

JOB DEMANDS, JOB RESOURCES, AND WORK ENGAGEMENT OF EMPLOYEES IN A MANUFACTURING ORGANISATION

Michiel Frederick Coetzer, Hons. B. Com

**Mini-dissertation submitted in partial fulfilment of the requirements for the degree Master of
Commerce in Industrial Psychology at the North-West University, Potchefstroom Campus**

**Supervisor: Prof. S. Rothmann
Potchefstroom
2006**

Note

- This mini-dissertation uses the publication and reference style of the instructions for publication (5th ed.) of the American Psychology Association (APA). It has been the policy of the Programme in Industrial Psychology at the North-West University to use the APA style in all scientific documents since January 1999.
- The article option has been chosen in this mini-dissertation.

ACKNOWLEDGEMENTS

I want to acknowledge the following persons/institutions for their contributions to this study:

- Prof. Ian Rothmann (mentor and supervisor) for his inspiration and advice, as well as for the work he did in preparing the statistical analysis.
- All the participants in this study, as well as the organisations that took part in this study, for their support and willingness to participate.
- The National Research Foundation for financial support for this study.

I thank the Lord Jesus for His guidance throughout this study and for His provision of the talents, the opportunity, and the mental health to complete this study.

TABLE OF CONTENTS

List of Tables	iv
Abstract	v
Opsomming	vii
CHAPTER 1: INTRODUCTION	
1.1 Problem statement	1
1.2 Research objectives	6
1.2.1 General aim	6
1.2.2 Specific objective	6
1.3 Research method	6
1.3.1 Research design	7
1.3.2 Participants	7
1.3.3 Measuring battery	7
1.3.4 Statistical analysis	8
1.4 Overview of chapters	9
1.5 Chapter summary	9
References	10
CHAPTER 2: RESEARCH ARTICLE	15
CHAPTER 3: CONCLUSIONS, LIMITATIONS AND RECOMMENDATIONS	
3.1 Conclusions	46
3.2 Limitations of this research study	49
3.3 Recommendations	50
3.3.1 Recommendations for the organisation	50
3.3.2 Recommendations for future research	52
References	53

LIST OF TABLES

Table	Description	Page
	Research Article 1	
Table 1	Characteristics of the Participants	28
Table 2	Communalities (h^2), Principal Factor Extraction and Varimax Rotation on the UWES items	31
Table 3	Descriptive Statistics, Cronbach's Alpha Coefficients and Correlations of the UWES and JDRS ($n = 83$)	32
Table 4	Correlation Coefficients between Work Engagement, Job Demands and Job Resources ($n = 83$)	33
Table 5	Regression Analysis with Engagement as Dependent Variable	34

ABSTRACT

Title: Job demands, job resources, and work engagement of employees in a manufacturing organisation.

Key terms: Work engagement, vigour, dedication, job demands, job resources, employees in a manufacturing organisation.

The manufacturing industry today is seen as a demanding world of work where employees are constantly exposed to high demands. This may have an influence on their work engagement levels and their organisational commitment. It seems that in these industries, employee turnover and absenteeism levels are high, while employees also seem to be demotivated in their work.

The objective of this study was to investigate the levels of work engagement among employees in a manufacturing organisation and to assess which job demands and resources would predict work engagement. A random sample of 83 employees in a manufacturing organisation was taken. The Utrecht Work Engagement Scale (UWES) and Job Demands-Resources Scale (JD-RS) were used as measuring instruments. Descriptive statistics were used to explore the data. Cronbach alpha coefficients were used to assess the internal consistency / reliability of the measuring instruments. Pearson correlation coefficients were used to specify the relationships between the variables. A multiple regression analysis was used to determine the effects of job demands and job resources on work engagement.

The results of the Pearson Correlations showed that two job resources, namely organisational support (i.e. relationship with supervisor, role clarity, information, communication, and participation) and growth opportunities (i.e. variety in the job, opportunities to learn, and autonomy) were strongly related to the levels of work engagement. Social support (from colleagues) and advancement (i.e. remuneration, training and advancement opportunities) were moderately related to work engagement. The results of the regression analyses further indicated that an increase in two job resources, organisational support and growth opportunities, will probably increase the overall work engagement level of employees in a manufacturing organisation. The results also indicated that job demands (i.e. pace of work, quantitative workload, and emotional load) had a weak relationship with work engagement.

Recommendations for future research were made.

OPSOMMING

Titel: Werkseise, werkshulpbronne en werksbegeestering van werknemers in die vervaardigingsindustrie.

Sluteltermes: Werksbegeestering, forsheid, toewyding, werkseise, werkshulpbronne, werknemers in die vervaardigingsindustrie.

Die vervaardigingsindustrie vandag word gesien as 'n veeleisende werksomgewing waar werknemers konstant blootgestel word aan hoë werkseise. Dit kan dalk 'n invloed hê op hul werksbegeestering en hul organisasieverbondenheid. Dit blyk dat hierdie industrie hoë vlakke van werknemeromset en afwesigheid ervaar en dat werknemers gedemotiveerd is in hul werk.

Die doel van hierdie studie was om die vlakke van werksbegeestering onder werknemers in die vervaardigingsindustrie te ondersoek asook om te bepaal watter werkskenmerke werksbegeestering voorspel. 'n Ewekansige steekproef van 83 werknemers in die vervaardigingsindustrie is geneem. Die Utrecht Werksbegeesteringskaal en die Werkseise-hulpbronne-skaal is geadministreer. Beskrywende statistiek, insluitend gemiddeldes, standaardafwykings, skeefheid, en kurtose is gebruik om data te ondersoek. Cronbach alfakoëffisiënte is gebruik om die interne konsekwentheid betroubaarheid van die meet-instrumente te bepaal. Pearson korrelasies is gebruik om die verwantskap tussen veranderlikes vas te stel. 'n Regressie-analise is ook gebruik om voorspellers van werksbegeestering te bepaal en om die effek van werkseise en werkshulpbronne op werksbegeestering te bestudeer.

Die resultate het getoon dat twee werkshulpbronne sterk verband gehou het met werksbegeestering, naamlik organisasie-ondersteuning (d.w.s. verhouding met toesighouer, rol-duidelikheid, inligting, kommunikasie en deelname) en groeigeleenthede (d.w.s. verskeidenheid in werk, geleenthede om te leer en outonomie). Sosiale ondersteuning (van kollegas) en bevordering (d.w.s. vergoeding, opleiding en bevorderingsgeleenthede) het matig verband gehou met werksbegeestering. Die resultate het verder uitgewys dat 'n verhoging in werkshulpbronne, veral organisasie-ondersteuning en groeigeleenthede, die algemene werksbegeesteringsvlakke van werknemers in die vervaardigingsindustrie sal verhoog. Die

resultate het ook aangedui dat werkseise (d.w.s spoed van werk; kwantitatiewe werkslading en emosionele lading) 'n swak verwantskap met werksbegeestering gehad het.

Aanbevelings vir toekomstige navorsing is aan die hand gedoen.

CHAPTER 1

INTRODUCTION

This mini-dissertation focuses on the relationship between job demands, job resources and work engagement of employees in a manufacturing organisation.

This chapter contains the problem statement and a discussion of the research objectives, in which the general objective and specific objectives are set out. The research method is explained and the division of chapters is given.

1.1 PROBLEM STATEMENT

Many work wellness studies have been done in South Africa and elsewhere in the world in order to improve the overall wellness state in organisations and social environments (Hanrahan & Martin-Krumm, 2006; Jonker & Van der Merwe, 2006; Jorge & Buitendach, 2006; Le Roux & Coetzer, 2006; Rothmann, 2003; Taylor, Schepers, & Crous, 2006). These studies help managers and leaders in organisations to develop methods to improve employee performance and to overcome the problem of unmotivated staff.

In the manufacturing industry, productivity plays an important role in the success and performance levels of the organisation. Productivity can be seen as the rate at which goods are produced and how efficiently they are produced. The engineering industry defines productivity as the relation of output (i.e. produced goods) to input (i.e. consumed resources) in the manufacturing transformation process (Tangan, 2002). According to Ulrich (1997), employee contribution became a critical business issue because, in trying to produce more output with less employee input, companies have no choice but to try to engage not only the body, but also the mind and soul of every employee.

Large manufacturing industries implement advanced technology in order to increase their productivity. Small and medium enterprises in these industries can't always afford advanced technologies, and therefore they need to increase the productivity levels of their employees so as to be more competitive in the market. According to Gunasekaran, Forker, and Kobu (2000), certain job resources such as recognition, autonomy, and training and development

play an important role in having productive workers. In the Comprehensive Burnout and Engagement (COBE) model of Schaufeli and Bakker (2002), job resources are linked to positive organisational outputs via work engagement. Modern organisations need more than a merely 'healthy' workforce. They require a motivated, committed, proactive workforce that is prepared to go the extra mile (Schaufeli, 2006). Organisations in the manufacturing industry therefore need to fully engage their employees so that they have committed workers with high energy levels that are able to go the extra mile.

In every organisation, work engagement ignites talent and skill and disengagement shuts it down. An individual may be the best and the brightest in an organisation but, if he or she is not engaged in his or her work, brilliance and full potential will never be expressed. The reasons employees typically give for being disengaged at work involve negative working conditions, insensitive superiors, divisive office politics, and lack of constructive performance feedback (Ryan & Deci, 2000).

According to Schaufeli and Bakker (2004), some individuals seem to find pleasure in dealing with stressors like high job demands and working long hours. From a positive psychological perspective, such individuals could be described as engaged in their work (Seligman & Csikszentmihalyi, 2000). Work engagement is not a momentary specific state, but a more persistent and pervasive affective-cognitive state, which is not focused on a particular object, event, individual, or behaviour (Schaufeli, Salanova, Gonz  les-Rom  , & Bakker, 2002). According to Schaufeli, Salanova, et al. (2002), engagement can be defined as a positive, fulfilling, and work-related state of mind that is characterised 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 also persistence in the face of difficulties. Dedication is characterised by a sense of significance, enthusiasm, inspiration, pride, and challenge. Absorption is characterised by being fully concentrated and happily engrossed in one's work, whereby time passes quickly and one has difficulties with detaching oneself from work.

Work engagement is a concept relevant for employees' well-being and work behaviour for several reasons. Firstly, work engagement is a positive experience in itself (Schaufeli, Salanova, et al., 2002). Secondly, it is related to good health and positive work affect (Demerouti, Bakker, de Jonge, Janssen, & Schaufeli, 2001; Rothbard, 2001). Thirdly, work

engagement helps individuals derive benefits from stressful work (Britt, Adler, & Bartone, 2001). Fourthly, work engagement is positively related to organisational commitment (Demerouti et al., 2001) and is expected to affect employee performance (Kahn, 1990). It is important for managers to cultivate work engagement given that disengagement, or alienation, is central to the problem of workers' lack of commitment and motivation (Aktouf, 1992). Meaningless work is often associated with apathy and detachment from one's work (Thomas & Velthouse, 1990). In such conditions, individuals are thought to be estranging from their selves (Seeman, 1972) and restoration of meaning in work is seen as a method to foster an employee's motivation and attachment to work.

These perspectives demonstrate both the humanistic and practical reasons for providing meaningful work that contributes to personal fulfilment and motivational qualities. According to Spreitzer, Kizilos, and Nason (1997), one must focus on providing meaningful work to employees to facilitate both their motivation and personal growth, and to contribute to empowerment and employee involvement. Engagement in meaningful work can lead to perceived benefits from the work (Britt, et al., 2001), and has been linked to such variables as employee turnover, customer satisfaction-loyalty, safety, productivity, and profitability (Harter, Schmidt, & Hayes, 2002). Thus, there are practical as well as humanistic reasons that managers and organisations should be concerned with employees' engagement levels regarding their work.

Organisations in the manufacturing industry have the need to create a climate for worker engagement. Much time and effort is wasted in trying to get commitment from employees through ineffective motivational processes. Work engagement can be seen as an antecedent of organisational commitment in that individuals who experience a high level of engagement in their jobs identify with their organisations (Schaufeli, et al., 2001). Engaged workers have values and norms that are in line with those of the organisation. Disengagement, on the other hand, leads to a lack of organisational commitment (Aktouf, 1992). Organisational commitment can be described as a state in which an employee identifies with an organisation and its goals, is willing to exert effort on behalf of the organisation, and wishes to maintain his membership of the organisation (Robbins, 1998).

