

ANTECEDENTS OF WORK ENGAGEMENT IN A CHEMICAL INDUSTRY

Dezelle Ras, Hons. B. Com

Mini-dissertation submitted in partial fulfilment of the requirements for the degree Magister
Artium in Industrial Psychology at the Potchefstroom Campus of the North-West University

Supervisor: Prof. S. Rothmann

Potchefstroom

November 2006

REMARKS

The reader is reminded of the following:

- The references, as well as the editorial style as prescribed by the Publication Manual (5th edition) of the American Psychological Association (APA), were followed in this mini-dissertation. This practice is in line with the policy of the Industrial Psychology Programme of the North-West University.
- This mini-dissertation is submitted in the form of a research article.

ACKNOWLEDGEMENTS

I wish to express my gratitude toward various individuals who supported me throughout the completion of this mini-dissertation.

- All the glory to my Creator, who blessed me with the ability and determination to complete this research.
- A very special word of thanks to my study leader Prof. S. Rothmann, for not giving up on me as well as his guidance and patience.
- Thanks to Dr. Jacqueline Bosman, for being there for me at the last minute – this pulled me through.
- To my newlywed husband, Koos, thank you for understanding the late nights and early mornings.
- I would like to express my sincere gratitude to the management and employees of the participating organisation for being part of the research. Without your help, this study would not have become a reality.
- I would also like to extend my gratitude to Mr B Record for the professional editing of this research document.

TABLE OF CONTENTS

	Page
List of Tables	v
Summary	vii
Opsomming	ix
 CHAPTER 1: INTRODUCTION	
1.1 Problem statement	1
1.2 Research objectives	5
1.2.1 General objective	5
1.2.2 Specific objectives	5
1.3 Research method	5
1.3.1 Research design	5
1.3.2 Participants	5
1.3.3 Measuring instruments	6
1.3.4 Statistical analysis	7
1.4 Division of chapters	8
1.5 Chapter summary	8
 CHAPTER 2: RESEARCH ARTICLE	 12

TABLE OF CONTENTS (CONTINUED)

	Page
CHAPTER 3: CONCLUSIONS, LIMITATIONS AND RECOMMENDATIONS	40
3.1 Conclusions	40
3.1.1 Conclusions regarding specific theoretical objectives	40
3.1.2 Conclusions regarding the specific empirical objectives	41
3.2 Limitations of the study	42
3.3 Recommendations	43
3.3.1 Recommendations for the organisation	43
3.3.2 Recommendations for future research	44
3.4 References	45

LIST OF TABLES

Table	Description	Page
1	Characteristics of the Participants (<i>N</i> =165)	21
2	Goodness-of-fit Statistics for the Work Engagement Model	24
3	Pattern Matrix for the Items of the Psychological Processes Questionnaire	25
4	Pattern Matrix for the Items of the Antecedent Conditions Questionnaire	27
5	Descriptive Statistics, Alpha Coefficients and Correlations of the Scales	28
6	Multiple Regression Analysis with Work Engagement as Dependent Variable and Antecedent Conditions and Psychological Meaningfulness as Independent Variables	31
7	Multiple Regression Analysis with Work Engagement as Dependent Variable and Antecedent Conditions and Psychological Meaningfulness as Independent Variables	32

LIST OF FIGURES

Figure	Description	Page
1	Work engagement model	19
2	Adapted model of work engagement	34

SUMMARY

Title: The antecedents of work engagement in a chemical industry

Key words: Work engagement, psychological availability, safety and meaningfulness

Organisations across the world are faced with the same challenges of how to get employees to be totally immersed in their role at work. People occupy roles at work. There is no sense in engaging employees if management is not going to invest in the effort of placing these employees in appropriate roles and supporting them to be engaged in their work. There are generalised states that employees occupy: people are to some degree job involved, committed to organisations, or alienated at work in the form of self-estrangement. These concepts suggest that employees can use varying degrees of themselves, physically, cognitively and emotionally, in the roles they perform.

The primary objective of this research was to explore the three psychological processes, meaningfulness, safety and availability to be determinants of work engagement. Another objective was also to explore the influence of the antecedent conditions, namely work role fit, co-worker relations, supervisor relations, co-worker norms, self-consciousness and resources on work engagement. The study also investigated whether the psychological processes mediate the relationships between antecedent conditions and work engagement.

A survey design was used to reach the research objectives. The specific design used was the cross-sectional design. Employees across all levels ($N=165$) in a chemical industry in the Vaal Triangle were targeted for this research. Four standardised questionnaires were used in the empirical study, namely the Psychological Processes Questionnaire, Antecedent Conditions Questionnaire, Work Engagement Questionnaire as well as a Biographical Questionnaire.

Multiple regression analyses showed that psychological meaningfulness mediated the relationship between work role fit and work engagement. A total of 32% of the variance in psychological meaningfulness was predicted by work role fit. Psychological meaningfulness predicted 29% of the variance in work engagement. Psychological availability mediated the relationship between available resources and work engagement. The analysis indicated that

11% of the variance in engagement was predicted by resources. Psychological availability predicted 31% of the variance in engagement.

Recommendations for future research were made.

OPSOMMING

Titel: Die antesedente van werkbegeestering in 'n chemiese nywerheid

Sleutelwoorde: Werksbegeestering, psigologiese beskikbaarheid, psigologies sinrykheid, psigologiese veiligheid

Organisasies wêreldwyd ervaar soortgelyke uitdagings soos om werknemers te ondersteun om hulle self ten volle uit te leef in hulle werkrol. Werknemers beklee sekere werkrolle in die organisasie. Dit is nutteloos om werknemers aan te stel indien bestuur nie tyd gaan investeer om werknemers in toepaslike rolle te plaas sodat hulle hulself ten volle kan uitleef nie. Werknemers tree op binne veralgemeende omstandighede in die organisasie: werknemers is tot 'n sekere mate betrokke by hulle werk, verbind aan organisasies of ervaar vervreemding van die werkrol. Die konsepte stel voor dat werknemers hulself op verskillende vlakke, fisies, emosioneel of kognitief kan uitleef in hul werkrolle.

Die primêre doelstelling van die studie was om die drie psigologiese prosesse, naamlik psigologiese betekenis, beskikbaarheid en veiligheid as determinante van begeestering te ondersoek. 'n Verdere doelstelling was om die invloed van die voorwaardelike omstandighede soos rolpassing, werknemer-verhoudings, toesighouer-verhoudings, werknemernorms, selfbewustheid en beskikbare hulpbronne te ondersoek. Die studie het ook ten doel gehad om te bepaal of die psigologiese prosesse die verhoudings tussen voorwaardelike omstandighede en werksbegeestering medieer. Die studie het gebruik gemaak van 'n opname-ontwerp. Werknemers ($N=165$) van 'n chemiese industrie in die Vaaldriehoek het deelgeneem aan die studie. Vier vraelyste is tydens die empiriese ondersoek gebruik, naamlik die Psigologiese Prosesse-vraelys, die Voorwaardelike Omstandighede-vraelys, die Werksbegeestering-vraelys asook 'n biografiese vraelys.

Volgens die resultate het psigologiese betekenis die verhouding tussen werk-rol passing en werkbegeestering medieer. 'n Totaal van 32% van die variansie in psigologiese betekenis is voorspel deur werk-rol passing. Psigologiese betekenis het 29% van die variansie in werksbegeestering voorspel. Psigologiese beskikbaarheid het die verwantskap tussen bronne en werksbegeestering medieer. Die analise het aangetoon dat 11% van die variansie in

werksbegeestering deur hulpbronne voorspel is. Psigologiese beskikbaarheid het 31% van die variansie in werksbegeestering voorspel.

Aanbevelings vir toekomstige navorsing is aan die hand gedoen.

CHAPTER 1

INTRODUCTION

This mini-dissertation covers the relationship between work engagement and three psychological conditions namely meaningfulness, availability and safety considered as antecedents of work engagement. In this chapter, the problem statement is discussed, and an outline is provided of the research objectives, research method and chapter division.

1.1 PROBLEM STATEMENT

Organisations across the world are faced with similar as well as unique challenges. One of the challenges that most organisations experience is people management. There is no point in hiring employees if the company is not going to put an effort into letting employees want to give of themselves in their work. Organisations expect proactiveness, creativity, collaboration and commitment towards high quality performance from their employees but these expectations are not always aligned with the needs of the individuals within their work roles.

Although the main reason most individuals work is to earn a living, money is not the only reason they take into account when considering moving to another organisation. Talented employees, especially, have a good idea of market rate and they look for organisations that can offer this market rate as well as other non-financial factors. Seeing that employees spend the largest part of their day at work, organisations have to go the extra mile to enable their employees to perform to their best under enjoyable circumstances, understanding and unleashing the human spirit at work. The human spirit in this context refers to that part of the human being which seeks fulfilment through self-expression at work. Individuals must be able to engage the cognitive, emotional and physical dimensions of themselves at work (May, Gilson, & Harter, 2004).

For organisations to prosper and survive in a continuously changing environment, they need healthy and motivated employees. Organisations consider their employees to be their most valuable asset and are therefore interested in not only their performance but also in their wellbeing. According to Ulrich (1997), employee contributions has become a critical business issue because more output is required with less employee input, which implies that

companies have no choice but to try to engage not only the body but the mind and soul of every employee.

For organisations to maintain their competitive edge, they can't afford to lose skilled employees since a lot of time, effort and money are invested in them. Engaged employees will look for new challenges in their jobs and leave the company if they feel they are not challenged in their jobs anymore. Work engagement is one of the human resources strategies to enable organisations to retain their talent. If employees are allowed to work in a safe environment conducive to their contributing to the bigger system and being themselves, they are less likely to leave the service of the company. Resilience is created when individuals absorb, express, reflect on and learn from their emotions at work. Since this process in organisational life is largely social – people joining with others to make sense of their collective experiences – individuals require a sense of safety to engage this sequence (Kahn, 1992).

Engagement at work refers to the “harnessing of organisational members’ selves to their work roles; in engagement people employ and express themselves physically, cognitively and emotionally during role performances” (Kahn, 1990, p. 694). According to Kahn, self and role exist in some dynamic, negotiable relation in which a person both drives personal energies into role behaviours (self-employment) and displays the self within the role (self-expression). This type of engagement enables the human spirit to thrive at work (Kahn, 1990, p. 700).

