Were the questions unambiguous and easily understandable?

☐ Yes ☐ No

If no, please elaborate with reference to specific items: _____

3. Did you find the questions intrusive in any way?

☐ Yes ☐ No

If no, please elaborate with reference to specific items: _____

4. How would you feel about having your innovativeness at work evaluated by your peers in addition to your self evaluation, if it was done with tact and confidentiality? _____

5. In what way, if at all, is a study of innovation relevant to your work at ...? _____

6. Considering the work that you do, do you think that it is feasible to look at *individual* innovation, or do you think that it is inextricably entwined with the actions of work colleagues?

7. Do you think that being innovative is the responsibility of the organisation or of the individual employee? Please explain. _____

8. In your experience, does the average South African R&D worker have the leeway to be original? Please elaborate. _____

9. What do you understand by the term 'values'? _____

10. Have you ever experienced difficulties in reconciling your personal values with those which seem to be held by ...? _____

Appendix B

S.Tighe (Soc Sc. (Hons) UCT)

Elangeni

Mountain View Drive

Noordhoek

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13 January 2001

Dear Sir/Madam

Thank you for taking the time out of your work to respond to the questionnaire. Your input is much appreciated. I am currently involved with the thesis component of a Masters degree in Organisational Psychology at the University of Cape Town. The topic of my investigation is to find out how value congruence and commitment can effect the innovativeness of the individual at work. I have specifically approached as the R&D slant to the work that many of its employees do makes it perfect for this study.

In order to ensure that my work is both accurate and appropriate, I have asked that a small number of individuals complete the both survey and answer a number of exploratory questions. The feedback obtained from this informal pilot study will be used to improve the effectiveness of the survey.

Please fill in the yellow survey sheet *before* answering the Exploration Questionnaire.

Once again, thank you for participating. Feel free to be as innovative as possible with your feedback.

Yours faithfully

Sharon Tighe.

research explores your relationship with _____ and the way you work. Please note that all responses are completely confidential. When you are finished, place your answer-sheet in the envelop provided, seal it and place it in the collection box. If you have any questions, please contact me at 712 4228.

Sharon Tighe.

MY PERSONAL VALUES AT WORK

Please rate the importance of the following values according to how important they are to you in your work. Indicate your answer by circling the relevant number:

	Completely Unimportant 1	Unimportant 2	Undecided 3	Important 4	Very Important 5
1. Co-operation	1	2	3	4	5
2. Diligence	1	2	3	4	5
3. Moral integrity	1	2	3	4	5
4. Openness	1	2	3	4	5
5. Initiative	1	2	3	4	5
6. Experimentation	1	2	3	4	5
7. Aggressiveness	1	2	3	4	5
8. Fairness	1	2	3	4	5
9. Adaptability	1	2	3	4	5
10. Creativity	1	2	3	4	5
11. Development	1	2	3	4	5
12. Courtesy	1	2	3	4	5
13. Cautiousness	1	2	3	4	5
14. Social Equality	1	2	3	4	5
15. Economy	1	2	3	4	5
16. Consideration	1	2	3	4	5
17. Formality	1	2	3	4	5
18. Humour	1	2	3	4	5
19. Forgiveness	1	2	3	4	5
20. Broad-mindedness	1	2	3	4	5
21. Logic	1	2	3	4	5
22. Autonomy	1	2	3	4	5
23. Obedience	1	2	3	4	5
24. Orderliness	1	2	3	4	5

Innovation is anything original and different that is new to _____ and useful for your work. Please consider the following descriptions. Circle the answer that best describes you at work.

25. I create new ideas for difficult issues

_____ rarely seldom undecided occasionally often

26. I search out new working methods, techniques or tools

_____ rarely seldom undecided occasionally often

27. I create new solutions to work problems

_____ rarely seldom undecided occasionally often

Please indicate any innovation (product or process) that you personally have generated in your work in the past year at _____

28. I support the innovative ideas of others

_____ rarely seldom undecided occasionally often

29. I help others get approval for innovative ideas.

_____ rarely seldom undecided occasionally often

30. I make important organisational members enthusiastic about innovative ideas.

_____ rarely seldom undecided occasionally often

Please indicate any way that you have promoted good ideas in the past year at _____

31. I transform innovative ideas into useful actions and products.

_____ rarely seldom undecided occasionally often

32. I introduce innovative ideas into the workplace in a logical, systematic way.

_____ rarely seldom undecided occasionally often

_____ rarely seldom undecided occasionally often

Please indicate any innovation generated by yourself that you have managed to have integrated into accepted work practise during the past year. _____

MY FEELINGS ABOUT _____

Strongly disagree 1	Disagree 2	Undecided 3	Agree 4	Strongly agree 5
------------------------	---------------	----------------	------------	---------------------

