

FLOURISHING OF EMPLOYEES IN THE INFORMATION TECHNOLOGY INDUSTRY IN SOUTH AFRICA

Elsabé Diedericks, MA

Thesis submitted for the degree Doctor of Philosophy in Labour Relations Management at the
Vaal Triangle Campus of the North-West University

Promoter: Prof. S. Rothmann

Vanderbijlpark

May 2012

COMMENTS

The reader is reminded of the following:

- The references as well as the editorial style as prescribed by the *Publication Manual* (6th edition) of the American Psychological Association (APA) were followed in this thesis.
- The thesis is submitted in the format of three research articles.

ACKNOWLEDGEMENTS

'Two roads diverged in a wood and I – I took the one less travelled by and that has made all the difference' - Robert Frost

The journey I embarked upon to complete this degree has not been the easiest one I had ever undertaken in my life, but it has been the most educational one by far – and I do not limit my education to the intellectual domain only. The journey would have been excruciatingly lonely, had it not been for the following people who had been my most ardent supporters and cheerleaders:

- My Creator and Saviour who every day blesses me in abundance with opportunities, strength, health, courage, inspiration and wonderful family and friends.
- Prof. Ian Rothmann, my esteemed promoter – I seem to be at a loss for words when I think of the role you have been playing in my career and life. Words of gratitude seem disparaging in expressing the magnitude of all you have done for me: for your guidance in directing my thoughts; for sharing your exceptional subject knowledge and wisdom with me; for teaching me the concepts of hard work, perseverance, modesty, integrity, patience, empathy, **and** flourishing by setting the example – thank you! I have so much respect for you, not only as an academic and colleague, but also as a friend.
- Prof. Chrizanne van Eeden, Director of the School of Behavioural Sciences – your support and encouragement during difficult times, as well as your belief in me had made this journey bearable.
- My wonderful friends, Melanie, Elrie, Lynn and Daleen – for your love, encouraging phone calls and e-mails when I needed it most – thank you! I treasure you with all my heart!
- My colleagues in Belgium, Prof. Hans De Witte and Dr Anja Van den Broeck – thank you for your academic guidance during my visits, as well as your support and motivation. I am most fortunate to know you and learn from you.
- The managers and staff of the IT companies that participated in this research, especially Mr Jaco Swanepoel. Jaco, you have walked the extra mile for me – thank you so much!
- Mr Ian Rothmann (Junior) who helped me in the most professional manner with the data capturing. Thank you for your patience, Ian, even when I required information at the most inopportune times.

- Ms Martie Esterhuizen from the NWU library on the Vaal Triangle Campus, thank you so much for your invaluable and exceptional assistance at all times. You made my life a lot easier!
- Dr Charles Dussé from the United Kingdom – thank you so much for your professional language editing of this thesis.
- Hein du Toit, my brand new son-in-law – thank you for always solving my computer/software problems, as well as your moral support.
- My mother, Hester Diedericks - thank you for all the lovely meals and cups of tea and coffee while I was working, but most of all for your unconditional love.
- My deceased father, Dick Diedericks. I dedicate this to you in honour of your loving memory. I miss you, your wisdom and your wonderful sense of humour so much!
- Last but not least, the joy of my life – my daughter, Claudette. I thank you for your unfaltering loyalty and support, unconditional love, respect, encouragement, your admiration and for always making me feel that I am the best mother on earth. I am truly blessed!

TABLE OF CONTENTS

	Page	
Acknowledgements	ii	
List of Figures	vi	
List of Tables	vii	
Summary	viii	
CHAPTER 1: INTRODUCTION		
1.1	Background and motivation of the research	1
1.2	Problem statement	5
1.3	Aims of the research	10
1.3.1	General aim	10
1.3.2	Specific objectives	10
1.4	Research method	11
1.4.1	Research design	11
1.4.2	Participants	11
1.4.3	Measuring instruments	11
1.4.4	Research procedure	15
1.4.5	Statistical analysis	15
1.5	Ethical considerations	16
1.6	Chapter layout	16
	References	17
	CHAPTER 2: RESEARCH ARTICLE 1	23
	CHAPTER 3: RESEARCH ARTICLE 2	59
	CHAPTER 4: RESEARCH ARTICLE 3	99