Maslach, Schaufeli, and Leiter (2001) and Schaufeli and Bakker (2001) conceptualised work engagement as a multidimensional construct defined as a positive, fulfilling, work-related state of mind that is characterized by vigour, dedication and absorption. *Vigour* is characterised by high levels of energy and mental resilience while working, the willingness to invest effort in one's work and persistence even in the face of difficulties. *Dedication* is characterized by a sense of significance, enthusiasm, inspiration, pride and challenge. *Absorption* is characterized by fully concentrating on and being deeply engrossed in one's work, where time passes quickly and one has difficulty detaching oneself from work (Maslach et al., 2001; Schaufeli & Bakker, 2001). Analogously, vigour and dedication are considered the core dimensions of engagement and absorption was found to be a relevant aspect of engagement.

The two constructs that are very closely related to engagement are job involvement (Brown, 1996) and flow (Csikszentmihalyi, 1990). Lawler and Hall (1970, p. 310-311) define job involvement as “the degree to which the job situation is central to the person and his (or her) identity.” Employees need to identify with their jobs in order to experience job satisfaction.

Engagement differs from job involvement in that it is concerned more with how the individual employs his/her self during the performance of his/her job. Furthermore, engagement entails the active use of emotions and behaviours, in addition to cognitions. Finally, engagement may be thought of as an antecedent to job involvement in that individuals who experience deep engagement in their roles should come to identify with their jobs (May et al., 2004).

Csikszentmihalyi (1990) defines flow as the “holistic sensation that people feel when they act with total involvement.” Individuals in a condition of “flow” almost act automatically, without focusing on a specific act. They are almost unaware of themselves during performance of certain activities. Although flow has been conceptualised as cognitive involvement with activities and therefore differs from engagement, individuals will still use the other aspects of themselves – emotional and physical (Kahn, 1990). Humanistic and practical reasons therefore exist for providing meaningful work to individuals in order to prevent detachment from themselves (Thomas & Velthouse, 1990).

There are three psychological conditions – meaningfulness, safety and availability – that could potentially influence the depth in which an employee will engage him-/herself in the work role. Frankl (1959) argues that each individual seeks for meaning in his job. Psychological meaningfulness can be seen as “a feeling that one is receiving a return on investments of one’s self in a currency of physical, cognitive or emotional energy” (Kahn, 1990). People experience meaningfulness when their opinions and contributions are valued and seen as useful by their managers in the organisation.

The second psychological condition which could influence the degree of engagement in one’s role at work is safety. Kahn (1990, p. 708) defines safety as “feeling able to show and employ one’s self without fear of negative consequences to self-image, status, or career.” People felt safe in situations in which they trusted that they would not suffer for their personal engagement.

Psychological availability is the third condition and is defined by Kahn (1990, p. 714) as “the sense of having the physical, emotional or psychological resources to personally engage at a particular moment.” It measures how ready people are to engage, given the distractions they experience as members of social systems.

According to literature, the antecedent conditions impact on psychological processes which lead to work engagement. Antecedent conditions include work role fit, co-worker relations, supervisor relations and resources available. Work role fit refer to the perceived “fit” of an individual with his work role. Co-worker relations are the supportive and trustworthy relationship between employees at work. Supervisor relations refer to the supportive non-controlling relationship between an employee and his/her supervisor. The feeling of having sufficient physical, emotional or cognitive resources to perform at work refers to resources available.

On the basis of the above-mentioned problem statement, the following research questions are formulated:

- How is work engagement and its antecedents conceptualised in the literature?
- What are the relationships between antecedent conditions, psychological processes and work engagement?
- Do psychological processes mediate the relationships between antecedent conditions and work engagement?

Through this investigation, organisations in South Africa, as a multi-cultural and multi-racial country, will gain a better understanding of how to engage the human spirit at work. It will also enable the organisation to assess whether the psychological conditions of meaningfulness, safety and availability are present in the work environment.

1.2 RESEARCH OBJECTIVES

1.2.1 General objectives

With reference to the above formulation of the problem, the general objective of the current study is to validate the psychological conditions of meaningfulness, safety and availability and the engagement of the human spirit at work in a South African context.

1.2.2 Specific objectives

The specific research objectives are:

- To conceptualise work engagement and its antecedents from the literature.
- To investigate the relationships between antecedent conditions, psychological processes and work engagement.
- To determine whether psychological processes mediate the relationships between antecedent conditions and work engagement.

1.3 RESEARCH METHOD

The research method for this article, which is submitted for the purpose of this mini-dissertation, consists of a literature review and an empirical study.

1.3.1 Research design

The researcher will make use of a cross-sectional survey design to collect data to reach the research objectives. A sample will be drawn from a population at one point in time (Shaughnessy & Zechmeister, 1997) and the data collected will be used to describe the population at that time. This design can be used to assess interrelationships among variables within a population. According to Shaughnessy and Zechmeister (1997), this design is ideally suited to the descriptive and predictive functions associated with correlation research.

1.3.2 Participants

The study population consists of all employees in a chemical industry in Sasolburg. Participants in the survey include employees and managers across different business units in the organisation. A stratified, random sample ($n=165$) will be taken from the employees of the chemical industry in Sasolburg.

1.3.3 Measuring instruments

A questionnaire was designed for this study to measure participants' perceptions about themselves, their jobs, supervisors and co-workers. The measures for the research are described below. All scales are based on a 5-point agreement-disagreement Likert format varying from 1 (*strongly disagree*) to 5 (*strongly agree*), unless otherwise noted. The following subscales and their relationships were measured by the abovementioned questionnaires.

Work engagement is measured by an average of 13 items ($t=0,71$) developed for this study. The items reflect each of the three components of Kahn's (1990) psychological engagement: cognitive, emotional and physical engagement. Psychological meaningfulness was conceptualized as the degree of meaning that the achievement of a work goal has for an individual, based on his/her own standards. Six items ($t=0,90$) drawn from Spreitzer (1995) and May et al. (2004) measure the degree of meaning that individuals experience in their work-related activities. Psychological safety is measured by 3 items ($t=0,71$) based on Kahn's (1990) work. These items will assess whether individuals feel comfortable being themselves and expressing their opinions at work or whether there is a threatening environment at work. The confidence individuals have regarding their ability to be cognitively, physically and emotionally available for work is measured by an average of 5 items ($t=0,85$) based on Kahn's (1990) discussion.

Work role fit. Work role fit is measured by an average of 4 items ($t=0,92$) from May et al. (2004), which directly measures individuals' perceived fit with their jobs and self-concept (Kristof, 1996). *Co-worker relations* is measured by an average of 10 items ($t=0,93$) from May et al. (2004). These items measure such things as whether co-workers value an

individual's input, if they value who they are as individuals and if they trust one another. *Supportive supervisor relations* is measured by an average of 10 items ($t=0,95$). The first six are drawn from Oldham and Cummings (1996) and the last four from Butler (1991). The degree to which individuals possess the resources to become available for engagement is assessed by an average of 8 items ($t=0,91$) that were developed for this study. Self-consciousness is measured by an average of 3 items ($t=0,83$). These items measure public self-consciousness as opposed to private self-consciousness (Fenigstein, Scheier, & Buss, 1975).

1.3.4 Statistical analysis

The statistical analyses will be carried out with the SPSS program (SPSS, 2005). Exploratory factor analysis will be performed to investigate the factor structure of the measuring instruments. Firstly, a simple principal components analysis will be conducted. The eigenvalues and scree plot will be studied to determine the number of factors. Secondly, a principal axis factor analysis with a direct oblimin rotation will be used to extract the factors (Tabachnick & Fidell, 2001).

Cronbach alpha coefficients (t) will be used in order to determine the validity and reliability of the measuring instruments, while descriptive statistics (e.g. means, standard deviations, skewness and kurtosis) will be used to analyse data. Pearson correlation coefficients will be computed to indicate the extent to which one variable is related to another and the Spearman correlation coefficient, in cases where the distribution of scores are skew. Effect sizes will be used in order to determine the practical significance of relationships between variables. The level of statistical significance is set at $p < 0,01$. A cut-off point of 0,30, which represents a medium effect (Cohen, 1998), is set for the practical significance of correlation coefficients.

Multiple regression analysis will be carried out to determine the percentage variance in the dependent variable that is predicted by the independent variables.

1.4 CHAPTER DIVISION

Chapter 1 consists of an introduction to the study. The problem statement briefly outlines the constructs and reasons for this study. Research objectives detail the general and specific objectives of the study. Finally research methods are discussed. Chapter 2 deals mainly with the statistical analysis of the empirical results of this study. The aim of this study is stated, after which the method is explained in depth. Further, data analysis is presented, after which the results are discussed. This chapter concludes with a discussion of limitations and suggested recommendations. Chapter 3 deals with the conclusion to this study. Research limitations and suggested recommendations are also stated.

1.5 CHAPTER SUMMARY

In this chapter an introduction to the research study is given. The problem statement briefly outlines the constructs and reasons for the study. Research objectives are given and the chapter is concluded by discussing the research methods.

REFERENCES

- Brown, S. P. (1996). A meta-analysis and review of organisational research on job involvement. *Psychological Bulletin*, *120*, 235-255.
- Butler, J. K., Jr. (1991). Towards understanding and measuring conditions of trust: Evolution of a conditions of trust inventory. *Journal of Management*, *17*, 643-663.
- Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (Rev. ed.). Orlando, FL: Academic Press.
- Csikszentmihalyi, M. (1990). *Flow: The psychology of optimal experience*. New York: Harper.
- Fenigstein, A., Scheier, M. F., & Buss, A. H. (1975). Public and private self-consciousness: Assessment and theory. *Journal of Consulting and Clinical Psychology*, *43*, nr 522-527.
- Frankl, V. E. (1959). *Man's search for meaning*. New York: Washington Square.
- Kahn, W. A. (1990). Psychological conditions of personal engagement and disengagement at work. *Academy of Management Journal*, *33*, nr 692-724.
- Kahn, W. A. (1992). To be full there: Psychological presence at work. *Human Relations*, *45*, 321-329.
- Kristof, A. L. (1996). Person-organisation fit: An integrative review of its conceptualizations, measurement and implications. *Personnel Psychology*, *49*, 1-50.
- Lawler, E. E. & Hall, D. T. (1970). Relationship of job characteristics to job involvement, satisfaction and intrinsic motivation. *Journal of Applied Psychology*, *54*, nr 305-312.
- Maslach, C., Schaufeli, W. B., & Leiter, M. P. (2001). Job burnout. *Annual Review of Psychology*, *52*, 397-422.
- May, D. R., Gilson, R. L., & Harter, L. M. (2004). The psychological conditions of meaningfulness, safety and availability and the engagement of the human spirit at work. *Journal of Occupational and Organizational Psychology*, *77*, 11-37.
- Oldham, G. R., & Cummings, A (1996). Employee creativity: Personal and contextual factors at work. *Academy of Management Journal*, *39*, nr 607-637.
- Schaufeli, W. B., & Bakker, A. B. (2001). Werk en welbevinden: Naar een positieve benadering in de Arbeids- en Gezondheidspsychologie (Work and well-being: Towards a positive approach in Occupational Health Psychology). *Gedrag en Organisatie*, *14*, 229-253.
- Shaughnessy, J. J., & Zechmeister, E. B. (1997). *Research methods in psychology* (4th ed.). New York: McGraw-Hill.