34. I would be very happy to spend the rest of my life in _____

35. I really feel as if _____'s problems are my own.
_____ 1 2 3 4 5

36. I really feel like a 'part of the family' at _____
_____ 1 2 3 4 5

37. I feel 'emotionally attached' to _____
_____ 1 2 3 4 5

38. _____ has a great deal of personal meaning to me.
_____ 1 2 3 4 5

39. I feel a strong sense of belonging to _____
_____ 1 2 3 4 5

40. Right now, staying with _____ is a matter of necessity as much as a desire.
_____ 1 2 3 4 5

41. It would be very hard for me to leave _____ right now, even if I wanted to.
_____ 1 2 3 4 5

42. Too much of my life would be disrupted if I decided I wanted to leave _____ now.
_____ 1 2 3 4 5

43. I feel that I have too few options to consider leaving _____
_____ 1 2 3 4 5

44. If I had not already put so much of myself into
I might consider working elsewhere.
1 2 3 4 5
45. One of the few negative consequences of leaving
would be the scarcity of available alternatives.
1 2 3 4 5
46. I do not feel any obligation to remain with
1 2 3 4 5
47. Even if it were to my advantage, I do not feel it
would be right to leave now.
1 2 3 4 5
48. I would feel guilty if I left now.
1 2 3 4 5
49. deserves my loyalty.
1 2 3 4 5
50. I would not leave right now because I have a
sense of obligation to the people in it.
1 2 3 4 5
51. I owe a great deal to
1 2 3 4 5

VALUES

Please re-rate these values according to how important
you think they are considered by.

	Completely Unimportant 1	Unimportant 2	Undecided 3	Important 4	Very Important 5
1. Co-operation	1	2	3	4	5
2. Diligence	1	2	3	4	5
3. Moral Integrity	1	2	3	4	5
4. Openness	1	2	3	4	5
5. Initiative	1	2	3	4	5
6. Experimentation	1	2	3	4	5
7. Aggressiveness	1	2	3	4	5
8. Fairness	1	2	3	4	5
9. Adaptability	1	2	3	4	5
10. Creativity	1	2	3	4	5
11. Development	1	2	3	4	5
12. Courtesy	1	2	3	4	5
13. Cautiousness	1	2	3	4	5

14. Social Equality 1 2 3 4 5
15. Economy 1 2 3 4 5
16. Consideration 1 2 3 4 5
17. Formality 1 2 3 4 5
18. Humour 1 2 3 4 5
19. Forgiveness 1 2 3 4 5
20. Broad-mindedness 1 2 3 4 5
21. Logic 1 2 3 4 5
22. Autonomy 1 2 3 4 5
23. Obedience 1 2 3 4 5
24. Orderliness 1 2 3 4 5

MY MOTIVATION AND SUPPORT AT WORK

Please indicate the extent to which each item
describes you by circling the most appropriate
answer.

Strongly disagree 1	Disagree 2	Undecided 3	Agree 4	Strongly agree 5
---------------------------	---------------	----------------	------------	------------------------

25. I enjoy tackling problems that are completely new
to me.
1 2 3 4 5
26. I enjoy trying to solve complex problems.
1 2 3 4 5
27. The more difficult the problem, the more I enjoy
trying to solve it.
1 2 3 4 5
28. It is important for me to have an outlet for self
expression.
1 2 3 4 5
29. I am strongly motivated by the money I can earn.
1 2 3 4 5
30. I am keenly aware of the promotion goals that I
have for myself.
1 2 3 4 5
31. I want other people to find out how good I really
can be at my work.
1 2 3 4 5

32. I am keenly aware of the income goals that I have
for myself.
1 2 3 4 5
33. takes pride in my accomplishment.
1 2 3 4 5
34. really cares about my well-being
1 2 3 4 5
35. values my contribution to its well-being
1 2 3 4 5
36. strongly considers my goals and values
1 2 3 4 5
37. shows little concern for me
1 2 3 4 5
38. is willing to help me if I need a special favour.
1 2 3 4 5
39. My supervisor helps me solve work related
problems.
1 2 3 4 5
40. My supervisor encourages me to develop new skills
1 2 3 4 5
41. My supervisor keeps informed about how
employees think and feel about things
1 2 3 4 5
42. My supervisor encourages employees to participate
in important decisions.
1 2 3 4 5
43. My supervisor praises good work
1 2 3 4 5
44. My supervisor encourages employees to speak up
when they disagree with a decision
1 2 3 4 5
45. My supervisor refuses to explain his or her actions.
1 2 3 4 5
46. My supervisor rewards me for good performance.
1 2 3 4 5

Age: Gender: M / F

Length of employment at

Highest formal qualification(e.g.Std.8/Matric/Degree):
.....

Department [circle]: Production / Administration / R&D