According to Lee, Carswell, and Allen (2000), organisational commitment is important for various reasons. First, occupations represent a significant segment of people's lives. Second,

occupational commitment has potential associations with employee performance. Organisational commitment also contributes to our understanding of how people develop, make sense of, and integrate their multiple work-related commitments, including those that go beyond organisational boundaries.

For an organisation to grow and develop it is very important individuals to identify with the organisation and see themselves as stakeholders and not only employees. An organisation can be seen as a team that works towards a specific goal and, without the commitment of the employees, teamwork is impossible.

Quantitative job demands refer to the amount of work required and the available time frame, while qualitative workload involves employees' affective reactions to their jobs. Although job demands are not necessarily seen as negative, they may turn into job stressors when they require high effort. High effort is associated with high costs that elicit negative responses such as depression, anxiety, or burnout. According to Jones and Fletcher (1996), job demands can be defined as the degree to which the environment contains stimuli that peremptorily require attention and response. They further describe demands as the things that have to be done. In any job, the employee is confronted with responsibilities and things that have to be done. Schaufeli and Bakker (2004), refer to job demands as those physical, psychological, social, or organisational aspects of the job that require sustained physical and psychological effort and are therefore associated with certain physiological and psychological costs.

In the structural model of Maslach, Jackson, and Leiter (1996), they hypothesise that the presence of specific demands like work overload and personal conflicts, and the absence of specific resources like control coping, social support, autonomy and decision involvement predicts burnout. This, in its turn, is expected to lead to various negative outcomes such as physical illness, high turnover, absenteeism, and diminished organisational commitment. The Job Demand-Resources (JD-R) model assumes that two underlying psychological processes play a role in burnout. These are an effort-driven process in which excessive job demands lead to exhaustion, and a motivation-driven process which, lacking resources, leads to disengagement (Demerouti, Bakker, Nachreiner, & Schaufeli, 2001). This model offers a cognitive-emotional framework for understanding human performance under stress. It is concerned with the maintenance of performance stability under demanding conditions, which requires the mobilisation and management of mental effort.

In order to improve human performance and mental effort one must make use of a motivation-driven process that includes job resources. Job resources can play an intrinsic motivational role because they may help employees to grow, learn, and develop and it may also play an instrumental role in achieving work goals. According to DeCharms (1968), White (1959), and Baumeister and Leary (1995), job resources fulfil basic human needs, such as autonomy, competence, and relatedness. In giving proper feedback, learning is fostered, increasing job competence, whereas decision latitude and social support satisfy the need for autonomy and the need to belong, respectively.

Core characteristics like skill variety, task identity, task significance, autonomy, and feedback may have positive outcomes such as high quality work performance, job satisfaction, and low absenteeism and turnover (Hackman & Oldham, 1980). In the manufacturing industry, these characteristics may have a huge influence on the psychological state of employees enabling them to perform at high levels and maintain high levels of productivity or work performance. According to Schaufeli and Bakker (2004), job resources refer to those physical, psychological, social, or organisational aspects of the job that either reduce job demands and the associated physiological and psychological costs, are functional in achieving work goals, and stimulate personal growth, learning, and development.

The economic change of the manufacturing industry seems to increase the working demands experienced by employees, especially in the case of small and medium manufacturing enterprises. In these organisations, employees seem to be unmotivated in their jobs and seem to have low levels of productivity and low commitment towards the organisation. This could be the result of low work engagement levels of these employees. However, certain job characteristics, such as variety, independence, opportunities for learning, opportunities to participate, role clarity, effective communication, advancement, remuneration and good relationships with supervisors and colleagues create psychological meaningfulness and safety for employees, which are needed for work engagement (May, Gilson, & Harter, 2004). Thus, in order to improve overall work performance, productivity levels, commitment towards the organisation, and motivation levels of employees in the manufacturing industry, one must investigate the role that job resources and job demands play in the engagement levels of employees.

The following research questions emerge from the problem statement:

- What are the existing work engagement levels among employees in a manufacturing organisation in South Africa?
- Do job resources and job demands have an influence on the work engagement levels of employees in a manufacturing organisation in South Africa?
- What recommendations can be made to increase work engagement levels of employees in a manufacturing organisation?

1.2 RESEARCH OBJECTIVES

The research objectives can be divided into a general objective and specific objectives.

1.2.1 General aim

The general aim of this study is to investigate the work engagement levels of employees in a manufacturing organisation and to investigate which job demands and job resources predict work engagement among employees in a manufacturing organisation.

1.2.2 Specific objectives

The specific objectives of this study are to:

- Identify the work engagement levels among employees in a manufacturing organisation in South Africa.
- Investigate the effects of job demands and job resources on work engagement of employees in a manufacturing organisation.
- Make recommendations to increase work engagement levels of employees in a manufacturing organisation.

1.3 RESEARCH METHOD

The research method consists of a literature review and empirical study. The literature aims focuses on work engagement, job demands, and job resources. The results are used to identify

levels of work engagement among employees in a manufacturing organisation as well as to determine the influences of job demands and job resources on the work engagement levels of these employees. The results obtained from the research will be presented in an article format. This section will focus on aspects relevant to the empirical study that was conducted.

1.3.1 Research design

A survey design is used to obtain the research goals. According to Kerlinger (1975) a survey design attempts to determine the incidence, distribution, and interrelations among sociological and psychological variables that focus on people, the vital factors concerning people, as well as their beliefs, opinions, attitudes, motivations and behaviour. Survey designs are also considered to be very accurate within sampling error (Kerlinger, 1975). A survey design is also considered to be probably the best adapted to obtaining personal and social facts, beliefs, and attitudes (Kerlinger, 1986).

1.3.2 Participants

The participants in this study were selected randomly from the population (Spector, 2000). The study population was drawn from a manufacturing organisation in South Africa. A random sample ($n = 82$) was taken of employees in a manufacturing organisation.

1.3.3 Measuring battery

The *Utrecht Work Engagement Scale* (UWES) (Schaufeli, Martinez, Pinto, Salanova, & Bakker, 2002) is used to measure the engagement levels of the participants. The UWES includes three dimensions, vigour, dedication, and absorption, which are conceptually seen as the opposites of burnout and are scored on a seven-point frequency-rating scale, varying from 0 (*never*) to 6 (*every day*). Only two of these dimensions will be used in this research study, vigour (9 items; e.g. "I am bursting with energy every day in my work"), and dedication (5 items; e.g. "My job inspires me"). Problems with the wording of the items of absorption preclude the use of this dimension in this study (Rothmann, 2005). The alpha coefficients for the two subscales varied between 0,64 and 0,75. The alpha coefficient was improved by eliminating a few items without substantially decreasing the scale's internal consistency. Schaufeli and Bakker (2002) determined alpha coefficients between 0,68 and 0,91. Rothmann

and Storm (2003) obtained the following alpha coefficients for the UWES in a sample of 2396 members of the South African Police Service: Vigour: 0,78; Dedication: 0,89. Storm (2002) also found equivalent alpha coefficients for these two dimensions of the UWES in a South African sample.

The *Job Demands-Resources Scale* (JDRS) was used to measure specific job characteristics within a manufacturing organisation. This questionnaire was developed by the authors to measure job demands and job resources for employees in the manufacturing industry. The JDRS comprises 48 items and the questions are rated on a 4-point scale ranging from 1 (*never*) to 4 (*always*). The dimensions of the JDRS include pace and amount of work, mental load, emotional load, variety in work, opportunities to learn, independence in work, relationships with colleagues, relationships with immediate supervisors, ambiguities about work, information, communication, participation, contact possibilities, uncertainty about the future, remuneration and career possibilities. Jackson and Rothmann (2005) found that seven factors of the JDRS were reliable according to their alpha coefficients. These were organisational support: 0,88; growth opportunities: 0,80; overload: 0,75; job insecurity: 0,90; relationship with superiors: 0,76; control: 0,71; and rewards: 0,78. Rothmann, Mostert, and Strydom (2006) also found reliable alpha coefficients for the JDRS that varied between 0,76 to 0,92 in a South African sample.

A demographic questionnaire was developed to obtain information about the characteristics of the participants and included gender, race, age, language, marital status, qualification level, and total years in the specific organisation.

1.3.4 Statistical analysis

The SPSS program (SPSS, 2005) was used for the statistical analysis. A simple principal component analysis was performed to determine the number of factors and a principal component analysis with a direct oblimin rotation was used to extract factors (Tabachnick & Fidell, 2001).

Descriptive statistics, including means, standard deviations, skewness, and kurtosis, were used to explore the data. Cronbach alpha coefficients were used to assess the internal consistency of the measuring instruments (Clark & Watson, 1995). Coefficient alpha conveys

important information regarding the proportion of error variance contained in a scale. Effect sizes were used to decide on the significance of the findings. Pearson product-moment correlation coefficients were used to specify the relationships between the variables. A cut-off point of 0,30 (medium effect) was set for the practical significance of correlation coefficients and the level of statistical significance was set at $p \leq 0,05$.

Multiple regression analysis was used, first with work engagement as dependent variable and job resources (i.e. organisational support; growth opportunities; social support; advancement and insecurity) as independent variables. This was done to determine the extent to which organisational support, growth opportunities, social support, advancement, and insecurity predict work engagement. Secondly, job demands were included into the regression analysis as an independent variable. This was done in order to investigate the main effects of job demands and job resources on work engagement and to examine the relationship between multiple independent variables such as job demands and job resources and one dependent variable, which was work engagement.

1.5 OVERVIEW OF CHAPTERS

In Chapter 2, the relationship between job demands, job resources, and work engagement are discussed as well as the work engagement levels among employees in the manufacturing industry in South Africa. The chapter will also deal with the empirical study. Chapter 3 will deal with the discussion, limitations, and recommendations of this study.

1.6 CHAPTER SUMMARY

This chapter discussed the problem statement and research objectives. The measuring instruments and research method used in this research were explained, followed by a brief overview of the chapters that follow.

REFERENCES

- Aktouf, O. (1992). Management and theories of organizations in the 1990s: Toward a critical radical humanism. *Academy of Management Review*, 17, 407-431.
- Baumeister, R., & Leary, M. R. (1995). The need to belong: Desire for interpersonal attachments as a fundamental human motivation. *Psychological Bulletin*, 117, 497-529.
- Britt, T. W., Adler, A. B., & Bartone, P. T. (2001). Deriving benefits from stressful events: The role of engagement in meaningful work and hardiness. *Journal of Occupational Health Psychology*, 6, 53-63.
- Clark, L. A., & Watson, D. (1995). Constructing validity: Basic issues in objective scale development. *Psychological Assessment*, 7, 309-319.
- De Charms, R. (1968). *Personal causation*. New York: Academic Press.
- Demerouti, E., Bakker, A. B., de Jonge, J., Janssen, P. P. M., & Schaufeli, W. B. (2001). Burnout and engagement at work as a function of demands and control. *Scandinavian Journal of Work Environment and Health*, 27, 279-286.
- Demerouti, E., Bakker, A. B., Nachreiner, F., & Schaufeli, W. B. (2001). The job demands-resources model of burnout. *Journal of Applied Psychology*, 86, 499-512.
- Gunasekaran, A., Forker, L., & Kobu, B. (2000). Improving operations performance in a small company: A case study. *International Journal of Operations and Production Management*, 20(3), 316-336.
- Hackman, J. R., & Oldham, G. R. (1980). *Work redesign*. Reading, MA: Addison-Wesley.
- Hanrahan, S. J., & Martin-Krumm, C. (2006, April). *Prediction of performance: Sport versus general explanatory styles*. Paper presented at the First South African Conference on Positive Psychology: Individual, Social and Work Wellness. Potchefstroom, South Africa.
- 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, 268-279.
- Jackson, L. T. B., & Rothmann, S. (2005). Work-related well-being of educators in a district of the North West Province. *Perspectives in Education*, 23, 107-122.
- Jones, F., & Fletcher, B. C. (1996). Job control and health. In M. J. Schabracq, J. A. M. Winnubst, & C. L. Cooper (Eds.), *Handbook of work and health psychology* (pp. 33-50). Chichester, UK: Wiley.