- Spreitzer, G. (1995). Psychological empowerment in the work place: Dimensions, measurement and validation. *Academy of Management Journal*, 38, nr 1442-1465
- SPSS Inc. (2005). *SPSS 14.0 for Windows*. Chicago, IL: Author.
- Tabachnick, B. G., & Fidell, L. S. (2001). *Using multivariate statistics* (4th ed.). Boston, MA: Allyn & Bacon.
- Thomas, K. W., & Velthouse, B. A. (1990). Cognitive elements of empowerment: An “interpretive” model of intrinsic task motivation. *Academy of Management Review*, 15, nr 666-681.
- Ulrich, D. (1997) *Human resource champions*. Boston MA: Harvard University Press.

CHAPTER 2

RESEARCH ARTICLE

ANTECEDENTS OF WORK ENGAGEMENT IN A CHEMICAL INDUSTRY

D. Ras

S. Rothmann

ABSTRACT

The primary objective of this research was to investigate the relationship between work engagement, the three psychological processes namely, meaningfulness, safety and availability and the antecedent conditions of employees ($N = 165$) in a chemical organisation. A cross-sectional survey design was used. Constructs were measured by means of the Antecedent Conditions Questionnaire, Work Engagement Questionnaire, and the Psychological Processes Questionnaire. Results demonstrated that psychological meaningfulness and psychological availability predicted work engagement. Work role fit and co-worker relations predicted psychological meaningfulness. Psychological meaningfulness mediated the relationship between work role fit and work engagement. Results further showed that resources predicted psychological availability. It was found that psychological availability mediated the relationship between resources and work engagement.

OPSOMMING

Die primêre doelstelling van die studie was om die verhouding tussen werkbegeestering, die drie psigologiese prosesse, betekenis, beskikbaarheid en veiligheid asook die voorwaardelike omstandighede wat werknemers ($N = 165$) in 'n chemiese nywerheid ervaar te ondersoek. Die studie het gebruik gemaak van 'n vraelys ontwerp om die konstrakte te meet. Daar is gebruik gemaak van die Psigologiese Prosesse-vraelys, die Voorwaardelike Omstandighede-vraelys en die Werksbegeestering-vraelys. Resultate het aangedui dat psigologiese betekenis en beskikbaarheid werksbegeestering voorspel het. Werk-rol passing en werknemerverhoudings het psigologiese betekenis voorspel. Psigologiese betekenis het die verwantskap tussen werk-rol passing en werksbegeestering gemedieer. Hulpbronne was die beste voorspeller van psigologiese beskikbaarheid. Psigologiese beskikbaarheid het die verhouding tussen hulpbronne en werkbegeestering gemedieer.

A challenge most managers in organisations are faced with is to gain some understanding of why some employees are engaged in their work and others not, being almost disengaged. Engagement can have positive consequences for organisations. Harter, Schmidt, and Hayes (2002) believe that there is a connection between engagement and business results. Engagement is an individual-level construct and if it does lead to business results, it must first impact individual-level outcomes. Kahn (1992) proposed that engagement leads to both individual outcomes (i.e. quality of people's work and their own experiences of doing that work), as well as organisational-level outcomes (i.e. the growth and productivity of organisations). People are placed in certain positions at work to perform required functions. Kahn (1990, p. 692) states that people can occupy these functions to varying degrees as well as adapting their psychological presence while performing these functions. On a physical, cognitive and emotional level, people manage to vary the degree they use of themselves to perform these work functions. It seems that the higher the degree people use of themselves to perform these functions within the workplace, the better their performance and acceptance of the fit to the positions they are in.

Academic literature has provided a number of definitions for engagement. Kahn (1990) defines personal engagement as "the harnessing of organisation members' selves to their work roles; in engagement, people employ and express themselves physically, cognitively and emotionally during role performances." Personal disengagement refers to "the uncoupling of selves from work roles; in disengagement, people withdraw and defend themselves physically, cognitively or emotionally during role performances." Thus, according to Kahn (1990, 1992), engagement means to be psychologically present when occupying and performing an organisational role.

According to Rothbard (2001), engagement involves two critical aspects namely attention and absorption. Attention refers to "cognitive availability and the amount of time one spends thinking about a role," while absorption "means being engrossed in a role and refers to the intensity of one's focus on a role."

Schaufeli, Salanova, Gronzales-Roma, and Bakker, (2002) define engagement "as a positive, fulfilling, work-related state of mind that is characterized by vigour, dedication and absorption." They further state that engagement is not a momentary and specific state, but

rather, it is “a more persistent and pervasive affective-cognitive state that is not focused on any particular object, event, individual or behaviour.”

Two existing constructs in the social sciences, namely job involvement (Brown, 1996) and “flow” (Csikszentmihalyi, 1990) are the most related to engagement. Job involvement can be defined as “the degree to which the job situation is central to the person and his identity” (Lawler & Hall, 1970, p. 310-311). The second construct related to engagement in organisational behaviour is “flow” advanced by Csikszentmihalyi (1975, 1990). He defines flow as the “holistic sensation that people feel when they act with total involvement.” Csikszentmihalyi sees flow as the state in which there is little distinction between the self and the environment. Individuals lose a sense of consciousness/awareness of their “selves” as they meld with the activity itself. Csikszentmihalyi (1990) also found that managers and supervisors tend to experience more flow than clerical or blue-collar workers.

According to May, Gilson, and Harter (2004), flow has primarily been conceptualized as cognitive involvement with a specific activity, an experience of being cognitively immersed. Hochschild (1983) and others (Morris & Feldman, 1996) suggest that a misalignment between the emotion someone experiences and that which the organisation requires, will lead to individuals experiencing emotional labour which may lead to disengagement from their work.

According to Thomas and Velthouse (1990), meaningless work may often cause apathy and detachment from one’s work. When individuals are disengaged from their work, they can also be estranged from themselves (Seeman, 1972). He proposes that people have to have meaningful work for them to experience attachment to their work as well as their motivation. An organisation has a responsibility towards its employees to provide meaningful work to them because that can lead to their personal growth and motivation (Spreitzer, Kizilos, & Nason, 1997).

Kahn (1990) argued that people asked themselves three fundamental questions in each role situation: i) How meaningful is it for me to bring myself into this performance; ii) How safe is it to do so; iii) How available am I to do so? He found that workers were more engaged at work in situations that offered them more psychological meaningfulness and psychological safety and when they were more psychologically available.

There is little theory available on how Kahn's theoretical framework contributes to the three psychological conditions and employee engagement at work. This study explores the relations among these elements which may enable us to better predict why some employees psychologically identify with their work and others don't.

Psychological meaningfulness

Researchers have recognized the psychological conditions of experienced meaningfulness to be an important psychological condition at work (e.g., Hackman & Oldham, 1980; May et al. 2004). According to Frankl (1992), individuals experience a need to seek meaning in their work. Meaningfulness can be defined as the value of a work goal or purpose, judged in relation to an individual's own ideals or standards (Hackman & Oldham, 1980; May et al, 2004). Aktouf (1992) states that people can become disengaged from their work, should they not experience meaning in their work. We explore how work role fit and co-worker relations influence psychological meaningfulness.

Psychological meaningfulness involves a sense of return on investments of the self-in-role performances (Kahn, 1992). According to Kahn (1990, 1992), psychological meaningfulness can be achieved from task characteristics that provide challenging work, variety, that allow the use of different skills, personal direction, and the opportunity to make important contributions. This is based on Hackman and Oldham's (1980) five core job characteristics model (i.e. skill variety, task identity, task significance, autonomy and feedback). Jobs that are high on the core job characteristics provide individuals with the opportunity and incentive to bring more of themselves into their work and to be more engaged (Kahn, 1992).

Work role fit. Shamir (1991) states that people are not just goal orientated, they can express themselves in a creative way. People have unique self-concepts and they want to express these and therefore seek roles in which they can do so. May et al. (2004) performed a study in a manufacturing environment and came to the conclusion that work role fit does influence an employee's experienced meaningfulness in that work environment.

Rewarding co-worker relations. Individuals will experience greater meaning in their work if they have rewarding interpersonal interactions with co-workers (Locke & Taylor, 1990). Individuals will tend to experience a sense of meaningfulness if they are treated with respect,

dignity and appreciation (value) for their contributions. Co-worker interactions create a sense of belonging and a stronger sense of social identity. The opposite is also true. According to Florian and Snowden (1989), a loss of social identity can lead to meaninglessness. For the purpose of the study, the scope is narrowed down to co-worker interactions.

The first set of hypotheses for this study is offered:

Hypothesis 1a: Work role fit is positively related to psychological meaningfulness.

Hypothesis 1b: Co-worker relations are positively related to psychological meaningfulness.

Psychological safety

According to Kahn (1992), psychological safety is about feeling able to show an employee's one self without fear or negative consequences to self-image, status or career. A recent study on safety by Edmondson (1999) will be used to explore the proposed connections. Trustworthy and supportive supervisory and co-worker behaviours are likely to produce feelings of safety at work. An important aspect of the safety stems from the amount of care and support employees perceive to be provided by their organisation as well as their direct supervisors. Kahn (1990) found that supportive and trusting interpersonal relationships as well as supportive management promoted psychological safety.

Supervisor relations. An individual's relationship with his supervisor has a direct impact on how safe he feels in the work environment. Edmondson (1999) stated that when a supervisor is supportive and not controlling at work, his employees will experience a sense of safety in the work environment. These supervisors are concerned about their employees' needs and feelings, provide positive feedback to them and develop new skills as well as encourage employees to voice their opinions, whether positive or negative. Whitener, Brodt, Korsgaard, and Werner (1998) found that the five categories of behaviour can be linked to employees' perceptions of managerial trustworthiness, behavioural consistency and integrity, sharing and delegation of control, communication and demonstration of concern. The researcher expect that these trustworthy supervisory behaviours will lead to feelings of psychological safety at work.