TABLE OF CONTENTS (CONTINUED)

	CHAPTER 5: CONCLUSIONS, LIMITATIONS AND RECOMMENDATIONS	134
5.1	Conclusions	134
5.1.1	Integration and contribution of this study	140
5.2	Limitations	142
5.3	Recommendations	143
5.3.1	Recommendations to solve the research problems	143
5.3.2	Recommendations for future research	145
	References	147

LIST OF FIGURES

Figure	Description	Page
	Research Article 1	
Figure 1	Maximum likelihood estimate for the hypothesized model of flourishing	43
Figure 2	Maximum likelihood estimate for the hypothesized model of flourishing (standardized solution)	47

LIST OF TABLES

Table	Description	Page
Research Article 1		
Table 1	Dimensions and Factors Reflecting Mental Health as Flourishing	28
Table 2	Characteristics of the Participants	35
Table 3	Characteristics of the Participants	36
Table 4	Fit Statistics of Competing Measurement Models	40
Table 5	Descriptive Statistics, Alpha Coefficients and Pearson Correlations of the Scales	42
Table 6	Initial Framework Fit Indices and Standardized Path Coefficients	46
Table 7	Indirect (Mediation Effects) of Flourishing and Job Satisfaction	47
Research Article 2		
Table 1	Types of Psychological Contracts	64
Table 2	Characteristics of the Participants	73
Table 3	Descriptive Statistics, Alpha Coefficients and Pearson Correlations of the Scales	78
Table 4	Hierarchical Multiple Regression Analyses of PC Fulfilment and Violation, Psychological Needs and Well-being	81
Table 5	Indirect Effects of PC Fulfilment on Psychological Need Satisfaction (via PC Violation)	83
Table 6	Results of Hypotheses Testing	85
Research Article 3		
Table 1	Characteristics of Participants	112
Table 2	Descriptive Statistics, Alpha Coefficients and Pearson Correlations of the Scales	116
Table 3	Hierarchical Multiple Regression Analyses of Antecedents, Psychological Needs, Organisational Outcomes and Flourishing	118
Table 4	Indirect Effects of Independent Variables on Job Satisfaction and Work Engagement via Psychological Need Satisfaction	121
Table 5	Indirect Effects of Independent Variables on Flourishing via Psychological Need Satisfaction	122
Table 6	Results of Hypotheses Testing	123

SUMMARY

Subject: Flourishing of employees in the information technology industry in South Africa

Key words: Flourishing, job satisfaction, organisational commitment, organisational citizenship behaviour, counterproductive behaviour, turnover intention, psychological contract, psychological contract breach and violation, psychological need satisfaction, work engagement, positive relations, work role fit, supervisor relations, resources.

Organisations worldwide are experiencing an explosion of knowledge in the current technological information age as well as a serious skills shortage. The fast-paced aggressive and highly cyclical nature of the profession which often does not provide employees with the necessary resources and support causes employees in the information technology (IT) industry to show high turnover intent which is extremely costly and detrimental to organisational success. IT specialists are becoming a scarce commodity in a highly competitive environment where financial gain is very important and employee well-being is not necessarily a prerogative. Employers are faced with additional obligations than just paying equitable salaries, such as creating an environment that is conducive towards well-being. Efforts to promote flourishing and optimal functioning of employees will affect individual and organisational outcomes. Flourishing and languishing are opposite end points on a continuum of mental health indicating the emotional, psychological and social well-being of individuals. An individual who feels well (emotional well-being) is more likely to function well (psychological and social well-being) which means meeting the criteria for positive mental health as flourishing. Investments in the well-being of employees lay the basis for positive employment relations.

The aim of this study was to investigate the flourishing of employees in the information technology industry and to determine the antecedents and outcomes thereof. A cross-sectional survey design was used to gather data regarding the flourishing of IT professionals and its outcomes. A convenience sample ($N = 205$) was taken of employees in information technology organisations in South Africa. The measuring instruments used were the Mental Health Continuum Short Form, Job Satisfaction Scale, Work Engagement Scale, Work-related Basic Need Satisfaction Scale, Work Role Fit Scale, Psychological Contract

Inventory, Violations of PC Questionnaire, Organisational Commitment Scale, Turnover Intention Scale and Counterproductive Work Behaviour measures.