- Jonker, C. S., & van der Merwe, N. (2006, April). *The relationship between psychological well-being and academic performance of university students*. Paper presented at the First South African Conference on Positive Psychology: Individual, Social and Work Wellness. Potchefstroom, South Africa.
- Jorge, A., & Buitendach, J. H. (2006, April). *The relationship between job insecurity, organisational citizenship behaviours and affective organisational commitment*. Paper presented at the First South African Conference on Positive Psychology: Individual, Social and Work Wellness. Potchefstroom, South Africa.
- Kahn, W. A. (1990). Psychological conditions of personal engagement and disengagement at work. *Academy of Management Journal*, 33, 692-724.
- Kerlinger, F. N. (1975). *Foundations of behavioral research* (2nd ed.). London: Holt, Rinehart and Winston Inc.
- Kerlinger, F. N. (1986). *Foundations of behavioral research* (3rd ed.). London: Holt, Rinehart and Winston Inc.
- Lee, K., Carswell, J. J., & Allen, N. J. (2000). A meta-analytic review of occupational commitment: Relations with person- and work-related variables. *Journal of Applied Psychology*, 85, 799-811.
- Le Roux, A., & Coetzer, W. J. (2006, April). *The construct equivalence of work related flow scale (WOLF) in the mining industry*. Paper presented at the First South African Conference on Positive Psychology: Individual, Social and Work Wellness. Potchefstroom, South Africa.
- Maslach, C., Jackson, S. E., & Leiter, M. (1996). *Maslach Burnout Inventory: Manual* (3rd ed.). Palo Alto, CA: Consulting Psychologists Press.
- 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.
- Robbins, S. P. (1998). *Organizational behaviour: Concepts, controversies and applications*. Upper Saddle River, NJ: Prentice Hall.
- Rothbard, N. P. (2001). Enrichment or depleting? The dynamics of engagement in work and family roles. *Administrative Science Quarterly*, 46, 655-684.
- Rothmann, S. (2003). Burnout and engagement: A South African perspective. *South African Journal of Industrial Psychology*, 29(4), 16-25.

- Rothmann, S. (2005, September). *Work-related well-being in South Africa organisations: What do we know?* Paper presented at the 7th Annual Conference of the Employee Assistance Professionals Association of South Africa, Durban.
- Rothmann, S., Mostert, K., & Strydom, M. (2006). A psychometric evaluation of the Job Demands-Resources Scale in South Africa. *South African Journal of Industrial Psychology*, 32(4), 76-86.
- Rothmann, S., & Storm, K. (2003, May). *Engagement in the South African Police Service*. Poster session presented at the 11th European Congress on Work and Organisational Psychology. Lisbon, Portugal.
- Ryan, R. M., & Deci, E. L. (2000). Self determination theory and the facilitation of intrinsic motivation, social development, and well-being. *American Psychologist*, 55, 68-78.
- Schaufeli, W. B. (2006, April). *Work engagement: The emergence of an employee wellness Concept*. Paper presented at the First South African Conference on Positive Psychology: Individual, Social and Work Wellness. Potchefstroom, South Africa.
- Schaufeli, W. B., & Bakker, A. B. (2002). *Job demands, job resources and their relationship with burnout and engagement: A multi-sample study on the COBE model*. Utrecht University: Psychology and Health.
- Schaufeli, W. B., & Bakker, A. B. (2004). Job demands, job resources, and their relationship with burnout and engagement: A multi-sample study. *Journal of Organisational Behaviour*, 25, 293-315.
- Schaufeli, W. B., Martinez, I. M., Pinto, A. M., Salanova, M., & Bakker, A. B. (2002). Burnout and engagement in university students. *Journal of Cross-Cultural Psychology*, 33, 464-481.
- Schaufeli, W. B., Salanova, M., González-Romá, V., & Bakker, A. B. (2002). The measurement of engagement and burnout: A confirmatory analytic approach. *Journal of Happiness Studies*, 3, 71-92.
- Schaufeli, W. B., Taris, T., Le Blanc, P., Peeters, M., Bakker, A. B., & De Jonge, J. (2001). *Work and health: The quest of the engaged worker*. Utrecht: Utrecht University.
- 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.
- Seligman, M. E. P., & Csikszentmihalyi, M. (2000). Positive psychology: An introduction. *American Psychologist*, 55, 5-14.

- Shaughnessy, J. J., & Zechmeister, E. B. (1997). *Research methods in psychology* (4th ed.). New York: McGraw-Hill.
- Spector, P. E. (2000). *Industrial and organizational psychology: Research and practice* (2nd ed.). New York: John Wiley.
- 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, 679-704.
- SPSS Inc. (2005). *SPSS 14.0 for Windows*. Chicago, IL: SPSS Inc.
- Storm, K. (2002). *Burnout and engagement in the South African Police Service*. Unpublished doctoral thesis, North-West University, Potchefstroom.
- Tabachnick, B. G., & Fidell, L. S. (2001). *Using multivariate statistics* (4th ed.). Boston, MA: Allyn & Bacon.
- Tangan, S. (2002). *Understanding the concept of productivity*. Paper presented at the 7th Asia Pacific Industrial Engineering and Management Systems Conference. Taipei, Asia.
- Taylor, C. M., & Schepers, J. M., & Crous, F. (2006, April). *Locus of control in relation to flow*. Paper presented at the First South African Conference on Positive Psychology: Individual, Social and Work Wellness. Potchefstroom, South Africa.
- Thomas, K. W., & Velthouse, B. A. (1990). Cognitive elements of empowerment: An interpretive model of intrinsic task motivation. *Academy of Management Review*, 15, 666-681.
- Ulrich, D. (1997). *Human resource champions: The next agenda for adding value and delivering results*. Boston, MA: Harvard Business Press.
- White, R. W. (1959). Motivation reconsideration: The concept of competence. *Psychological Press*, 66, 297-333.

CHAPTER 2

RESEARCH ARTICLE

JOB DEMANDS, JOB RESOURCES, AND WORK ENGAGEMENT OF EMPLOYEES IN A MANUFACTURING ORGANISATION

ABSTRACT

The objective of this study was to identify the levels of work engagement in a manufacturing organisation and to investigate the relationships between job demands, job resources, and work engagement among employees. A cross-sectional survey design was used. Random samples ($n = 83$) were taken of employees in a manufacturing organisation. The Job Demands-Resources Scale and the Utrecht Work Engagement Scale were used as measuring instruments. The results showed that the work engagement level of employees in a manufacturing organisation was above the national norm. Job resources, such as organisational support, growth opportunities, social support, and advancement opportunities seem to be related to work engagement. Organisational support and growth opportunities were the best predictors of work engagement of employees in a manufacturing organisation.

OPSOMMING

Die doelstelling van hierdie studie was om die vlakke van werksbegeestering in 'n vervaardigingsonderneming te identifiseer en om die verwantskap tussen werkseise, werkshulpbronne en werksbegeestering van werknemers te ondersoek. 'n Dwarsnee opname-ontwerp is gebruik. Ewekansige steekproewe ($n = 83$) is geneem van werknemers in 'n vervaardigingsonderneming. Die Werkseise-Hulpbronne Vraelys (JDRS) en die Utrecht Werksbegeesteringskaal (UWES) is as meetinstrumente gebruik. Die resultate van die studie het aangetoon dat die werkbegeesteringsvlakke van werknemers in die steekproef bo die nasionale norm is. Werkshulpbronne, naamlik organisasie-ondersteuning, groeigeleenthede, sosiale ondersteuning en bevorderingsgeleenthede, was verwant aan die werksbegeestering dimensie. Organisasie-ondersteuning en groeigeleenthede was die beste voorspellers van werksbegeestering van werknemers in 'n vervaardigingsonderneming.

Manufacturing organisations face the challenge of being more competitive in local and international markets. The manufacturing industry has experienced a significant change in moving from traditional work organisation principles to team-based work and multi-skill principles (Bolden, Waterson, Warr, Clegg, & Wall, 1997). Production lines are replaced by more flexible systems, such as manufacturing cells. Quality testing departments are replaced by implementing total quality management systems. Stock levels and work-in-progress are made lean through just-in-time systems. The use of computer-based systems is implemented more in the manufacturing industry.

These changes are necessary for increasing the competitive advantage of manufacturing companies in local and international markets. This applies not only in terms of cost, but also in terms of quality and responsiveness to customers. Managers and leaders in this industry strive for goals such as low cost, design flexibility, quality conformance, product performance, speed of delivery, dependability of deliveries, after sales service, advertising, broad distribution, and a broad product line (Bolden, Waterson, Warr, Clegg, & Wall, 1997). Manufacturing companies implement advanced manufacturing technology to improve their productivity growth (Gerhart & Bretz, 1992). Small and medium enterprises do not always have the capital strength to implement advanced manufacturing technologies and it is therefore a major challenge for them to compete with the existing market trends and the changes in the industry. These companies cannot afford to increase their expenses to recruit more employees and it is sometimes difficult to gain access to employees in this sector. Employee compensation typically accounts for a substantial portion of the total operational costs. The aim is thus to decrease costs in order to compete with market trends. This poses the problem that employees are exposed to higher job demands (Schnorpfeil, et al., 2004).

According to Schnorpfeil, et al. (2004), high levels of exhaustion are related to certain job characteristics in the manufacturing industry. These job characteristics include excessive workload, qualitative demands, physical work conditions, adverse co-worker behaviour, qualification potential, and social support by co-workers. Employees also seem to be unmotivated due to low pay, long working hours, poor communication, poor training and no responsibility, and dissatisfaction with their jobs due to heavy work, boring jobs, and a lack of appreciation (Bent, Seaman, & Ingram, 1999). It seems that employees in this

industry may experience low levels of work engagement and lack important resources to keep them motivated.

All of the above factors may have a huge impact on employee turnover, absenteeism, and performance levels. Employees in small and medium manufacturing enterprises seem to have a low commitment towards the organisation and their performance levels seems to be low. With low performance and commitment levels, employees do not attain working goals and, at the end of the day, the organisational goals are not attained. With the changing economic climate in many countries, concern has been expressed about maintaining or even enhancing employees' commitment to their work and the organisation (Caldwell, Chatman, & O'Reilly, 1990).

The challenges faced by managers and researchers are to understand and unleash the human spirit in organisations in order to improve the overall performance of employees. According to May, Gilson, and Harter (2004), the human spirit refers to that part of the human being that seeks fulfilment through self-expression at work. They believe that for the human spirit to thrive at work, individuals must be able to immerse themselves in their work. They must be able to engage the cognitive, emotional and physical dimensions of themselves in their work. For individuals to employ and express themselves physically, cognitively, and emotionally during role performances they must be engaged at work (Kahn, 1990). For Kahn, self and role exist in some dynamic, negotiable relationship in which a person both drives personal energies into role behaviours and displays the self within the role. Such engagement serves to fulfil the human spirit at work. Therefore it is important to study the concept of work engagement as well as the factors that predict and affect work engagement in the manufacturing industry.

Enterprises in the manufacturing industry face a difficult challenge in increasing overall output with less employee input due to the change in market trends, especially in the case of small and medium enterprises. In these enterprises, employees are exposed to high job demands, often with limited resources and unhealthy relationships with colleagues and supervisors. This could have an influence on the performance levels of the employees as well as the productivity growth experienced by these companies. It is thus important to determine the reasons why such employees seem to be unmotivated and not committed to

the organisation. In the literature (Roberts & Davenport, 2002; Schaufeli & Bakker, 2004), work engagement seems to be related to organisational commitment and positive organisational outputs. It is therefore necessary to study the level of work engagement experienced by employees in this industry as well as factors that predict work engagement. It is also important to study the predictors of work engagement as well as the factors that could have an influence on the work engagement levels of these employees. This will enable managers and leaders to identify the shortcomings in the industry and, with these results, they could probably improve the overall work engagement levels of their employees. This could result in positive organisational outputs.

The aims of this study were to investigate the levels of work engagement in a manufacturing organisation, to assess the factors that could impact on work engagement and to make recommendations to increase work engagement.