Co-worker relations. Trusting and supportive interpersonal relations among employees at work should lead to psychological safety (Kahn, 1990). Interpersonal trust can either have

cognitive or affective bases (McAllister, 1995). The reliability and dependability of others are related to cognitive-based trust, where the emotional relationships between individuals impact on affective trust. This study will explore what the influence of supportive and trust-building co-worker relations will be on psychological safety at work.

Co-worker norms. Norms are defined by Feldman (1984) as “the informal rules that groups adopt to regulate and regularize group members’ behaviours.” Behaviour, attitudes and the emotional dimensions of work, are governed by norms in organisations (Hochschild, 1983). Kahn (1990) stated that as long as individuals stay within the boundaries of acceptable behaviour at work, they will experience psychological safety. It is further theorized that norms are enforced if: (i) they facilitate the survival of a group, (ii) make group member behaviour more predictable, (iii) assist the group to avoid embarrassing interpersonal problems, and (iv) express the central values of the group. Concertive control in self-managing teams, associated with the normative process, can have negative consequences for group members (Barker, 1993). He states that teams develop concertive control through: (i) a value-based consensus of ethical rational action at work; (ii) identification with these shared values and the transfer of authority to the team’s value system; (iii) behavioural norms that are methodically developed based on these values; (iv) older team members’ expectations that new members to identify with, and act in accordance, with these norms; (v) peer pressure to enforce these normative rules; and (vi) the formalization and sharing of these normative rules.

The expectation in this study is that if employees feel that they must follow certain normative rules, it will lead to feelings of less psychological safety. Based on this, the second set of hypotheses is offered:

Hypothesis 2a: Supportive supervisor relations are positively related to psychological safety.

Hypothesis 2b: Rewarding co-worker relations are positively related to psychological safety.

Hypothesis 2c: Adherence to co-worker norms is negatively related to psychological safety.

Psychological availability

According to Kahn (1990), psychological availability can be defined as the confidence individuals have regarding their ability to be cognitively, physically and emotionally

available for work. Factors such as the individual's resources, work role insecurities and outside activities may influence these beliefs.

Resources. All individuals have physical, emotional and cognitive resources to perform their tasks with at work. Some jobs are less physically challenging than others, like sitting at a desk, which can also put enormous stress on the back (Hollenbeck, Ilgen, & Crampton, 1992). Individuals vary in their levels of stamina, flexibility and strength to meet these physical challenges. If they lack these physical resources, they may become disengaged from their work. All the jobs don't have the same emotional demands. Some jobs require much more emotional labour, such as the services sector (Hochschild, 1983; Sutton, 1991).

Cognitive demands and resources also vary per person and per job. Some job roles require more information processing than some individuals can handle. These individuals become overwhelmed by the amount of information they have to handle and their inability to think clearly. Ganster and Schaubroeck (1991) describe this situation as role overload. It is expected that the availability of resources will lead to greater engagement.

Self-consciousness. Self-consciousness refers to the heightened awareness individuals experience about perceptions and judgements from others about themselves (Schlenker, 1980).

Hypothesis 3a: Resources are positively related to psychological availability at work.

Hypothesis 3b: Self-consciousness is negatively related to psychological availability at work.

Psychological processes and engagement

It is theorised that the three psychological conditions which are explored, namely meaningfulness, safety and availability, will influence the degree of engagement in one's work function. We have already discussed that meaningfulness is the value of a work goal or purpose, judged in relation to an individual's own ideals or standards. If individuals see work roles as being meaningful to them, they will most likely engage more in it.

Psychological safety should also lead to engagement at work, because it confirms the individual's belief that he-/she can voice his-/her opinion without facing any negative

consequences. Where the environment of an individual is ambiguous, unpredictable and threatening, it is very likely that they will disengage from work.

Individuals should be more willing to engage themselves in their roles at work if they believe that they have the necessary physical, emotional and cognitive resources to do that. Based on this discussion, the following set of hypotheses is offered:

Hypothesis 4a: Psychological meaningfulness is positively related to engagement at work.

Hypothesis 4b: Psychological safety is positively related to engagement at work.

Hypothesis 4c: Psychological availability is positively related to engagement at work.

A work engagement model from May et al. (2004) was investigated for the purpose of this research to determine the relationship between work engagement, psychological processes and antecedent conditions. The expected relationships are shown in Figure 1.

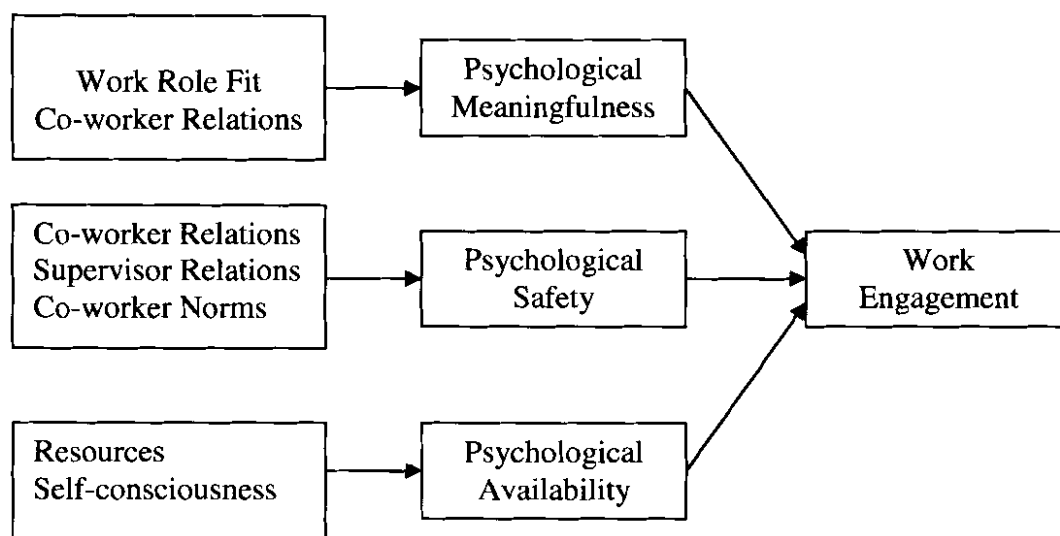


Figure 1. Model with expected relationships

Figure 1 shows that it is expected that psychological meaningfulness would mediate the relationship between work role fit and co-worker relations on the one hand and work engagement on the other hand (Hypothesis 5a). Psychological safety would mediate the relationship between co-worker relations, supervisor relations and co-worker norms and work engagement on the other hand (Hypothesis 5b). Lastly, it is expected that psychological

availability would mediate between resources and self-consciousness on the one hand and work engagement on the other hand (Hypothesis 5c).

METHOD

Research design

The researcher made use of a cross-sectional survey design to collect data to reach the research objectives. A sample was drawn from a population at one point of time (Shaughnessy & Zechmeister, 1997) and data was collected to describe the population at that time. This design can be used to assess interrelationships among variables within a population. According to Shaughnessy and Zechmeister (1997), this design is ideally suited to the descriptive and predictive functions associated with correlation research.

Participants

The participants were all employees of a chemical industry in Sasolburg and participants in the survey include employees and managers across different business units in the organisation. A random sample of 165 was taken from the employees. The biographical characteristics of the participants are shown in Table 1.

Table 1

Characteristics of the Participants (n = 165)

Item	Category	Frequency	Percentage
Age	≤25 years	14	8,5
	25-29 years	25	15,2
	30-34 years	34	20,6
	35-39 years	18	10,9
	40-44 years	22	13,3
	45-49 years	22	13,3
	50-54 years	14	8,5
	54+ years	9	5,5
Qualifications	Up to std 9	17	10,3
	Std 10	69	41,8
	One-year diploma	9	5,5
	Three-years diploma	35	21,2
	Degree	18	10,9
	Honours degree	4	2,4
	Master's / Doctoral degree	6	3,6
Gender	Male	107	64,8
	Female	47	28,5
Home language	Afrikaans	75	45,5
	English	18	10,9
	Sotho	31	18,8
	Xhosa	4	2,4
	Zulu	18	10,9
	Other	11	6,7
Job level	Below level 7	67	40,6
	Level 7	43	26,1
	Level 6	7	4,2
	Level 6C	15	9,1
	Level 5B	7	4,2
	Level 5A	3	1,8
	Level 4	1	0,6

As can be seen from Table 1 most of the participants were Male (64,8%) and only a small percentage (10,3%) are not in the possession of a matric certificate. Most participants were between the ages of 30-34 years (21%), Afrikaans speaking (45%) and on the lowest level (41%) in the company.

Measuring instruments

The Psychological Conditions Questionnaire was designed for this study to measure participants' perceptions about themselves, their jobs, supervisors and co-workers. The measures for the research are described below. All scales are based on a 5-point agreement-disagreement Likert format with 1 (*strongly disagree*) and 5 (*strongly agree*), unless otherwise noted. In terms of internal consistency, reliability coefficients have been determined as Meaningfulness: 0,93; Psychological Availability: 0,87; Safety: 0,29; Work Role fit: 0,88; Co-workers: 0,94; Supervisors: 0,95; Co-worker norms 0,55; Resources 0,76; Conscious: 0,68 and Engagement: 0,71.

Work engagement is measured by an average of 13 items ($\alpha=0,77$). The items reflect each of the three components of Kahn's (1990) psychological engagement: cognitive (i.e. Performing my job is so absorbing that I forget about everything else), emotional (i.e. I really put my heart into my job) and physical (i.e. I exert a lot of energy performing my job).

Psychological meaningfulness. Six items ($\alpha=0,90$) drawn from Spreitzer (1995) and May et al. (2004) measure the degree of meaning that individuals experience in their work-related activities, i.e. "The work I do in this job is very important to me."

Psychological safety. Psychological safety is measured by 3 items ($\alpha=0,71$) based on Kahn's (1990) work, i.e. "I'm not afraid to be myself at work." These items will assess whether individuals feel comfortable in being themselves and expressing their opinions at work or whether there is a threatening environment at work.

Psychological availability. The confidence individuals have regarding their ability to be cognitively, physically and emotionally available for work is measured by an average of 5 items ($\alpha=0,85$) based on Kahn's (1990) discussion, i.e. "I am confident in my ability to handle competing demands at work."

Work role fit. Work role fit is measured by an average of 4 items ($\alpha=0,92$), i.e. "My job 'fits' how I see myself," from May et al. (2004) which directly measures individuals' perceived fit with their jobs and self-concept (Kristof, 1996).

Rewarding co-worker relations. Co-worker relations is measured by an average of 10 items ($\alpha=0,93$) from May et al. (2004). These items measure such things as whether co-workers value an individual's input, values who they are as individuals and trust one another, i.e. "My interactions with my co-workers are rewarding."

Supportive supervisor relations. Supportive supervisor relations are measured by an average of 10 items ($\alpha=0,95$), i.e. "My supervisor helps me solve work-related problems." The first six are drawn from Oldham and Cummings (1996) and the last four from Butler (1991).

Co-worker norm adherence. The degree to which individuals follow co-worker norms and do what is expected of them by co-workers is measured by an average of 3 items ($\alpha=0,61$) developed for this study, i.e. "I go along with the norms in my group of co-workers."

Resources. The degree to which individuals possess the resources to become available for engagement is assessed by an average of 8 items ($\alpha=0,91$) that were developed for this study, items such as "I feel mentally sharp at the end of the workday."

Self-consciousness. Self-consciousness is measured by an average of 3 items ($\alpha=0,83$), i.e. "I worry about how others perceive me at work." These items measure public self-consciousness as opposed to private self-consciousness (Fenigstein, Scheier, & Buss, 1975).

Statistical analysis

The statistical analyses were carried out with the SPSS program (SPSS, 2005). The reliability and validity of the instrument were determined by means of Cronbach alpha coefficients as well as exploratory factor analysis to investigate the factor structure of the measuring instruments. Firstly, a simple principal components analysis was conducted on the constructs. The eigenvalues and scree plot were studied to determine the number of factors. Secondly, a principal component analysis with a direct oblimin rotation was used to extract the factors that are related (Tabachnick & Fidell, 2001).

Descriptive statistics (e.g. means and standard deviations) were used to analyse the data. Pearson product-moment correlation coefficients were used to assess the relationships

between the variables. In terms of significance, it was decided to set the value at a 95% confidence interval level ($p < 0,05$). Effect sizes (Steyn, 1999) are used to decide on the practical significance of the findings. A cut-off point of 0,30 (medium effect, Cohen, 1988) was set for the practical significance of correlation coefficients.

Structural equation modelling (SEM) methods, as implemented by AMOS (Arbuckle, 2005), will be used to test the structural model of work engagement. Data analyses will proceed as follows: firstly, a quick overview of model fit will be done by looking at the overall χ^2 value, together with its degrees of freedom and probability value. Global assessments of model fit are based on several goodness-of-fit statistics (GFI, AGFI, NFI, TLI, CFI and RMSEA); secondly, given findings of an ill-fitting initially hypothesised model, analyses will proceed in an exploratory mode.

Regression analyses were conducted to determine the percentage of variance in the dependent variables that is predicted by the independent variables. A correlation can be better understood by determining R^2 (Cohen, 1988). The square of the correlation coefficient indicates the proportion of the variance in any two variables, which is indicated by the variance in the other.

RESULTS

Construct validity of the measuring instruments

Two models of work engagement were tested, namely a one-factor model and a three-factor model.

Table 2
Goodness-of-fit Statistics for the Work Engagement Model

Model	χ^2	χ^2/df	GFI	IFI	TLI	CFI	RMSEA
Model 1 (one factor)	164,17	2,53	0,86	0,71	0,64	0,70	0,10
Model 2 (three factor)	61,81	2,38	0,92	0,88	0,83	0,87	0,09
Model 2 (one factor)	157,81	2,55	0,87	0,72	0,64	0,71	0,10

The statistically significant $\chi^2 = 164,170$ ($df = 65$; $p < 0,00$) and fit indices revealed a poor overall fit of the originally hypothesised 1-factor engagement model (Model 1), whilst the 3-factor model resulted in an even poorer fit. To pinpoint possible areas of misfit, modification indexes (MI) were examined. Item 3 of the cognitive engagement scale, item 3 of the emotional engagement scale and items 3 and 4 of the physical engagement scale demonstrated poor loadings and were consequently removed. Model 2 indicates substantially improved fit of data to theory, with all indexes indicating reasonably good fit.

A simple principal components analysis was conducted on the 14 items of the psychological conditions questionnaire. Analysis of eigenvalues (larger than 1) and scree plot indicated that three factors, which explained 66,63% of the variance, could be extracted. Next, a principal factor analysis with a direct oblimin rotation was conducted.

Table 3

Pattern Matrix for the items of the Psychological Processes Questionnaire

	Component		
	1	2	3
1. The work I do on this job is very important to me	0,67	0,02	-0,14
2. My job activities are personally meaningful to me	0,85	0,02	-0,01
3. The work I do on this job is worthwhile	0,87	0,02	-0,02
4. My job activities are significant to me	0,90	0,02	0,05
5. The work I do on this job is meaningful to me	0,93	-0,09	0,04
6. I feel that the work I do on my job is valuable	0,84	-0,01	-0,03
7. I'm not afraid to be myself at work	0,08	-0,02	-0,47
8. I am afraid to express my opinions at work	-0,02	0,78	-0,06
9. I am confident in my ability to handle competing demands at work	-0,10	-0,09	-0,90
10. I am confident in my ability to deal with problems that come up at work	-0,07	-0,02	-0,93
11. I am confident in my ability to think clearly at work	0,06	-0,01	-0,84
12. I am confident in my ability to display the appropriate emotions at work	0,09	0,16	-0,63
13. I am confident that I can handle the physical demands at work	0,15	0,08	-0,64
14. There is a threatening environment at work	-0,01	0,82	0,07

Inspection of Table 3 indicated that all the items of the Psychological Meaningfulness subscale loaded appropriately ($> 0,45$). Similarly, all the items of the Psychological Availability subscale demonstrated factor loadings higher than 0,45. The Psychological Safety subscale, which consists of three items, however, proved to be problematic. Items 2 and 3 loaded correctly, although item 1 loaded on the availability subscale. Consequently, only two items measuring

Psychological Safety could be retained. These two items presented with very poor internal consistency (0,29). Hence, this subscale was not used in any further analyses.

A simple principal components analysis was conducted on the 36 items of the organisational conditions questionnaire (work role fit, co-worker relations, supervisor relations, co-worker norm adherence, resources, self-consciousness). Analysis of eigenvalues (larger than 1) and scree plot indicated that six factors, which explained 65,79% of the variance, could be extracted. Next, a principal factor analysis with a direct oblimin rotation was conducted.

Table 4

Pattern Matrix for the Items of the Antecedent Conditions Questionnaire

	Components					
	1	2	3	4	5	6
1. My job "fits" how I see myself	0,02	0,04	-0,01	-0,82	-0,03	0,05
2. I like the identity my job gives me	0,04	-0,01	-0,04	-0,92	-0,03	-0,01
3. The work I do on this job helps me satisfy who I am	0,12	-0,06	0,07	-0,84	-0,02	0,04
4. My job "fits" how I see myself in the future	0,09	0,17	0,05	-0,65	0,12	-0,04
5. My interactions with my co-workers are rewarding	-0,01	0,68	0,08	-0,08	-0,01	0,16
6. My co-workers value my input	0,02	0,76	0,11	-0,07	0,00	-0,05
7. My co-workers listen to what I have to say	0,00	0,80	0,07	0,03	0,02	0,03
8. My co-workers really knows who I am	0,02	0,77	-0,14	0,03	-0,05	0,04
9. I believe that my co-workers appreciate who I am	0,06	0,86	-0,07	-0,01	-0,03	-0,00
10. I sense a real connection with my co-workers	0,03	0,86	-0,06	-0,01	0,07	0,01
11. My co-workers and I have mutual respect for one another	-0,05	0,85	0,04	-0,02	-0,07	0,08
12. I feel a real "kinship" with my co-workers	0,02	0,81	-0,06	-0,05	-0,03	-0,01
13. I feel worthwhile when I am around my co-workers	-0,02	0,90	-0,06	-0,02	0,01	-0,05
14. I trust my co-workers	0,08	0,79	0,06	0,08	0,10	-0,08
15. My supervisor helps me to solve work-related problems	0,65	0,02	-0,04	-0,06	-0,07	-0,03
16. My supervisor encourages me to develop new skills	0,83	0,03	0,06	-0,03	0,07	-0,15
17. My supervisor keeps informed about how employees think and feel about things	0,80	0,01	-0,09	-0,20	0,02	-0,09
18. My supervisor encourages employees to participate in important decisions	0,82	0,10	0,01	-0,04	0,10	-0,08
19. My supervisor praises good work	0,75	-0,03	0,14	0,01	-0,08	0,09
20. My supervisor encourages employees to speak up when they disagree with a decision	0,86	0,07	-0,07	0,06	0,00	-0,02
21. Employees are treated fairly by my supervisor	0,82	0,12	-0,08	-0,01	-0,03	-0,06
22. My supervisor is committed to protecting my interests	0,84	-0,03	-0,02	-0,16	-0,03	0,09
23. My supervisor does what he/she says he/she will do	0,78	0,02	0,00	-0,13	-0,04	0,08
24. I trust my supervisor	0,87	-0,03	-0,04	-0,08	-0,06	0,01
25. I don't "rock the boat" with my co-workers	0,36	0,03	-0,10	0,24	0,06	0,50
26. I do what is expected of me by my co-workers	-0,25	0,17	0,07	-0,13	-0,06	0,82
27. I feel mentally sharp at the end of a workday	0,36	0,09	0,31	-0,04	0,40	0,29
28. I can't think straight by the end of my workday	0,11	0,14	0,30	0,00	-0,35	-0,33
29. I feel overwhelmed by the things going on at work	-0,07	0,05	0,23	0,12	-0,48	-0,24
30. I feel emotionally healthy at the end of a workday	0,43	0,07	0,17	0,05	0,04	-0,03
31. I feel I'm at the end of my rope emotionally	-0,06	0,12	0,66	-0,06	-0,12	-0,13
32. I feel emotionally drained from my work	-0,08	0,04	0,77	-0,15	0,01	-0,21
33. I feel tired before my workday is over	0,10	-0,12	0,81	0,03	0,08	0,10
34. I feel physically used up at the end of the workday	0,23	0,01	0,84	0,02	-0,06	0,19
35. I worry about how others perceive me at work	-0,06	0,08	0,03	0,08	0,81	-0,11
36. I am afraid my failings will be noticed by others	-0,01	-0,02	0,09	-0,03	0,88	-0,06

Inspection of Table 4 indicated that all the items of work role fit subscale loaded appropriately ($>0,45$). Although items 2 and 3 from the adherence-to-norms subscale loaded appropriately ($>0,45$), these two items presented poor internal consistency ($\alpha=0,56$) and could therefore not be retained. Item 3 on the self-consciousness subscale didn't load appropriately ($<0,45$), but items 1 and 2 loaded correctly. Poor internal consistency of the self-consciousness subscale was presented ($\alpha=0,12$),but when item 3 was deleted the internal consistency of this subscale improved to 0,68 and items 1 and 2 could therefore be retained.