Work engagement

Work engagement is a relatively new addition to the field of occupational health psychology and could be viewed as part of a more general emerging trend towards a positive psychology that focuses on human strengths and optimal functioning rather than on weaknesses and malfunctioning (Seligman & Csikszentmihalyi, 2000).

In the perspective of Maslach and Leiter (1997), engagement is characterised by energy, involvement and efficacy. Engaged individuals are assumed to have a sense of energetic and effective connection with their work activities and they see themselves as able to deal completely with the demands of work. Work engagement is not a momentary specific state, but a more persistent and pervasive affective-cognitive state, which is not focused on a particular object, event, individual or behaviour (Schaufeli, Salanova, Gonz  les-Rom  , & Bakker, 2002).

According to Schaufeli, Salanova, Gonz  les-Rom  , & Bakker, (2002), work engagement can be defined as a positive, fulfilling, and work-related state of mind that is characterised 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 in the face of difficulties. Dedication is characterised by a sense of

significance, enthusiasm, inspiration, pride, and challenge. Absorption is characterised by concentration and being happily engrossed in one's work, whereby time passes quickly and one has difficulties with detaching oneself from work.

Vigour refers to the physical aspect of work engagement where individuals have a high sense of energy and can be physically active for longer periods without becoming tired. This energy can also relate to the level of mental effort or mental strength that individuals can put into doing something. Dedication refers to the emotional side of work engagement and the willingness of people to expend a lot of time and effort in doing something meaningful. Dedication also refers to the person's level of lively or passionate interest in something or eagerness to do or have something. Dedicated people can also be identified by the level of pride and inspiration they have in their actions and the way they seem to welcome challenges. Absorption, the third aspect of work engagement, refers to the cognitive aspect where individuals are fully focused on something and experience a high level of concentration in doing a task.

In the social sciences literature, engagement is most closely associated with the existing constructs of job involvement (Brown, 1996) and flow (Csikszentmihalyi, 1990). Firstly, job involvement is defined as the degree to which the job situation is central to the person and his/her identity (Lawler & Hall, 1970). Kanungo (1982) maintained that job involvement is a cognitive or belief state of psychological identification and that job involvement is thought to depend on both the need saliency and the potential of a job to satisfy these needs. Thus, job involvement results from a cognitive judgement about the need-satisfying abilities of the job. Jobs in this view are tied to one's self-image (May, et al., 2004). Engagement differs from job involvement in that it is concerned more with the way in which the individual pursues his/her self during the performance of his/her job. Furthermore, engagement entails the active use of emotions and behaviours, in addition to cognitions. Engagement may therefore be thought of as an antecedent to job involvement as individuals who experience deep engagement in their working roles should come to identify with their jobs.

The second related construct to engagement in organisational behaviour is the notion of flow advanced by Csikszentmihalyi (1975, 1990). Flow is the holistic sensation that people feel when they act with total involvement. It is the state in which there is little

distinction between the self and the environment. When individuals experience a state of flow, little conscious control is necessary for their actions. Individuals narrow their attention to a specific stimulus. They lose a sense of consciousness about their selves as they meld with the activity itself. According to May et al. (2004), flow experiences also provide feedback that is automatically taken into account by the individual. Although both engagement and flow have self-employment underpinnings (Kahn, 1990), engagement differs from the concept of flow in that flow has been conceptualised and measured primarily as cognitive involvement with an activity and represents a unique “ceiling” experience of total cognitive absorption. However, Kahn (1990) theorised that individuals vary in the degree to which they immerse themselves in their working roles. Further, he explicitly argued that individuals would use all aspects of themselves – cognitive, emotional and physical. For example, expression of emotion at work should facilitate engagement in work and make the connections with others at work meaningfully (Kahn, 1990).

Work engagement is also conceptualised as the positive antithesis of burnout (Maslach, Schaufeli, & Leiter, 2001). Engagement is characterised by vigour, dedication and absorption – the three direct opposite dimensions of burnout, which are exhaustion, cynicism and inefficacy. According to Maslach and Leiter (1997), burnout is an erosion of work engagement by the means that energy turns into exhaustion, involvement turns into cynicism, and efficacy turns into ineffectiveness. Both engagement and burnout can be seen as two prototypes of employee well-being as viewed by the two independent dimensions of pleasure and activation (Watson & Tellegen, 1985). Low levels of activation and pleasure can identify burnout whereas high levels of activation and pleasure identify engagement.

Work engagement has been recognised for providing positive outcomes in terms of work related wellness for several reasons. Firstly, work engagement is a positive experience in itself (Schaufeli, Salanova, Gonzáles-Romá, & Bakker, 2002). Secondly, it is related to good health and positive work affect (Demerouti, Bakker, de Jonge, Janssen, & Schaufeli, 2001; Rothbard, 2001). Thirdly, work engagement helps individuals derive benefits from stressful work (Britt, Adler, & Bartone, 2001). Fourthly, work engagement is positively related to organisational commitment (Demerouti et al., 2001) and is expected to affect employee performance (Kahn, 1990). Work engagement is thus important for managers

to cultivate, given that disengagement, or alienation, is central to the problem of workers' lack of commitment and motivation (Aktouf, 1992). Meaningless work is often associated with apathy and detachment from one's work (Thomas & Velthouse, 1990). Under such conditions, individuals are thought to be estranging from their selves (Seeman, 1972) and restoration of meaning in work is seen as a method to foster an employee's motivation and attachment to work.

These perspectives demonstrate both the humanistic and practical reasons for providing meaningful work that contributes to personal fulfilment and motivational qualities. According to Spreitzer, Kizilos, and Nason (1997), one must focus on providing meaningful work to employees to facilitate both their motivation and personal growth, which contribute to empowerment and employee involvement. Engagement in meaningful work can lead to perceived benefits from the work (Britt, et al., 2001), and has been linked to such variables as employee turnover, customer satisfaction-loyalty, safety, productivity, and profitability (Harter, Schmidt, & Hayes, 2002). Thus, there are practical as well as humanistic reasons that managers and organisations should be concerned with employees' engagement levels regarding their work.

Providing employees with optimal challenges, feedback and freedom in their work creates intrinsic motivation and increase the work engagement level among them (Ryan & Deci, 2000). Positive feedback seems to enhance work engagement levels whereas negative feedback diminishes it. Employees will be more engaged in their work if they see their work as challenging and have the freedom to be independent in their work tasks. Roberts and Davenport (2002), found that career development, identification with the organisation and a rewarding work environment also increase the work engagement levels of employees. Employees will be more engaged in their work if the organisation provides them with opportunities to enhance their skills and abilities and with the opportunity to manage their career. When individuals identify with the organisation they share in the success of the organisation and they are proud to deliver quality work. This will increase their work engagement levels. When employees have fun at work and experience a rewarding work environment their engagement levels will also be higher (Rothmann, 2003).

Job demands, job resources and work engagement

The reasons typically given by employees for being disengaged at work involve negative working conditions, insensitive superiors, divisive office politics, and lack of constructive performance feedback. The COBE model of Schaufeli and Bakker (2002) indicates that a negative relationship exists between job demands and work engagement. Job demands are linked to health problems via burnout, and job resources are linked to positive organisational outcomes via work engagement. According to Maslach, Jackson, and Leiter (1996), the presence of specific job demands such as work overload and personal conflicts, together with the absence of specific resources like coping, social support, autonomy, and decision involvement may lead to burnout. Burnout, in its turn, is expected to predict negative outcomes such as physical illness, turnover, absenteeism, and diminishing organisational commitment. According to Maslach et al. (2001), burnout is predicted by job demands such as work overload, and emotional demands. Engagement is predicted by job resources such as job control, feedback, and learning opportunities. One can then assume that job characteristics play a very important role in the overall wellness and engagement of employees.

Jones and Fletcher (1996) define job demands as the degree to which the environment contains stimuli that peremptorily require attention and response. They further describe demands as the things that have to be done. In any job, the employee is confronted with responsibilities and things that have to be done. Schaufeli and Bakker (2004) refer to job demands as those physical, psychological, social, or organisational aspects of the job that require sustained physical and psychological effort and are therefore associated with certain physiological and psychological costs. Quantitative job demands refer to the amount of work required and the available time frame, while qualitative workload involves employees' affective reactions to their jobs. Although job demands are not necessarily seen as negative, they may turn into job stressors when meeting those demands requires high effort and is therefore associated with high costs that elicit negative responses such as depression, anxiety, or burnout. When an individual is exposed to too many demands, it has an influence on his ability to recover successfully. If an individual does not recover from daily stressors it may lead to exhaustion that is directly linked to burnout. Work overload or high demands may also occur if an

individual does not have the necessary skills, abilities, and support to meet these demands. This could also have an influence on his work performance. According to Schaufeli (2003), burnout is particularly related to qualitative experiences and quantitative work overload, role problems (role ambiguity and role conflict), lack of social support (from colleagues and supervisors) and lacking self-regulatory job characteristics (feedback, autonomy, and participation in decision making).

When confronted with high job demands, employees either adopt performance protection strategies, which are associated with extra costs, or they accept a reduction in overt performance with no increase in costs. When the perceived demands are too high to be met by the usual working effort, the maximum effort budget is further increased to accommodate the high level of demand (Schaufeli & Bakker, 2004). The target performance is maintained, but only at the expense of an increase in compensatory costs that are manifested psychologically (e.g. fatigue and irritability) as well as physiologically. An alternative response to excessive demands involves downward adjustment of performance targets, for instance by reducing levels of accuracy and speed. By leaving the maximum effort budget at its usual level, further psychological and physiological costs are prevented at the expense of performance targets. According to Maslach (1993), job demands drain the employee's energy and, in an attempt to cope with the resulting exhaustion, the employee withdraws mentally. When the employee withdraws mentally, his/her work engagement levels will decrease as well as the levels of commitment towards the organisation.

According to Schaufeli and Bakker (2004), it seems that high job demands such as emotional demands and work overload may be reduced by job resources like providing feedback, social support and supervisory coaching. Obviously, when high levels of job demands coincide with low levels of job resources, it could lead to burnout. On the other hand, if high job demands are coupled with high job resources, it could lead to work engagement. Schaufeli and Bakker (2004) also stated that job demands could lead to health problems via burnout and that job resources could lead to turnover intention via work engagement. In order to improve human performance and mental effort one must make use of a motivation-driven process that includes job resources. Job resources play an intrinsic motivational role because they may help employees to grow, learn, and develop. Job resources may also play an instrumental role in achieving work goals.

According to DeCharms (1968), White (1959), Baumeister, and Leary (1995), job resources fulfil the basic human needs for autonomy, competence, and relatedness. In giving proper feedback, learning is fostered, increasing job competence, whereas decision latitude and social support satisfy the need for autonomy and the need to belong, respectively.

Job resources seem to increase work engagement (Rothmann, 2003). According to Schaufeli and Bakker (2004), job resources refer to those physical, psychological, social, or organisational aspects of the job that either reduce job demands and the associated physiological costs or that are functional in achieving work goals or stimulating personal growth, learning, and development. Job resources are not only necessary to deal with job demands and to get things done, but are also important in their own right (Hobfoll, 2002). In the so-called motivational process (Schaufeli & Bakker, 2004), job resources are linked via work engagement with organisational outcomes. Job resources can play an intrinsic motivational role in fostering individual growth, learning and development, or through an extrinsic motivational role that helps individuals achieving working goals.

According to the self-determination theory of Deci and Ryan (1985), work contexts that support psychological autonomy, competence, and relatedness enhance well-being and increase intrinsic motivation (Ryan & Frederick, 1997). This intrinsic motivational potential is also supported by the Job Characteristics Theory (JCT) of Hackman and Oldham (1980). According to the JCT, every job has a specific motivational role that depends on the presence of five core job characteristics: skill variety; task identity; task significance; autonomy, and feedback. The JCT further hypothesises that these core job characteristics are linked with positive results such as high-quality work performance, job satisfaction, and low absenteeism and turnover.