Descriptive statistics

Descriptive statistics, alpha coefficients and correlations of the measuring instrument used are reported in Table 5.

Table 5

Descriptive Statistics, Alpha Coefficients and Correlations of the Scales

Item	Mean	SD	α	1	2	3	4	5	6	7
1. Psychological Meaningfulness	24,25	5,39	0,93	-	-	-	-	-	-	-
2. Psychological Availability	20,27	4,19	0,87	0,68 ⁺⁺⁺	-	-	-	-	-	-
3. Work Role Fit	13,54	4,22	0,88	0,56 ⁺⁺⁺	0,42 ⁺	-	-	-	-	-
4. Co-worker Relations	35,65	8,32	0,94	0,23 [*]	0,24 [*]	0,36 ⁺	-	-	-	-
5. Supervisor Relations	33,15	10,43	0,95	0,23 [*]	0,14	0,48 ⁺	0,44 ⁺	-	-	-
6. Resources	26,69	5,57	0,76	0,22 [*]	0,33 ⁺	0,27 [*]	0,30 ⁺	0,30 ⁺	-	-
7. Self-consciousness	5,71	1,98	0,68	-0,14	-0,16	-0,07	-0,05	-0,02	-0,25 [*]	-
8. Work Engagement	30,74	4,86	0,71	0,54 ⁺⁺⁺	0,56 ⁺⁺⁺	0,29 [*]	0,19	0,16	0,31 ⁺	-0,26 [*]

* $p \leq 0,05$ – statistically significant

+ $r > 0,30$ – practically significant (medium effect)

++ $r > 0,50$ – practically significant (large effect)

Table 5 shows the acceptable Cronbach alpha coefficients varying from 0,68 to 0,95. It is clear that there is a statistically significant positive correlation between Psychological Meaningfulness and Psychological Availability ($r = 0,68$; large effect).

There are also statistically significant, positive correlations between Psychological Meaningfulness on the one hand and Work Role Fit ($r = 0,56$; large effect), and Co-worker Relations ($r = 0,23$). Psychological Meaningfulness also shows a statistically significant positive correlation with Work Engagement ($r = 0,54$; large effect). These findings provide support for Hypotheses 1a and 1b.

It was not possible to test Hypothesis 2 because the Psychological Safety Scale did not show an acceptable alpha coefficient. No analyses involving this scale was therefore possible.

There is a statistically significant correlation of a positive nature between Psychological Availability and Resources ($r = 0,33$; medium effect). This result provides support for Hypothesis 3a. However, no statistically significant relationship was found between Self-consciousness and Psychological Availability. Hypothesis 3b was therefore not supported. Resources also shows a statistically significant positive correlation with Work Engagement ($r = 0,31$; medium effect). Self-consciousness also showed a statistically significant relationship with Work Engagement ($r = -0,26$).

Multiple regression analyses

Next, a series of multiple regression analyses were performed to test whether organisational conditions predicted work engagement and to test whether psychological meaningfulness and availability mediates the relationship between organisational conditions and work engagement. Baron and Kenny (1986) recommend three steps in order to test for mediation. According to these authors, beta coefficients of different regression equations must be compared. Firstly, the mediator should be predicted by the independent variable. Secondly, the dependent variable should be predicted by the mediator and the independent variable, and lastly, the dependent variable should be regressed on the independent variable, controlling for the mediator. If all steps prove significant, perfect mediation holds when, controlling for the mediator, the independent variable does not predict the dependent variable.

Multiple regression analyses with Work Engagement as dependent variable, and Psychological Meaningfulness and Psychological Availability respectively as independent variables were conducted. The results showed that Psychological Meaningfulness statistically significantly predicted Work Engagement ($F = 65,89$, $p < 0,01$, $R^2 = 0,29$). The standardised

regression coefficient of Psychological Meaningfulness was strong ($\beta = 0,54, p < 0,01$). Furthermore, Psychological Availability statistically significantly predicted Work Engagement ($F = 74,74, p < 0,01, R^2 = 0,31$). The standardised regression coefficient of Psychological Availability was also strong ($\beta = 0,56, p < 0,01$). These results provide evidence for the second criterion of Baron and Kenny (1986) (i.e. that the dependent variable should be predicted by the mediator).

A multiple regression analysis with Psychological Meaningfulness as dependent variable and Work Role Fit and Co-worker Relations as independent variables, showed that Work Role Fit statistically significantly ($\beta = 0,55, p < 0,01$) predicted Psychological Meaningfulness ($F = 37,56, p < 0,01, R^2 = 0,32$). A multiple regression analysis with Psychological Availability as dependent variable and Resources and Self-Consciousness as independent variables, showed that Resources statistically significantly ($\beta = 0,30, p < 0,01$) predicted Psychological Availability ($F = 10,38, p < 0,01, R^2 = 0,11$). This finding provides evidence for the first criterion of Baron and Kenny (1986), namely that the independent variables should statistically significantly predict the mediator. Psychological Meaningfulness was statistically significantly predicted by Work Role Fit, while Psychological Availability was statistically significantly predicted by Resources.

The results of a multiple regression analysis with Work Engagement as dependent variable, and Work Role Fit and Co-worker Relations (step 1), as well as Psychological Meaningfulness (step 2) are reported in Table 6.

Table 6

Multiple Regression Analysis with Work Engagement as Dependent Variable and Antecedent Conditions and Psychological Meaningfulness as Independent Variables

Model	Unstandardised Coefficients		Standardised Coefficients	<i>t</i>	<i>p</i>	<i>F</i>	<i>R</i>	<i>R</i> ²	ΔR^2
	B	SE	Beta						
1						8,36*	0,31	0,09	0,09*
	Constant	24,79	1,72	14,39	0,00*				
	Work Role Fit	0,30	0,09	0,26	3,26	0,00*			
	Co-worker Relations	0,05	0,05	0,09	1,12	0,27			
2						22,18*	0,54	0,29	0,20*
	Constant	17,99	1,83	9,83	0,00				
	Work Role Fit	-0,04	0,10	-0,04	-0,42	0,67			
	Co-worker Relations	0,04	0,04	0,07	1,01	0,31			
	Psychological Meaningfulness	0,49	0,07	0,54	6,73	0,00*			

$p < 0,01$

The results in Table 6 show that Work Role Fit statistically significantly predicted Work Engagement (9% of the variance explained). The standardised regression coefficient of Work Role fit was moderate. However, Co-worker Relations was not a statistically significant predictor of Work Engagement. When Psychological Meaningfulness was entered into the regression equation, the regression coefficient decreased and was not statistically significant anymore. These findings provides proof that Psychological Meaningfulness mediates the relationship between Work Role Fit and Work Engagement. Hypothesis 5a is therefore accepted for work role fit, but not for co-worker relations.

The results of a multiple regression analysis with Work Engagement as dependent variable, and Resources and Self-consciousness (step 1), as well as Psychological Availability (step 2) are reported in Table 7.

Table 7

Multiple Regression Analysis with Work Engagement as Dependent Variable and Antecedent Conditions and Psychological Meaningfulness as Independent Variables

Model	Unstandardised Coefficients		Standardised Coefficients	<i>t</i>	<i>p</i>	<i>F</i>	<i>R</i>	<i>R</i> ²	ΔR^2
	B	SE	Beta						
1						12,15*	0,36	0,13	0,13*
	Constant	27,46	2,30	11,93	0,00				
	Resources	0,23	0,07	0,26	3,41	0,00*			
	Self-consciousness	-0,48	0,19	-0,20	-2,58	0,01*			
2						29,30*	0,59	0,35	0,22*
	Constant	18,61	2,32	8,03	0,00				
	Resources	0,09	0,06	0,11	1,55	0,12			
	Self-consciousness	-0,37	0,16	-0,15	-2,30	0,02*			
	Psychological Availability	0,58	0,08	0,50	7,45	0,00*			

$p < 0,01$

The results in Table 7 show that Resources and low Self-consciousness statistically significantly predicted Work Engagement (13% of the variance explained). The standardised regression coefficients of Resources and Self-consciousness were moderate. However, when Psychological Availability was entered into the regression equation, the regression coefficient of Resources was not statistically significant anymore. This finding provides proof that Psychological Availability mediates the relationship between Resources and Work Engagement. Low self-consciousness remained a statistically significant predictor of Work Engagement, although its effect was small ($\beta = -0,15$). Hypothesis 5c is therefore accepted for resources, but not for self-consciousness.

DISCUSSION

The first objective of this study was to determine the reliability and construct validity of scales which were used to measure work engagement, psychological processes (meaningfulness, availability and safety) and antecedent conditions (work role fit, co-worker relations, supervisor relations, co-worker norms, self-consciousness and available resources). Acceptable Cronbach alpha coefficients were recorded for most constructs (Nunnally &

Bernstein, 1994), except for psychological safety ($\alpha=29$). Exploratory factor analyses were conducted which indicated that all the items of the psychological meaningfulness subscale loaded appropriately. Similarly, all the items of the psychological availability subscale demonstrated appropriate factor loadings. Two of the three items loaded correctly on the psychological safety subscale. However, these items presented with very poor internal consistency. Therefore the psychological safety subscale was not used in further analyses.

A further objective of the study was to determine the relationship between work engagement, psychological processes (meaningfulness, availability and safety) and antecedent conditions (work role fit, co-worker relations, supervisor relations, co-worker norms, self-consciousness and available resources). There were practically significant correlations of large effect between psychological meaningfulness and work engagement as well as between psychological availability and work engagement, which is confirmed by previous research (Johns et al., 1992; May et al., 2004). Lack of meaningfulness in one's work can lead to alienation or disengagement from one's work (Aktouf, 1992). The relation between work role fit and meaningfulness is consistent with previous research (May et al., 2004). This is also consistent with the view that when people see their roles as opportunities to express their selves they will experience a sense of meaning (Brief & Nord, 1990; Shamir, 1991). It was also found that psychological meaningfulness had a statistically significant positive correlation with co-worker relations. Psychological availability was significantly related to resources. If individuals believe that they have the physical, emotional and cognitive resources available to do their work, they will be able to engage themselves in their work (Kahn, 1990). In the study of May et al. (2004), it was found that resources did not show a significant relationship with psychological availability. In their study, resources act as a suppressor of the availability-engagement relation.

The study also aimed to determine whether the three psychological processes of meaningfulness, safety and availability mediate the relationship between the antecedent conditions and work engagement. Due to a poor reliability of the scale which measured psychological safety, the hypotheses regarding the relationship between co-worker support, supervisor support, and co-worker norms, psychological safety and work engagement could not be assessed. Three different models were analysed using regression analyses to test for mediation as proposed by Baron and Kenny (1986).

Psychological meaningfulness fully mediated the relationship between work role fit and work engagement. This means that perceived fit between employee characteristics and the roles that they fulfil lead to psychological meaningfulness, which in turn leads to work engagement. Work role fit predicted 32% of the variance in psychological meaningfulness. Furthermore, psychological meaningfulness predicted 29% of the variance in work engagement. The results strongly suggested that psychological meaningfulness also mediated the relationship between co-worker relations and work engagement. However, when entered with work role fit into the regression equation, the regression coefficient of co-worker relations were not statistically significant.

Psychological availability fully mediated the relationship between available resources and work engagement (May et al., 2004). This means that should an employee experience to have the physical, emotional and cognitive resources to perform his job, he will be more psychologically present at work which will lead to work engagement. Resources predicted 11% of the variance in psychological availability. Psychological availability predicted 31% of the variance in work engagement.

The findings of this study are summarised in Figure 2.

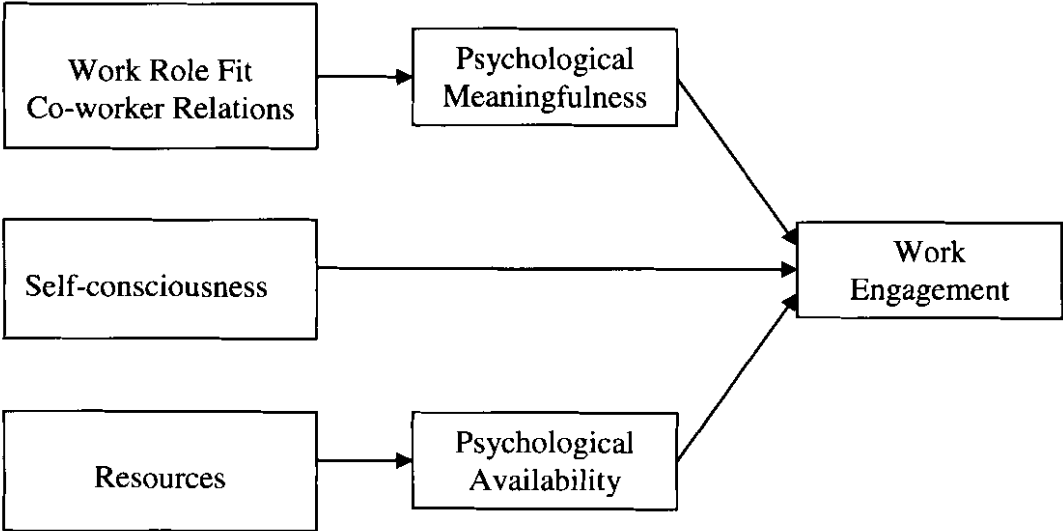


Figure 2. Adapted model of work engagement

From Figure 2 it can be deduced that employees who fit into their work role and who experience supportive co-worker relations, find meaning in their work, which contribute to

their work engagement. Work role fit contributes to psychological meaningfulness and work engagement because it makes it possible for employees to express their unique self-concepts in their jobs (see also May et al., 2004). When employees experience respect, dignity and appreciation for their contributions from co-workers, they experience rewarding co-worker relations, which result in psychological meaningfulness. Co-worker interactions create a sense of belonging and a stronger sense of social identity (Locke & Taylor, 1990). Florian and Snowden (1989) confirmed that a loss of social identity can lead to meaninglessness.

Having the physical, emotional and cognitive resources to perform tasks at work, contribute to employees' psychological availability (i.e. the confidence individuals have regarding their ability to be cognitively, physically and emotionally available for work). This finding is in line with the findings of Hollenbeck et al. (1992), Hochschild (1983), and Sutton (1991). Self-consciousness seems to impact directly on the work engagement of individuals.

This study had various limitations. First, only 165 questionnaires were completed and returned, although the entire section consists of approximately 500 employees. Second, the sample was imbalanced in terms of gender. The group of participants from the chemical industry were primarily male employees. Third, self-report instruments and a survey design were used, therefore, causal inferences cannot be made. Nevertheless the hypothesised relationships are consistent with previous theory and research (Kahn, 1990). Fourth, the scale which measured psychological safety was too unreliable to be used in the study, which made it impossible to test some of the hypotheses. Last, multiple regression analyses were used to assess mediation effects in this study. Structural equation modelling would probably provide a better picture of the interrelationships between the variables.

RECOMMENDATIONS

Important findings were made from this study in terms of job design, employee selection and employee relations. Meaningfulness was found to be related to work engagement. Managers in organisations should make an effort to cultivate meaningfulness through effective job design. Secondly, it is also suggested by this study that selecting the proper person for a specific work role will improve meaningfulness. Therefore managers should endeavour to familiarise them with the personal aspirations and desires of the employees to enable them to place employees in positions that will allow them to express themselves.

Organisational selection processes and tools should be used to ensure proper work role fit when employing new employees. Potential new employees should also be exposed to current employees to improve the fit with employees and employee norms. Employees with high levels of self-consciousness should be given counselling to enable them to deal with their insecurities and they should be put in appropriate positions.

When doing job design, managers should attempt to reduce the cognitive, physical and emotional strain experienced by employees. Employees should not be overloaded with cognitive processing demands, or be required to perform extensive emotional or physical labour without regular breaks. To improve psychological availability, employees should be motivated to improve personal skills and resources.

Future longitudinal studies are needed to verify the results of this study in the bigger population as well as other organisations with the addition of qualitative studies to counter possible perceptions associated with questionnaires. Such future studies must include other variables to verify current results, but also to expand knowledge on how to create a conducive environment for employees to experience work engagement at work.

Research doesn't show a relationship between psychological meaningfulness and co-worker relations and it is therefore recommended that future studies should focus on the effect of co-worker relations on meaningfulness in other types of jobs to gain a better understanding of the inconsistent findings (Kahn, 1990; May et al., 2004).

Although the revised one-factor model for work engagement was shown to be an appropriate fit, the psychological conditions survey proved to be somewhat problematic with regards to the internal consistency levels of some of the subscales. Research is required into the psychometric properties of this instrument and some adaptation of items may be required. Not all cultures are familiar with statements such as "kinship" or "rock the boat."

REFERENCES

- Aktouf, O. (1992). Management and theories of organisations in the 1990's: Toward a critical radical humanism. *Academy of Management Review*, 17, nr 407-431.
- Arbuckle, J. L. (2005). *AMOS 6*. Spring House, PA: AMOS Development Corporation.
- Barker, J. R. (1993). Tightening the iron cage: Concertive control in self-managing teams. *Administrative Science Quarterly*, 38, nr 408-437.
- Baron, R. M., & Kenny, D. A. (1986). The moderator-mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology*, 51, 1173-1182.
- Brown, S. P. (1996). A meta-analysis and review of organisational research on job involvement. *Psychological Bulletin*, 120, nr 235-255.
- Butler, J. K., Jr. (1991). Towards understanding and measuring conditions of trust: Evolution of a conditions of trust inventory. *Journal of Management*, 17, 643-663.
- Cohen, J. (1988). *Statistical power analysis for the behavioural sciences* (Revised ed.). Orlando, FL: Academic Press.
- Csikszentmihalyi, M. (1975). *Beyond boredom and anxiety*. San Francisco, CA: Jossey-Bass.
- Csikszentmihalyi, M. (1990). *Flow: The psychology of optimal experience*. New York: Harper.
- Edmondson, A. (1999). Psychological safety and learning behaviour in work teams. *Administrative Science Quarterly*, 44, nr 350-383.
- Feldman, D. (1984). The development and enforcement of group norms. *Academy of Management Review*, 9, 47-53.
- Fenigstein, A., Scheier, M. F., & Buss, A. H. (1975). Public and private self-consciousness: Assessment and theory. *Journal of Consulting and Clinical Psychology*, 43, nr 522-527.
- Florian, V., & Snowden, L. R. (1989). Fear of personal death and positive life regard: A study of different ethnic and religious affiliated American college students. *Journal of Cross-Cultural Psychology*, 20, 64-79.
- Frankl, V. (1992). *Man's search for meaning: An introduction to logotherapy*. Boston, MA: Beacon.
- Ganster, D. C., & Schaubroeck, J. (1991). Work stress and employee health. *Journal of Management*, 17, nr 235-271.
- Hackman, J. R., & Oldham, G. R. (1980). *Work redesign*. Reading, MA: Addison-Wesley.

- Harter, J. K., Schmidt, F. L., & Hayes, T. L. (2002). Business-unit-level relationship between employee satisfaction, employee engagement and business outcomes: A meta-analysis. *Journal of Applied Psychology, 87*, nr 268-279.
- Hochschild, A. (1983). *The managed heart*. Berkeley, CA: University of California Press.
- Hollenbeck, J. R., Ilgen, D. R., & Crampton, S. M. (1992). Lower back disability in occupational settings: A review of the literature from a human resource management view. *Personnel Psychology, 45*, nr 247-278.
- Kahn, W. A. (1990). Psychological conditions of personal engagement and disengagement at work. *Academy of Management Journal, 33*, 692-724.
- Kahn, W. A. (1992). To be full there: Psychological presence at work. *Human Relations, 45*, nr 321-329.
- Kristof, A. L. (1996). Person-organisation fit: An integrative review of its conceptualizations, measurement and implications. *Personnel Psychology, 49*, 1-50.
- Lawler, E. E., III, & Hall, D. T. (1970). Relationship of job characteristics to job involvement, satisfaction and intrinsic motivation. *Journal of Applied Psychology, 54*, 305-312.
- Locke, E. A., & Taylor, M. S. (1990). Stress, coping and the meaning of work. In A. Brief & W. R. Nord (Eds.), *Meanings of occupational work* (pp. 135-170). Lexington, MA: Lexington Books.
- May, D. R., Gilson, R. L., & Harter, L. M. (2004). The psychological conditions of meaningfulness, safety and availability and the engagement of the human spirit at work. *Journal of Occupational and Organizational Psychology, 77*, 11-37.
- McAllister, D. J. (1995). Affect-and cognition-based trust as foundations for interpersonal cooperation in organizations. *Academy of Management Journal, 38*, 24-59.
- Morris, J. A., & Feldman, D. C. (1996). The dimensions, antecedents and consequences of emotional labour. *Academy of Management Review, 21*, nr 986-1010.
- Nunnally, J. C., & Bernstein, I. H. (1994). *Psychometric theory* (3rd ed.). New York: McGraw-Hill.
- Oldham, G. R., & Cummings, A. (1996). Employee creativity: Personal and contextual factors at work. *Academy of Management Journal, 39*, nr 607-634.
- Rothbard, N. P. (2001). Enriching or depleting? The dynamics of engagement in work and family roles. *Administrative Science Quarterly, 46*, nr 655-684.
- Schlenker, B. R. (1980). *Impression management: The self-concept, social identity and interpersonal relations*. Monterey, CA: Brooks/Cole Publishing.