According to the Effort-Recovery Model of Meijman and Mulder (1998), job resources may also play an extrinsic motivational role through work environments that offer many resources and foster the willingness to dedicate one's efforts and abilities to the work task. Therefore it will be likely that the work task will be completed successfully and that the work goal will be achieved. Support from colleagues and proper feedback from supervisors will thus increase the individual's likelihood of achieving work goals and employees will thus be successful in their daily tasks. This will create an energy backflow

to the individual. In either case, whether the satisfaction of basic human needs or the achieving of work related outcomes, the results are positive and the chances for an individual to have a positive work-related state of mind (definition of engagement) will increase. The tendency for employees to leave the organisation will also decrease if organisations provide their employees with valued job resources that enhance learning, growth and development (Houkes, Janssen, De Jonge, & Nijhuis, 2001).

Demerouti, Bakker, Nachreiner, and Schaufeli (2001) found that job demands were related to the burnout component (exhaustion) and that the provision of job resources was positively related to work engagement. In the COBE model of Schaufeli and Bakker (2002), burnout was mainly predicted by job demands, and work engagement was predicted by job resources. Schaufeli and Bakker (2004) also found that work engagement is strongly predicted by job resources. Therefore, it can be expected that job resources have a positive relation to work engagement. If the employee is provided with variety in his job, learning opportunities, and autonomy, he/she will be more likely to engage in his/her work. This will make the employee's work more meaningful. In providing the employee with safety in terms of social support (i.e. good relationships with supervisor and colleagues) the employee will feel more secure and safe in his job. In the end a positive, fulfilling relationship exists between the employee and the employer, the employee will achieve work goals from which the employer can benefit, and the employer will provide the employee with valued resources in order to satisfy his/her basic work needs.

The following hypotheses are therefore formulated:

Hypothesis 1: High job demands and low job resources in a manufacturing organisation lead to low levels of work engagement among employees.

Hypothesis 2: Job demands and job resources have an influence on the work engagement levels of employees in a manufacturing organisation.

Hypothesis 3: An increase in job resources increases the overall work engagement levels of employees in a manufacturing organisation.

METHOD

Research design

A survey design was used. According to Kerlinger (1975) a survey design attempts to determine the incidence, distribution, and interrelationships among sociological and psychological variables that focus on people, the vital factors concerning people, as well as their beliefs, opinions, attitudes, motivations and behaviour. Survey designs are also considered to be very accurate within sampling error (Kerlinger, 1975). A survey design is also considered to be probably the best adapted to obtaining personal and social facts, beliefs, and attitudes (Kerlinger, 1986).

Participants

The participants used in the research were selected randomly from the population. The study population was drawn from a manufacturing organisation in South Africa. A random sample was taken of employees in a manufacturing organisation. Table 1 presents some of the characteristics of the participants.

Table 1
Characteristics of the Participants

Item	Category	Percentage
Gender	Male	59,00
	Female	41,00
Age	20 – 25 years	6,00
	26 – 30 years	14,50
	31 – 35 years	21,70
	36 – 40 years	22,90
	41 – 45 years	9,60
	46 – 50 years	13,30
	51 – 55 years	7,20
	55 + years	4,80
Language	English	4,80
	Afrikaans	53,00
	Tswana	27,70
	Xhosa	7,20
	Zulu	1,20
	Sotho	3,60
	Pedi	1,20
	Tsonga	1,20
Marital Status	Single with children	10,80
	Single without children	27,70
	Married without children	15,70
	Married with children	33,70
	Other	12,00
Qualification	Grade 10	22,90
	Grade 11	6,00
	Grade 12	49,40
	Grade 12+ 1 year diploma	1,20
	Grade 12 + Collage diploma	7,20
	Grade 12 + University degree	7,20
	Grade 12 + Post graduate degree	6,00
Years in organisation	1 – 5 years	56,60
	6 – 10 years	26,50
	11 – 15 years	8,40
	16 – 20 years	4,80
	20 + years	3,60

According to Table 1, the majority of the participants were males (59%) and between the age of 36 and 40 years (22,9%). Just over half of the participants (53%) speak Afrikaans as a first language and 33,7% were married with children. A total of 49,4% of the participants possess a grade 12 qualification and have between 1 and 5 years experience (56,6%) in the specific organisation.

Measuring battery

The following questionnaires were used in the empirical study:

The *Utrecht Work Engagement Scale* (UWES) (Schaufeli, Martinez, Pinto, Salanova, & Bakker, 2002) was used to measure the engagement level of the participants. The UWES includes three dimensions, vigour, dedication, and absorption, which are conceptually seen as the opposites of burnout and are scored on a seven-point frequency-rating scale, varying from 0 (*never*) to 6 (*every day*). Only two of these dimensions were used in this research study, vigour (5 items; e.g. "I am bursting with energy every day in my work"), and dedication (5 items; e.g. "My job inspires me"). Problems with the wording of the items of absorption preclude the use of this dimension in this study. The alpha coefficients for the two subscales varied between 0,64 and 0,75. The alpha coefficient was improved by eliminating a few items without substantially decreasing the scale's internal consistency. Schaufeli and Bakker (2002) determined alpha coefficients between 0,68 and 0,91. Rothmann and Storm (2003) obtained the following alpha coefficients for the UWES in a sample of 2396 members of the South African Police Service: Vigour: 0,78; Dedication: 0,89. Storm (2002) also found equivalent alpha coefficients for these two dimensions of the UWES in a South African sample.

The *Job Demands-Resources Scale* (JD-RS) was used to measure the specific job characteristics within the manufacturing industry. This questionnaire was developed by the authors to measure job demands and job resources for employees in the manufacturing industry. The JD-RS comprises 48 items and the questions are rated on a 4-point scale ranging from 1 (*never*) to 4 (*always*). The dimensions of the JD-RS include pace and amount of work, mental load, emotional load, variety in work, opportunities to learn, independence in work, relationships with colleagues, relationships with immediate supervisors, ambiguities about work, information, communication, participation, contact possibilities, uncertainty about the future, remuneration and career possibilities. Jackson and Rothmann (2005) found that seven factors of the JD-RS were reliable according to their alpha coefficients. These were organisational support: 0,88; growth opportunities: 0,80; overload: 0,75; job insecurity: 0,90; relationship with superiors: 0,76; control: 0,71; and rewards: 0,78. Rothmann, Mostert, and Strydom (2006) also found reliable alpha coefficients for the JD-RS that varied between 0,76 to 0,92 in a South African sample.

A demographic questionnaire was developed in order to obtain information about the characteristics of the participants. The questionnaire included gender, race, age, language, marital status, qualification level, and total years in the specific organisation.

Statistical analysis

The SPSS program (SPSS, 2005) was used to carry out the statistical analyses. A simple principal component analysis was performed to determine the number of factors and a principal component analysis with a direct oblimin rotation was used to extract factors (Tabachnick & Fidell, 2001).

Descriptive statistics, including means, standard deviations, skewness, and kurtosis, were used to explore the data. Cronbach alpha coefficients were used to assess the internal consistency of the measuring instruments (Clark & Watson, 1995). The alpha coefficient conveys important information regarding the proportion of error variance contained in a scale. Effect sizes were used to decide on the significance of the findings. Pearson correlation coefficients were used to specify the relationships between the variables. A cut-off point of 0,30 (medium effect) was set for the practical significance of correlation coefficients and the level of statistical significance was set at $p \leq 0,05$.

Multiple regression analysis was used to investigate whether job demands and job resources predict work engagement and to determine the relationship that exists between job demands, job resources, and work engagement. Work engagement was first entered as the dependent variable and job resources (i.e. organisational support, growth opportunities, social support, and advancement) as independent variables in order to determine which of these factors predict work engagement in a manufacturing organisation. Secondly, job demands was entered in the analysis as an independent variable and work engagement as the dependent variable in order to investigate the effect that job demands have on work engagement and the relationship with job resources.

RESULTS

In the factor analysis only two of the original dimensions of work engagement were used, vigour and dedication. The third dimension of work engagement, absorption, did not load

on any of the items of the UWES and thus was not relevant in this study. The results of the factor analysis on the UWES are shown in Table 2. Loadings of variables on factors are shown.

Table 2

Communalities (h^2), Principal Factor Extraction and Varimax Rotation on UWES Items

Item	F1	F2	h^2
I am bursting with energy in my work	0,50	0,00	0,25
I find my work full of meaning and purpose	0,00	0,57	0,32
I feel strong and vigorous in my work	0,58	0,00	0,33
My job inspires me	0,00	0,49	0,24
When I get up in the morning, I feel like going to work	0,89	0,00	0,79
I am proud of the work that I do	0,00	0,67	0,44
To me, my work is challenging	0,00	0,58	0,33
I always persevere at work, even when things do not go well	0,49	0,00	0,24
I feel strong and full of energy in my work	0,81	0,00	0,65
Factor labels: F1 Vigour; F2 Dedication			

The two extracted factors accounted for 58% of the total variance in the data. With a cut-off point of 0,40 for inclusion of a variable in the interpretation of a factor, 5 of the 14 variables did not load on any one of the two factors. These factors were excluded from further analysis.

The five items that loaded on the first factor relate to vigour in a manufacturing organisation. Vigour deals with the energy and mental resilience a person experiences relating to his/her work. It also refers to the level of willingness of an individual to invest effort in his/her working tasks. The four items that loaded on the second factor relate to the Dedication dimension of work engagement and address the level of meaning and purpose individuals experience in their work. Dedication also refers to the level of pride, challenge, and enthusiasm that an individual experiences in his/her work.

A second-factor analysis on the two UWES factors was carried out to determine whether these factors represent work engagement. One factor, which explained 39,99% of the total variance, was extracted. This factor was labelled Work Engagement.

Table 3 identifies the descriptive statistics, Cronbach alpha coefficients and the correlations of the measured instruments, namely the UWES and the JDRS.

Table 3

Descriptive Statistics and Cronbach's Alpha Coefficients of the UWES and JDRS (n = 83)

Item	Mean	Sten	SD	Skewness	Kurtosis	α
UWES						
Engagement	42,06	6,52	3,22	-0,63	-0,73	0,82
JDRS						
Organisational Support	43,53	6,33	3,12	-0,67	-0,33	0,92
Growth Opportunities	23,69	5,24	3,36	-0,34	-1,04	0,88
Social Support	17,95	5,96	2,97	-0,71	0,15	0,79
Advancement	12,63	6,00	3,44	0,46	-0,93	0,89
Insecurity	8,07	5,48	2,95	-0,17	-1,50	0,94
Job Demands	24,61	5,36	2,71	0,19	-0,81	0,63

According to Table 3, the scores of the UWES and the JDRS are normally distributed. The Cronbach alpha coefficients of all the measured instruments are considered to be acceptable compared to the guidelines of $\alpha > 0,70$ (Nunnally & Bernstein, 1994), except for the alpha coefficient of the job demands scale, which are below the accepted 0,70 guideline. The sten scores of certain job resources such as organisational support, social support, and advancement seem to be above the national norm of 5,5. Growth opportunities seem to be below the national norm. The sten scores of job demands and insecurity seem to be below the norm. According to these results, employees in a manufacturing organisation experience levels of job demands and insecurity below the national norm and levels of organisational support, social support and advancement that are above average, albeit with a lack of growth opportunities.

The correlation coefficients between work engagement, job demands and job resources are reported in Table 4.

Table 4

Correlation Coefficients between Work Engagement, Job Demands and Job Resources (n = 83)

Item	1	2	3	4	5	6
1. Work Engagement	-	-	-	-	-	-
2. Organisational Support	0,66***	-	-	-	-	-
3. Growth Opportunities	0,64***	0,77***	-	-	-	-
4. Social Support	0,44***	0,73***	0,59***	-	-	-
5. Advancement	0,45***	0,67***	0,61***	0,52***	-	-
6. Insecurity	0,21	0,19	0,27*	0,35***	0,05	-
7. Job Demands	-0,17	-0,26*	-0,10	-0,19	-0,13	-0,15

* Correlation is statistically significant $p \leq 0,05$

** Correlation is statistically significant $p \leq 0,01$

+ Correlation is practically significant $r \geq 0,30$ (medium effect)

++ Correlation is practically significant $r \geq 0,50$ (large effect)

Table 4 indicates that Work Engagement is statistically and practically significantly positively related to Organisational Support and Growth Opportunities (large effect). Work Engagement is also positively, statistically and practically significantly related to Social Support and Advancement (medium effect).

A multiple regression analysis was done with engagement (measured by the UWES), as the dependent variable, and job demands and job resources (measured by the JDRS), as independent variables. Firstly, job resources were entered into the analysis and secondly job demands were entered. The results of the multiple regression analysis can be seen in Table 5.

Table 5

Regression Analysis with Engagement as Dependent Variable

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						15,81*	0,71	0,51	0,47
(Constant)	12,29	3,96		3,12	0,03				
Organisational Support	0,39	0,15	0,41	2,56	0,01*				
Growth Opportunities	0,43	0,18	0,33	2,48	0,02*				
Social Support	0,20	0,31	0,08	0,65	0,52				
Advancement	-0,13	0,21	-0,07	-0,62	0,54				
Insecurity	0,08	0,28	0,02	0,28	0,78				
2						13,04*	0,71	0,00	0,47
(Constant)	14,15	7,09		2,00	0,05				
Organisational Support	0,38	0,16	0,39	2,38	0,02*				
Growth Opportunities	0,45	0,18	0,34	2,48	0,02*				
Social Support	0,21	0,31	0,08	0,66	0,51				
Advancement	-0,13	0,22	-0,07	-0,62	0,54				
Insecurity	0,06	0,28	0,02	0,22	0,82				
Job Demands	-0,06	0,19	-0,03	-0,32	0,75				

* $p \leq 0,05$

According to Table 5, 51,81% of the variance in Work Engagement (as measured by the UWES) is predicted by job resources. The regression coefficients of only two job resources, Organisational Support and Growth Opportunities, were statistically significant. Table 5 also indicates that the standardised regression coefficients for organisational support ($\beta = 0,39$) and growth opportunities ($\beta = 0,34$) were both moderate. Employees in a manufacturing organisation seem to be more engaged in their work when they are provided with organisational support (i.e. relationship with supervisor, role clarity, information; communication; participation) and growth opportunities (i.e. variety in the job, opportunities to learn, and autonomy). Social support, advancement, and insecurity did not contribute significantly to work engagement when entered with organisational support and growth opportunities. Furthermore, job demands did not contribute significantly to work engagement. There was no statistical significant change in R^2 when job demands were entered into the regression analysis.

DISCUSSION

The objectives of this study were to identify the levels of work engagement experienced by employees in a manufacturing organisation and to assess the role that job demands and job resources play in affecting the work engagement of employees. One dimension was identified namely work engagement that included vigour and dedication. Vigour refers to the level of physical and mental energy an employee experiences in his or her work as well as the willingness of an individual to invest effort in his or her work. The other dimension, Dedication, refers to the amount of enthusiasm, pride and significance an individual experiences in his or her work. According to the results of this study, it seems that employees in a manufacturing organisation experience a level of work engagement (vigour and dedication) above the national norm.

The results confirmed that job resources, namely organisational support, growth opportunities, social support and advancement are positively related to work engagement (vigour and dedication) and that job demands (overload) are negatively related to work engagement. These results support the first and second hypothesis stated in this study. Organisational support (including the relationship with superiors, role clarity, information, communication and participation), and growth opportunities (including variety, opportunities to learn, and autonomy) were strongly related to work engagement in a manufacturing organisation. Social support and advancement was moderately related to work engagement. A total of 51% of the variance in work engagement of employees in a manufacturing organisation was predicted by organisational support and growth opportunities. These results also support the third hypothesis stated in this study. An increase in job resources will increase the overall work engagement level of employees in the manufacturing industry, especially in the case of organisational support and growth opportunities.

Therefore, one can assume that factors like growth opportunities in a job, such as variety, learning opportunities, and autonomy play an intrinsic motivational role for employees in a manufacturing organisation. Many employees in small and medium manufacturing organisations have little variety in their jobs, especially production workers who are constantly exposed to routine work. In providing these employees with variety, they will be more motivated in their jobs. Because of low qualification levels in this industry,

employees sometimes do not have the necessary skills and abilities to cope with the job demands. A manufacturing organisation is also exposed to constant change in market trends and, when learning opportunities are provided, employees will have the necessary skills and abilities to adapt successfully to these changes and cope with the working demands. This will have a positive effect on the work engagement levels of these employees. Most of the manufacturing companies operate in the industrial sector in dangerous conditions while working with chemicals, heavy machinery, and tools. It is therefore critical to create a healthy and safe work environment for employees so that they may be more motivated in their jobs.

There was also an indication in the results that organisational support, including the relationship with superiors, role clarity, information, communication, and participation play an extrinsic motivational role for employees in this study. It will thus be more possible for an employee to manufacture a quality product if he/she has the necessary information available. With more information, employees will have more detail to work with to complete tasks and, with effective role clarity, they will know exactly what is expected of them. Many manufacturing companies have branches and depots nationwide and it is therefore important to have effective communication channels in order to have dependable and speedy deliveries. Without these, negative feedback from customers may place enormous stress and more demands on employees. This, in turn, will have a negative effect on their work engagement levels.

A work environment that offers many resources will foster the willingness of the employee to dedicate his or her efforts and abilities to the work task. The results also support the COBE model of Schaufeli and Bakker (2004), in that job resources play an intrinsic motivational role by fostering the employee's growth, learning and development, or an extrinsic motivational role by being instrumental in achieving work goals.

The results of this study further confirmed that job demands are negatively related to work engagement. Factors of job demands can be seen as pace of work, quantitative workload, and emotional workload. It seems that employees in a manufacturing organisation will be more engaged in their work if the necessary job resources, like organisational support and growth opportunities are provided, no matter the level of job demands. If job demands increase with a lack of increase in job resources, it will have a

negative effect on the work engagement levels of employees (Hakanen, Bakker, & Demerouti, 2005). These results support the first hypothesis. High job demands with the lack of job resources will result in low levels of work engagement among employees.

The results indicate that employees in a manufacturing organisation will be more engaged in their work if the job resources are increased. In order for employees to experience high physical and mental energy and high levels of enthusiasm, pride, and challenge in their work to attain work goals, the organisation must increase the level of organisational support, growth opportunities, social support and advancement opportunities. If manufacturing organisations do not provide these resources, it could have a negative long-term effect. These effects include low performance levels, high absenteeism levels and high employee turnover (Hackman & Oldham, 1980).

When these resources are lacking, employees in a manufacturing organisation will not be able to cope with high quantitative and emotional workloads as well as the high pace of work and this will result in the non-achievement of work goals. Such consequences will result in unengaged workers because they defend themselves against the absence of resources. Employees will experience a loss of investment. It is therefore important that the organisation provide the employee with the necessary resources and a healthy work environment in order for the employee to use his or her abilities effectively and to satisfy his or her needs.

The results of this study indicate that job resources play an important role in the engagement levels of employees in a manufacturing organisation. It seems that these employees are more energetic and enthusiastic when the organisation provides them with the necessary resources. Four types of resources, namely organisational support, growth opportunities, social support, and advancement opportunities seem to predict work engagement of these employees. Organisational support such as supportive superior relationships, communication, information, role clarity and participation, as well as growth opportunities that include factors like variety in the job, learning opportunities, and autonomy, play a more critical role in enhancing work engagement.

The results of this study provide support for the third hypothesis that an increase in job resources will increase the overall work engagement level of employees in a

manufacturing organisation. Job demands seem to have a weak relationship with work engagement in terms of quantitative workload, emotional workload, and pace of work. High job demands with low job resources have a negative influence on the work engagement levels of employees in a manufacturing organisation as stated in the second hypothesis. It seems that job resources have a stronger effect on work engagement than job demands. These results therefore support the second hypothesis. Both job demands and job resources have an influence on the work engagement level of employees in the manufacturing industry.

A few limitations were present in this study. Afrikaans and Tswana, two of the languages used in this study were, in some cases, the second or third language of the participants. This could affect the way the participants understood the questions in the questionnaires and the way they responded to these questions. The study sample was rather small, with a total of 83 participants. The qualification levels of the participants can be seen as a limitation due to the possibility that they could misunderstand questions in the questionnaire. However, the reliabilities of the dimensions were acceptable. Lastly, because of the cross-sectional nature of the data it is not possible to determine the causality of relationships.

RECOMMENDATIONS

It is recommended that certain job characteristics be explored in order to improve the overall work engagement level of employees in a manufacturing organisation. It is thus necessary to shift the viewpoint back and forth of what the organisation wants and what contributes to human complexity. Therefore it is suggested that organisations in the manufacturing industry should address two major factors in order to more fully engage their employees.

Firstly, it is important to address the level of organisational support that employees receive in terms of the relationships that employees experience with their superiors, the clarity that individuals have in their job description, the information they receive to do their job effectively, the level of communication that exists, and the degree of participation experienced by employees in decision-making procedures. Managers should be more sensitive to the emotional needs of employees in such a way as to enhance

personal development, fairness, and healthy relationships. The focus of leaders in the manufacturing industry must shift to satisfy the individual's emotional needs in order to improve performance.

Secondly, it is recommended that more growth opportunities be created for employees in the manufacturing industry in such a way as to improve variety in work tasks, create learning opportunities, and foster independence. A training and development plan should be in place to create opportunities for employees to learn and to grow.

Interventions must be developed to create meaningful work for employees and variety in daily tasks. Leaders and managers should rather focus on providing more feedback and coaching employees to become more independent in their work in order for them to experience a satisfactory level of autonomy. If these core job characteristics are provided, it will result in positive outcomes such as high-quality work performance, job satisfaction, and low absenteeism and turnover levels (Hackman & Oldham, 1980).

To increase the work engagement levels among employees in the manufacturing industry one must focus on increasing job resources such as organisational support, social support, growth opportunities and advancement. It is also important for psychologists and human resource managers in this industry to concentrate on creating values and cultures that supports career development, skill and ability enhancement and a fun work environment. This will increase the work engagement level of employees. Managers and leaders should also spent their energy and time on psychological factors that promotes work engagement such as sense of coherence, generalised self-efficacy, an internal locus of control, dispositional optimism, and satisfaction with life (Rothmann, 2003). These factors will increase the wellness state of employees and will enhance work engagement levels. It will be beneficial to manufacturing organisations to implement tertiary level interventions such as counselling to enhance these psychological factors and to reduce the level of sick absence and employee turnover.

Future research should focus on the human complexity in the work place in order to study human behaviour with the aim of improving the overall performance levels of individuals. It is recommended that researchers and leaders in the industry concentrate on positive psychology to help employers and employees to attain healthy work

environments where individuals perform at their best. This will create advantageous results for the organisation as well. It is thus important to study the predictors of work engagement in various industries to have a more broad analysis. There is a need for more studies on this topic in the manufacturing industry because this study sample was rather small.

Author's note

This study was financial supported by the National Research Foundation.

REFERENCES

- Aktouf, O. (1992). Management and theories of organizations in the 1990s: Toward a critical radical humanism. *Academy of Management Review*, 17, 407-431.
- Baumeister, R., & Leary, M. R. (1995). The need to belong: Desire for interpersonal attachments as a fundamental human motivation. *Psychological Bulletin*, 117, 497-529.
- Bent, R., Seaman, C. E. A., & Ingram, A. (1999). Staff motivation in small food manufacturing enterprises. *British Food Journal*, 101, 654-667.
- Bolden, R., Waterson, P., Warr, P., Clegg, C., & Wall, T. (1997). A new taxonomy of modern manufacturing practices. *International Journal of Operations and Production Management*, 17, 1112-1130.
- Briskin, A. (1998). *The striving of soul in the work place*. San Francisco, CA: Berrett-Koehler.
- Britt, T. W., Adler, A. B., & Bartone, P. T. (2001). Deriving benefits from stressful events: The role of engagement in meaningful work and hardiness. *Journal of Occupational Health Psychology*, 6, 53-63.
- Brown, S. P. (1996). A meta-analysis and review of organizational research on job involvement. *Psychological Bulletin*, 120, 235-255.
- Caldwell, D., Chatman, J., & O'Reilly, C. (1990). Building organizational commitment: A multifirm study. *Journal of Occupational Psychology*, 63, 245-261.
- Cartwright, S., & Cooper, C.L. (1994). *No hassle: Taking the stress out of work*. London: Century Books.
- Clark, L. A., & Watson, D. (1995). Constructing validity: Basic issues in objective scale development. *Psychological Assessment*, 7, 309-319.
- Cohen, A. (1992). Antecedents of organizational commitment across occupational groups: A meta-analysis. *Journal of Organizational Behavior*, 13, 539-558.
- Csikszentmihalyi, M. (1975). *Beyond boredom and anxiety*. San Francisco, CA: Jossey-Bass.
- Csikszentmihalyi, M. (1990). *Flow: The psychology of optimal experience*. New York: Harper.
- Danna, K., & Griffen, R. W. (1999). Health and well-being in the workplace: A review and synthesis of the literature. *Journal of Management*, 25, 357-384.
- De Charms, R. (1968). *Personal causation*. New York: Academic Press.
- Deci, W. L., & Ryan, R. M. (1985). *Intrinsic motivation and self-determination in human behavior*. New York: Plenum.