- Seeman, M. (1972). Alienation and engagement. In A. Campbell & P. E. Converse (Eds.), *The human meaning of social change* (pp. 467-527). New York: Russell Sage Foundation.
- Schaufeli, W. B., Salanova, M., Gronzales-Roma, V., & Bakker, A. B. (2002). The measurement of work engagement and burnout: A comparative analytic approach. *Journal of Happiness Studies, 3*, 71-92.
- Shaughnessy, J. J., & Zechmeister, E. B. (1997). *Research methods in psychology* (4th ed.). New York: McGraw-Hill.
- Shamir, B. (1991). Meaning, self and motivation in organizations. *Organization Studies, 12*, nr 405-424.
- Spreitzer, G. (1995). Psychological empowerment in the work place: Dimensions, measurement and validation. *Academy of Management Journal, 38*, nr 1442-1465.
- Spreitzer, G. M., Kizilos, M. A., & Nason, S. W. (1997). A dimensional analysis of the relationship between psychological empowerment and effectiveness, satisfaction and strain. *Journal of Management, 23*, nr 679-704.
- SPSS Inc. (2005). *SPSS 14.0 for Windows*. Chicago, IL: Author.
- Steyn, H. S. (1999). *Praktiese betekenisvolheid: Die gebruik van effekgroottes. (Practical significance: The use of effect sizes.)* Wetenskaplike bydraes – Reeks B: Natuurwetenskappe nr 117. Potchefstroom: PU vir CHO.
- Sutton, R. I. (1991). Maintaining norms about expressed emotions: The case of the bill collectors. *Administrative Science Quarterly, 36*, nr 245-268.
- Tabachnick, B. G., & Fidell, L. S. (2001). *Using multivariate statistics* (4th ed.). Boston, MA: Allyn & Bacon.
- Thomas, K. W., & Velthouse, B. A. (1990). Cognitive elements of empowerment: An “interpretive” model of intrinsic task motivation. *Academy of Management Review, 15*, nr 666-681.
- Whitener, E. M., Brodt, S. E., Korsgaard, M. A., & Werner, J. M. (1998). Managers as initiators of trust: An exchange relationship framework for understanding managerial trustworthy behaviour. *Academy of Management Review, 23*, nr 513-530.

CHAPTER 3

CONCLUSIONS, LIMITATIONS AND RECOMMENDATIONS

Chapter 3 presents a discussion on the results of the research. In this chapter conclusions regarding the literature study and the results of the empirical research are discussed. Shortcomings of the research will be discussed and recommendations for organisations and future research are provided.

3.1 CONCLUSIONS

Conclusions regarding the specific theoretical objectives and the results of the empirical research are made.

3.1.1 Conclusions regarding the specific theoretical objectives

In line with the specific objective stated in Chapter 1, work engagement, psychological meaningfulness, psychological availability and psychological safety as well as the relationship between these constructs were conceptualised from literature. Antecedent conditions such as work role fit, co-worker relations, supervisor relations, resources available and self-consciousness were also conceptualised based on previous research.

Work engagement was conceptualised as a positive, energetic state of work-related orientation, characterised by (a) vigour, (b) dedication and (c) absorption. Vigour was defined as being related to high levels of energy, mental resilience, willingness to exert effort and persistence. Dedication was conceptualised as being related to enthusiasm, inspiration, pride, challenge and a sense of significance. Absorption was defined as referring to a state where time flies and where the individual finds it difficult to detach from work.

Psychological meaningfulness was defined as the degree of meaning that the achievement of a work goal has for an individual, based on her own standards. Psychological availability was conceptualised in terms of whether individuals believed that they had the physical, emotional or cognitive resources to immerse themselves in their work. An employee's feeling of being

safe to express themselves in their work, without any negative consequences, was defined as psychological safety.

Work role fit was defined as the perceived "fit" between an individual's self-concept and his role in the organisation. Co-worker relations were conceptualised as having supportive and trustworthy interactions with co-workers. Supervisor relations were conceptualised as the supportive, non-controlling relationship between an employee and his supervisor. Resources available refer to physical, emotional or cognitive resources available to an individual to face the physical, emotional or cognitive demands of his work role.

From the literature review it was found that psychological meaningfulness and psychological availability lead to work engagement. It was also found that work role fit lead to psychological meaningfulness as well as work engagement. Co-worker relations, supervisor relations as well as resources available also predicted psychological meaningfulness. Work role fit and co-worker relations were also found to be predictors of psychological availability.

According to the findings of the literature study, it was clear that psychological meaningfulness and psychological availability fully mediate the relationship between resources available and work engagement. There were no partially mediating effects to report.

3.1.2 Conclusions regarding the specific empirical objectives

Construct validity, as well as internal consistency was confirmed for all the measuring instruments and subscales, except for the psychological safety scale.

The second empirical objective was to investigate the relationships between antecedent conditions, psychological processes and work engagement. Pearson correlations indicated that the two psychological processes of psychological meaningfulness and psychological availability predicted work engagement. Thus, employees experiencing meaning in achieving work goals and with the required physical, emotional or cognitive resources will be fully engaged in their work. Supportive and trustworthy interpersonal interactions with co-workers, as well as having the necessary resources available to immerse one self in the work role lead to having a positive experience of achieving work goals. The perceived "fit" of an employee in his/her work role as well as having supportive, trustworthy interactions with co-workers,

lead to employees feeling they are physically, emotionally or cognitively able to perform within their work roles.

The third empirical objective was to determine whether psychological processes mediate the relationships between antecedent conditions and work engagement.

Psychological meaningfulness fully mediated the relationship between work role fit and work engagement. This means that perceived fit between employee characteristics and the roles that they fulfil lead to psychological meaningfulness, which in turn leads to work engagement. Work role fit predicted 32% of the variance in psychological meaningfulness. Furthermore, psychological meaningfulness predicted 29% of the variance in work engagement. The results strongly suggested that psychological meaningfulness also mediated the relationship between co-worker relations and work engagement. However, when entered with work role fit into the regression equation, the regression coefficient of co-worker relations were not statistically significant.

Psychological availability fully mediated the relationship between available resources and work engagement. This means that should an employee experience to have the physical, emotional and cognitive resources to perform his job, he will be more psychologically present at work which will lead to work engagement. Resources predicted 11% of the variance in psychological availability. Psychological availability predicted 31% of the variance in work engagement.

3.2 LIMITATIONS OF THE RESEARCH

The following limitations can be identified in this study:

- A total of 165 questionnaires were completed and returned, although the entire section consists of approximately 500 employees.
- The sampling method used. The sample was imbalanced in terms of gender. The group of participants from the chemical industry were primarily male employees.

- Self-report instruments were used. Therefore, causal inferences cannot be made. Nevertheless the hypothesised relationships are consistent with previous theory and research (cf. Kahn, 1990).
- The scale which measured psychological safety was too unreliable to be used in the study, which made it impossible to test some of the hypotheses.
- Multiple regression analyses were used to assess mediation effects in this study. Structural equation modelling would probably provide a better picture of the interrelationships between the variables.

3.3 RECOMMENDATIONS

Recommendations are made with regard to the applicable organisation as well as with regard to future research.

3.3.1 Recommendations for the organisation

Important findings were made from this study in terms of job design, employee selection and employee relations. Meaningfulness was found to be related to work engagement. Managers in organisations should make an effort to cultivate meaningfulness through effective job design. Secondly, it is also suggested by this study that selecting the proper person for a specific work role will improve meaningfulness. Therefore managers should endeavour to familiarize themselves with the personal aspirations and desires of the employees to enable them to place employees in positions that will allow them to express themselves.

Psychological availability was also related to work engagement. Organisations can't expect from their employees to be fully engaged in their work roles, if they do not supply them with the required resources to perform their jobs. Managers should also encourage employees to improve their personal skills, which will enable them to be more psychologically available.

By developing supportive trustworthy relationships with co-workers, supervisors/managers will create a sense of safety with their employees. It is important for managers to support employees to solve work-related problems, develop new skills, join in decision making, treat fellow employees fairly, be consistent in their actions, demonstrate integrity between words

and actions, use open communication and demonstrate genuine concern for fellow employees (Oldham & Cummings, 1996; Whitener, Brodt, Korsgaard, & Werner, 1998).

Organisational selection processes and tools should be used to ensure proper work role fit when employing new employees. Potential new employees should also be exposed to current employees to improve the fit with employees and employee norms. Employees with high levels of self-consciousness should be given counselling to enable them to deal with their insecurities and they should be put in appropriate positions.

When doing job design, managers should attempt to reduce the cognitive, physical and emotional strain experienced by employees. Employees should not be overloaded with cognitive processing demands, or be required to perform extensive emotional or physical labour without regular breaks. To improve psychological availability, employees should be motivated to improve personal skills and resources.

3.3.2 Recommendations for further research

Although the revised one-factor model for work engagement was shown to be an appropriate fit, the psychological conditions survey proved to be somewhat problematic with regards to the internal consistency levels of some of the subscales. Research is required into the psychometric properties of this instrument and some adaptation of items may be required. Not all cultures are familiar with statements such as “kinship” or “rock the boat.” Future studies could benefit from using stratified random sampling to ensure equal distribution of the various demographic groups. Future longitudinal studies are needed to verify the results of this study in the bigger population as well as other organisations with the addition of qualitative studies to counter possible perceptions associated with questionnaires. Such future studies must include other variables to verify current results, but also to expand knowledge on how to create a conducive environment for employees to experience engagement at work.

REFERENCES

- Kahn, W. A. (1990). Psychological conditions of personal engagement and disengagement at work. *Academy of Management Journal*, 33, nr 692-724.
- Oldham, G.R. & Cummings, A. (1996). Employee creativity: Personal and contextual factors at work. *Academy of Management Journal*, 39, nr 607-634.
- Whitener, E. M., Brodt, S. E., Korsgaard, M. A., & Werner, J. M. (1998). Managers as initiators of trust: An exchange relationship framework for understanding managerial trustworthy behavior. *Academy of Management Review*, 23, nr 513-530.