- Demerouti, E., Bakker, A. B., de Jonge, J., Janssen, P. P. M., & Schaufeli, W. B. (2001). Burnout and engagement at work as a function of demands and control. *Scandinavian Journal of Work Environment and Health*, 27, 279-286.
- Demerouti, E., Bakker, A. B., Nachreiner, F., & Schaufeli, W. B. (2001). The job demands-resources model of burnout. *Journal of Applied Psychology*, 86, 499-512.
- Erikson, E. (1959). Identity and the life cycle. *Psychological Issues*, 1, 18-124.
- Frankenhaeuser, M. (1991). The psychophysiology of sex differences as related to occupational status. In M. Frankenhaeuser, U. Lundberg, & M. Chesney (Eds.), *Woman, work, and health: Stress and opportunities* (pp. 39-61). New York: Plenum Press.
- Gerhart, B., & Bretz, R. D. (1992). Employee Compensation and Advanced Manufacturing Technology. In W. Karwowski & G. Salvendy (Eds.), *Human factors in advanced manufacturing* (pp. 1-42). New York, NY: John Wiley & Sons.
- Hackman, J. R., & Oldham, G. R. (1980). *Work redesign*. Reading, MA: Addison-Wesley.
- Hakanen, J. J., Bakker, A. B., & Demerouti, E. (2005). How dentists cope with their job demands and stay engaged: The moderating role of job resources. *European Journal of Oral Sciences*, 113, 1-9.
- 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, 268-279.
- Hobfoll, S. E. (2002). Social and psychological resources and adaptation. *Review of General Psychology*, 6, 307-324.
- Houkes, I., Janssen, P. P. M., De Jonge, J., & Nijhuis, F. J. N. (2001). Specific relationships between work characteristics and intrinsic work motivation, burnout and turnover intention: A multi-sample analysis. *European Journal of Work and Organizational Psychology*, 10, 1-23.
- House, J. S. (1981). *Work stress and social support*. Reading, MA: Addison Wesley.
- Jackson, L. T. B., & Rothmann, S. (2005). Work-related well-being of educators in a district of the North West Province. *Perspectives in Education*, 23, 107-122.
- Jones, F., & Fletcher, B. C. (1996). Job control and health. In M. J. Schabracq, J. A. M. Winnubst, & C. L. Cooper (Eds.), *Handbook of work and health psychology* (pp. 33-50). Chichester: Wiley.
- Kahn, W. A. (1990). Psychological conditions of personal engagement and disengagement at work. *Academy of Management Journal*, 33, 692-724.

- Kanungo, R. N. (1982). Measurement of job and work involvement. *Journal of Applied Psychology*, 67, 341-349.
- Kerlinger, F. N. (1975). *Foundations of behavioral research* (2nd ed.). London: Holt, Rinehart and Winston Inc.
- Kerlinger, F. N. (1986). *Foundations of behavioral research* (3rd ed.). London: Holt, Rinehart and Winston Inc.
- Lawler, E. E., & Hall, D. T. (1970). Relationship of job characteristics to job involvement, satisfaction, and intrinsic motivation. *Journal of Applied Psychology*, 54, 305-312.
- Maslach, C. (1993). Burnout: a multidimensional perspective. In W. B. Schaufeli, C. Maslach, & T. Marek (Eds.), *Professional burnout: Recent developments in theory and research* (pp. 19-32). Washington, DC: Taylor & Francis.
- Maslach, C., & Leiter, M. P. (1997). *The truth about burnout*. San Francisco, CA: Jossey Bass.
- Maslach, C., Jackson, S. E., & Leiter, M. (1996). *Maslach Burnout Inventory: Manual* (3rd ed.). Palo Alto, CA: Consulting Psychologists Press.
- Maslach, C., Schaufeli, W. B., & Leiter, M. P. (2001). Job burnout. *Annual Review of Psychology*, 52, 397-422.
- Maslow, A. H. (1959). *New knowledge in human values*. New York: Harper and Row.
- 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.
- McEwen, B. S. (1998). Protective and damaging effects of stress mediators. *New England Journal of Medicine*, 338, 171-179.
- Meijman, T. F., & Mulder, G. (1998). Psychological aspects of workload. In P. J. D. Drenth, & H. Thierry (Eds.), *Handbook of work and organizational psychology: Work psychology* (Vol. 2, pp. 5-33). Hove, UK: Psychology Press.
- Nunnally, J. C., & Bernstein, I. H. (1994). *Psychometric theory* (3rd ed.). New York: McGraw-Hill.
- Randall, D. (1990). The consequences of organizational commitment: Methodological investigation. *Journal of Organizational Behaviour*, 11, 361-378.
- Roberts, D. R., & Davenport, T. O. (2002). Job engagement: Why it's important and how to improve it. *Employment Relations Today*, 29(3), 21-29.
- Rothbard, N. P. (2001). Enriching or depleting? The dynamics of engagement in work and family roles. *Administrative Science Quarterly*, 46, 655-684.

- Rothmann, S. (2003). Burnout and engagement: A South African perspective. *South African Journal of Industrial Psychology*, 29(4), 16-25.
- Rothmann, S., Mostert, K., & Strydom, M. (2006). A psychometric evaluation of the Job Demands-Resources Scale in South Africa. *South African Journal of Industrial Psychology*, 32(4), 76-86.
- Rothmann, S., & Storm, K. (2003, May). *Engagement in the South African Police Service*. Poster session presented at the 11th European Congress on Work and Organisational Psychology. Lisbon, Portugal.
- Ryan, R. M., & Deci, E. L. (2000). Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. *American Psychologist*, 55, 68-78.
- Ryan, R. M., & Frederick, C. (1997). On energy, personality, and health: Subjective vitality as a dynamic reflection of well-being. *Journal of Personality*, 65, 529-565.
- Ryff, C. D. (1989). Happiness is everything, or is it? Exploration of the meaning of psychological well-being. *Journal of Personality and Social Psychology*, 57, 1069-1081.
- Ryff, C. D., & Keyes, C. L. M. (1995). The structure of psychological well-being revisited. *Journal of Personality and Social Psychology*, 69, 719-727.
- Schaufeli, W. B. (2003). Past performance and future perspectives on burnout research. *South African Journal of Industrial Psychology*, 29(4), 1-15.
- Schaufeli, W. B., & Bakker, A. B. (2004). Job demands, job resources, and their relationship with burnout and engagement: A multi-sample study. *Journal of Organizational Behavior*, 25, 293-315.
- Schaufeli, W. B., Martinez, I. M., Pinto, A. M., Salanova, M., & Bakker, A. B. (2002). Burnout and engagement in university students. *Journal of Cross-Cultural Psychology*, 33, 464-481.
- Schaufeli, W. B., Salanova, M., González-Romá, V., & Bakker, A. B. (2002). The measurement of engagement and burnout: A confirmatory factor analytic approach. *Journal of Happiness Studies*, 3, 71-92.
- Schaufeli, W.B. & Bakker, A.B. (2002). *Job demands, job resources and their relationship with burnout and engagement: A multi-sample study on the COBE-model*. Utrecht University: Psychology and Health.
- Schnorpfeil, P., Noll, A., Writz, P., Schulze, R., Ehlert, U., Frey, K., & Fischer, J. E. (2004). Assessment of exhaustion and related risk factors in employees in the manufacturing industry: A cross-sectional study. *International Archives of Occupational and Environmental Health*, 75, 535-540

- 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.
- Seligman, M. E. P., & Csikszentmihalyi, M. (2000). Positive psychology: An introduction. *American Psychologist*, 55, 5-14.
- Settoon, R., Bennett, N., & Liden, R. (1996). Social exchange in organizations: Perceived organizational support, leader-member exchange and employee reciprocity. *Journal of Applied Psychology*, 81, 219-227.
- Shaughnessy, J. J., & Zechmeister, E. B. (1997). *Research methods in psychology* (4th ed.). New York: McGraw-Hill.
- Shore, L., & Tetrick, L. (1991). A construct validity study of the Survey of Perceived Organizational Support. *Journal of Applied Psychology*, 76, 637-643.
- Shore, L., & Wayne, S. (1993). Commitment and employee behaviour: Comparison of affective commitment and continuance commitment with perceived organizational support. *Journal of Applied Psychology*, 78, 774-780.
- Shore, L., Barksdale, K., & Shore, T. (1995). Managerial perceptions of employee commitment to the organization. *Academy of Management Journal*, 38, 1593-1615.
- Spector, P.E. (2000). *Industrial and organizational psychology: Research and practice* (2nd ed.). New York: John Wiley.
- 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, 279-704.
- SPSS Inc. (2005). *SPSS 14.0 for Windows*. Chicago, IL: SPSS Inc.
- Storm, K. (2002). *Burnout and engagement in the South African Police Service*. Unpublished doctoral thesis, North-West University, Potchefstroom.
- Tabachnick, B. G., & Fidell, L. S. (2001). *Using multivariate statistics* (4th ed.). Boston, MA: Allyn & Bacon.
- Thomas, K., & Velthouse, B. A. (1990). Cognitive elements of empowerment: An interpretive model of intrinsic task motivation. *Academy of Management Review*, 15, 666-681.
- Tucker, L. R., & Lewis, C. (1973). A reliability coefficient for maximum likelihood factor analysis. *Psychometrika*, 38, 1-10.

- Van Horn, J. E., Taris, T. W., Schaufeli, W. B., & Schreurs, P. J. G. (2004). The structure of occupational well-being: A study among Dutch teachers. *Journal of Occupational and Organizational Psychology*, 77, 365-375.
- Warr, P. B. (1987). *Work, unemployment, and mental health*. Oxford, UK: Oxford University Press.
- Warr, P. B. (1994). A conceptual framework for the study of work and mental health. *Work and Stress*, 8, 84-97.
- Watson, D., & Tellegen, A. (1985). Toward a consensual structure of mood. *Psychological Bulletin*, 98, 219-235.
- White, R. W. (1959). Motivation reconsideration: The concept of competence. *Psychological Press*, 66, 297-333.
- Whitener, E., & Walz, P. (1993). Exchange theory determinants of affective and continuance commitment and turnover. *Journal of Vocational Behaviour*, 42, 265-281.

CHAPTER 3

CONCLUSIONS, LIMITATIONS AND RECOMMENDATIONS

This chapter contains conclusions regarding the literature review and the empirical study according to the specific objectives. The limitations of the research are discussed, followed by recommendations for the research problem in the organisations and, lastly, suggestions are made for future research.

3.1 CONCLUSIONS

The first objective of this study was to investigate the levels of work engagement among employees in a manufacturing organisation. Work engagement was conceptualised as a positive, fulfilling, and work-related state of mind that is characterised by vigour, dedication, and absorption (Schaufeli, Salanova, Gonzales-Roma, & Bakker, 2002). Vigour can be seen as the physical dimension of work engagement that includes high levels of energy and mental resilience while working, and the willingness of the employee to invest extra effort in his or her work and the ability to face difficulties in work related tasks. The dedication dimension refers to the emotional side of work engagement where an employee has significance and pride in his or her work and experiences high levels of enthusiasm and challenge in work-related tasks. Absorption, the third dimension of work engagement, refers to the cognitive dimension of work engagement and can be characterised by full concentration and being happily engrossed in one's work. Time passes quickly and an employee finds it difficult to detach him or herself from work. Several studies in the literature question the role that absorption plays in the definition of work engagement and support the view that that work engagement is only conceptualised by vigour and dedication (Naudé & Rothmann, 2004; Schaufeli & Bakker, 2004).

Only two dimensions of work engagement were relevant in this study, vigour and dedication. It seems that the majority of the study population experience work engagement levels above the national norm. Although these levels of work engagement seem to be above average, they should be increased in order to improve performance levels and commitment levels towards the organisation. In order to increase the work engagement levels of employees in a

manufacturing organisation, one must first determine the factors that predict work engagement.

The second objective of this research study was to investigate the effects of job demands and job resources on work engagement of employees in a manufacturing organisation. Job demands refer to the physical, psychological, social, and organisational aspects of work that require continuous physical and psychological effort, which is associated with certain physiological and psychological costs (Schaufeli & Bakker, 2004). It seems that aspects like pace of work, quantitative workload, and emotional workload have a negative relationship with work engagement. That means that high working demands may have negative consequences for organisations in the manufacturing industry if the necessary resources are not provided to employees. Although job demands are not necessarily negative, they could have negative long-term consequences for the organisation when coupled with the lack of resources because employees spent much more mental and physical energy to cope with high working demands and that could lead to burnout.

Job resources, on the other hand, seem to be positively related to work engagement. The regression analysis confirmed that 51% of the variance of work engagement was predicted by job resources. According to Schaufeli and Bakker (2004), job resources refer to the physical, psychological, social, and organisational aspects of work that either reduce high working demands, or that are functional in achieving work related goals, or which play a role in stimulating growth, learning, and development. Four job resources seem to be relevant in this study, organisational support, social support, growth opportunities, and advancement. Organisational support and growth opportunities seem to be the strongest predictors of work engagement in this particular study and were equally strong in the regression analysis.

Organisational support refers to the support organisations provide to employees in terms of the relationship that exists between the employee and his or her superior, the clarity in job descriptions, the information that is provided, effective communication structures, and the level of participation experienced by the employee. Healthy relationships between the employee and his or her superior and effective communication will enhance the emotional state at work and individuals will experience connections meaningfully (Kahn, 1990). If the necessary information is provided to employees to complete work tasks effectively, and if they know exactly what they have to do, they will be more able to complete work tasks and

achieve work goals. The results of this study indicate that overall organisational support must be increased in order to improve engagement among employees. The second dimension that was strongly related to work engagement was growth opportunities. The results confirmed that variety in the job, learning opportunities that exist in the organisation, and the level of autonomy that individuals experience in their work will have an influence on the work engagement level of employees in the manufacturing industry. Variety in the job and learning opportunities will foster learning in the organisation and will give employees the opportunity to enhance their skills and abilities so as to be more successful in a working career and to complete working tasks more successfully. Autonomy can be seen as the level of independence that employees experience in their work. According to Deci and Ryan (1985), autonomy plays an important role in motivating employees and enhancing levels of well-being. In the Vitamin model of Warr (1987), certain environmental factors, such as externally generated goals, variety, environmental clarity, opportunity for control, opportunity for skill use, and opportunity for interpersonal contact, may have a positive relationship to mental health and overall well-being. This model considers that mental health is influenced by the environment in a way similar to the way that vitamins affect physical health. Warr (1987) also states that a lower level for each of these environmental factors will have negative effects on an individual's psychological well-being.

The results confirm that an increase in job resources will have a positive effect on work engagement. Employees in the manufacturing industry are more likely to be engaged in their work if the provision of job resources is increased. According to the Job Characteristics Theory of Hackman and Oldham (1980), job resources play a motivational role towards employees that is related to positive outcomes such as high-quality work performance, job satisfaction, low absenteeism, and low turnover levels. It also fosters individual growth, learning and development, and helps individuals to achieve working goals.

In conclusion, it seems that employees in the manufacturing industry will be engaged in their work if the necessary resources are provided. Employees will be energetic (mentally and physically) as well as dedicated if the organisation provides them with growth opportunities and organisational support. The results confirmed that two resources, organisational support and growth opportunities, would strongly predict work engagement. Two other resources were moderately positively related to work engagement. These were social support and

advancement. Work engagement was conceptualised, as vigour and dedication, and job demands seem to have a negative relationship with these dimensions.

Therefore a person who experiences good relationships with his or her superior, and seems to have learning opportunities in the organisation with variety and clarity in his or her job and the necessary autonomy, communication, information, and participation, he or she will be more engaged in their work. These employees will be more energetic and will experience high levels of pride and enthusiasm in their work. They will be able to perform better in their work and work related goals would be achieved.

3.2 LIMITATIONS

The sample size of this research study can be seen as a limitation with a response rate of 55%. Of the 150 questionnaires that have been handed out to the study population, only 88 were retrieved and only 83 could be used in this research study because of incomplete questionnaires. In small and medium enterprises it is difficult to obtain large numbers of participants.

Afrikaans and Tswana, the two languages used in conducting the study, were in some cases a second or even third language of the participants. This could have influenced the way in which the respondents answered the questions, as a result of misunderstandings and incorrect interpretations. Another limitation of this study was the qualification level of certain participants. Some of the participants did not have a Grade 12 qualification and some only had Grade 8. This could have influenced the results of this study because these participants might misunderstand questions in the questionnaire.

This study was conducted with a homogenous sample consisting of individuals in the manufacturing industry. It should be noted that unique characteristics probably exist within this industry, such as a specific organisational culture and climate, which might have influenced the participant's responses. Another limitation of this research study is the possibility that some individuals did not trust the confidentiality clauses in the letter accompanying the test booklet and could have partially or fully answered the questions inaccurately in the fear that they would be identified. This could have influenced the results.

3.3 RECOMMENDATIONS

The following recommendations for organisations as well as for future research are made.

3.3.1 Recommendations for organisations

Organisations in the manufacturing industry should invest their efforts in increasing work related resources in order to have more engaged employees. The focus must be on providing organisational support to employees and to create opportunities for employees to grow in the organisation. Interventions must be developed to enhance variety and clarity in work tasks. Coaching programmes must be developed to teach managers and leaders in the industry to communicate effectively and to encourage good relationships between them and their employees. Programmes must be in place to foster learning in the organisation and to give employees the opportunity to grow in the organisation through effective career planning processes. Managers and leaders should teach employees to be more independent in their work through extensive coaching and learning programmes in order to provide employees with more skills and abilities in completing work tasks more successfully.

According to Ryan and Deci (2000), feedback, communication, and rewards will enhance work engagement. In providing positive feedback, employees will feel more competent in their work. This could lead to an increase in work engagement. Negative feedback, on the other hand, decreases work engagement in the sense that employees feel incompetent and insecure. The way in which feedback is given will also affect the relationship that exists between the employee and his or her supervisor. It is therefore important to extend the resources provided by manufacturing companies in providing positive feedback to their employees to increase their work engagement levels. Career development also plays an important role in the way the individual identifies him- or herself with the organisation. Manufacturing organisations must provide individuals with opportunities to develop themselves and the opportunities to manage their careers in the industry in order for them to be more engaged in their work. For employees to be more committed towards the organisation, they must identify themselves with the organisation. In other words, employees must feel that their working goals are in line with the goals of the organisation. Autonomy and participation in management should be increased so that employees may share in the success of the company. They will then feel more involved through participation in decision-

making processes, and will be proud of achieving work goals and delivering quality goods. A rewarding work environment also plays a significant role in increasing the work engagement level of employees. According to Rothmann (2003), a rewarding work environment is characterised by a positive, fun working environment where employees have the decision-making authority to do their jobs well, the recognition for contributions, the encouragement to create new and better ways of doing their work, and have supervisors who create a motivating climate. Practitioners in the manufacturing industry should provide a rewarding work environment that will increase the overall work engagement levels of their employees.

In order to have engaged workers, organisations in the manufacturing industry should develop interventions that promote a positive organisational culture and values that will contribute to healthier work environments. Employees in this industry will thus be more committed towards the organisation and more motivated in their work. The current change in market trends also indicates a constant increase in working demands. Many organisational-based strategies are available to tackle high job demands. These include job redesign, flexible working hours, and goal setting strategies (Rothmann, 2003). Due to the nature of the industry, it is sometimes not possible to redesign jobs and to create flexible working hours because of production lines and the operational sequence of the industry. It would be better to increase job resources such as organisational support, growth opportunities, autonomy, and social support to increase the work engagement level of employees as well as the overall well-being of individuals. To increase the level of work engagement among employees, human resource managers and psychologist must also focus their attention to psychological aspects such as sense of coherence, an internal locus of control, generalised self-efficacy, optimism, and satisfaction with life. This will enable employees to cope with the demands of stressful work and life environments and will enable them to implement self-motivation strategies and to control their work and life environments successfully.

For employees to cope with the demanding environment of the manufacturing industry, organisations must provide them with the necessary resources. The individual will not otherwise be able to cope with these demands and he or she will experience a draining of mental and physical energy and will detach him- or herself from his or her work. That could lead to negative consequences for the organisation such as high levels of absenteeism, high employee turnover, unmotivated employees, and a lack of commitment towards the organisation. Managers should be on the lookout for these symptoms and must act upon

them. Kompier and Cooper (1999) state that work-related wellness interventions should be evaluated in organisations according to financial results, time and personnel resources, customer satisfaction, and health and safety. Managers and leaders in the manufacturing industry should therefore focus their actions on evaluating these aspects to improve their competitive advantage in the industry and to improve the overall wellness of their employees.

3.3.2 Recommendations for future research

Future research in South Africa should focus on the predictors of work engagement in various industries. It is important that researchers study positive behaviour in organisations and investigate what aspects or factors contribute to this behaviour.

It is important that researchers also focus their attention to the positive aspects of work-wellness in behaviour and occupational psychology. This will enable practitioners to create healthy work environments where individuals perform at their best and produce positive results for organisations. There is a need for more research regarding this topic in the manufacturing industry because this study sample was small. A shortcoming of research exists in small and medium enterprises because of small sample sizes. These companies often do not have a human resource department to measure human performance and develop methods to increase human functioning, performance, and work-wellness in the industry. It is therefore important that researchers focus their attention not only on large organisations, but also on small and medium enterprises.

It is also important to combine occupational health psychology and behaviour studies with economics and engineering studies, especially in the manufacturing industry, to promote productivity growth and work-wellness in South Africa as well as internationally. Motivation plays a major role, especially in the case of sales personnel in this industry. Therefore the psychology behind motivation and sales techniques should be studied. This will enable practitioners to motivate their sales team effectively.

REFERENCES

- Deci, W. L., & Ryan, R. M. (1985). *Intrinsic motivation and self-determination in human behaviour*. New York: Plenum.
- Hackman, J. R., & Oldham, G. R. (1980). *Work redesign*. Reading, MA: Addison-Wesley.
- Kahn, W. A. (1990). Psychological conditions of personal engagement and disengagement at work. *Academy of Management Journal*, 33, 692-724.
- Kompier, M., & Cooper, C. (1999). *Preventing stress, improving productivity*. London: Routledge.
- Naudé, J. L. P., & Rothmann, S. (2004). The validation of the Utrecht Work Engagement Scale for emergency health technicians in Gauteng. *African Journal of Economic and Management Sciences*, 7, 473-487.
- Rothmann, S. (2003). Burnout and engagement: A South African perspective. *South African Journal of Industrial Psychology*, 29(4), 16-25.
- Ryan, R. M., & Deci, E. L. (2000). Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. *American Psychologist*, 55, 68-78.
- Schaufeli, W. B., & Bakker, A. B. (2004). Job demands, job resources, and their relationship with burnout and engagement: A multi-sample study. *Journal of Organizational Behaviour*, 25, 293-315.
- Schaufeli, W. B., Salanova, M., González-Romá, V., & Bakker, A. B. (2002). The measurement of engagement and burnout: A confirmatory factor analytic approach. *Journal of Happiness Studies*, 3, 71-92.
- Warr, P. (1987). *Work, unemployment and mental health*. Oxford: Clarendon Press.