The results of study 1 showed that 58.5% of the IT professionals were neither languishing nor flourishing, while 3.9% were languishing. Flourishing strongly impacted job satisfaction and had minor to moderate direct and indirect effects on organisational citizenship behaviour and organisational commitment. Job satisfaction impacted directly and positively on organisational commitment and negatively on turnover intention; and moderately negatively on counterproductive behaviour. Flourishing had both a direct and positive effect, and an indirect and negative effect (via organisational commitment) on turnover intention.

Study 2 showed that psychological contract breach and violation strongly and negatively impacted flourishing at work and in life. The results provided support for a model in which psychological contract breach and violation had both direct and indirect effects via satisfaction of psychological needs on job satisfaction, work engagement, turnover intention and flourishing of IT professionals.

Study 3 showed that work role fit and the availability of resources were strong predictors of flourishing at work and in life. Work role fit, the availability of resources, and supervisor relations impacted job satisfaction and social well-being indirectly through autonomy satisfaction. The availability of resources impacted work engagement and psychological well-being indirectly via competence satisfaction. Furthermore, work role fit, the availability of resources, and supervisor relations impacted psychological well-being indirectly through relatedness.

Recommendations for future research were made.

CHAPTER 1

INTRODUCTION

This thesis is about the flourishing of employees in the information technology industry in South Africa.

Chapter 1 contains the problem statement, research objectives, research method and the division of chapters.

1.1 BACKGROUND AND MOTIVATION OF THE RESEARCH

Organisations worldwide are increasingly being confronted with the challenges of the Information Age, characterised by a focus on information, knowledge, ideas and management (Gaylard, Sutherland, & Viedge, 2005). Organisations become more dependent on employees, but can no longer rely on employee loyalty. Traditional perceptions on what is owed and expected by employees and the employer (i.e. the psychological contract) are changing. Information is expanding at a high rate and technology for storing, organising and accessing is developing fast (Gaylard et al., 2005).

South Africa has experienced a rapid rate of adoption of information technology. According to Borat and Hodge (1999), the growth of information technology hardware and professional services was more than 20% throughout the 1990s. In the service sector, e.g. transport and electricity, the numbers of personal computers per 100 employees were 79.2 and 73.4 respectively in 1995 (Hodge & Miller, 1996). The lowest number of personal computers was found in the construction industry (1.6/100 employees) and government (4.9/100 employees). Roodt and Paterson (2008) found that the demand for information technology professionals had increased with 22% from 1996 until 2005.

The average annual number of information technology professionals employed between 1996 and 1999 was 126 880 per year rising to 154 941 per year in the 2000 to 2005 period. More than seven in every ten information technology professionals were absorbed into the financial and business services sector, mainly in Gauteng (55.2%) and the Western Cape (23%). A total of 28.1% of information technology professionals were highly skilled, while 58.8%

were intermediately skilled (Roodt & Paterson, 2008). A shortage of 29 027 information technology professionals (across the categories of software engineers, computer programmers, computing professionals, assistant computer analysts, computer equipment operators and computer technicians) is predicted for 2015. However, serious shortages exist specifically for business/systems analysts and programmers, network and support professionals and database and systems administrators (Roodt & Paterson, 2008).

The attraction and retention of information technology professionals is a big challenge given the global shortage of qualified candidates (Lowry, Turner, & Fisher, 2006; Turner & Lowry, 2000) and the high turnover of professionals (Roodt & Paterson, 2008). Reasons for the shortage of staff include the following: limited student places at education and training institutions, insufficient numbers of teaching staff, higher salaries and more opportunities for those professionals who work in other countries, rapid technological changes, lack of appeal of the career to women and the increased use of computers (Lowry et al., 2006).

The South African information technology industry is characterised as a fast-paced, aggressive, rapidly changing industry where momentary considerations are dominant, high performance expectations exist and employees are relatively uncared for (Hall & Fourie, 2007). The market for skills is highly competitive because the demand for skills outweighs the supply thereof. Because of a shortage of skills in the industry, individuals working in the industry have high expectations, demand more and are also paid higher than average salaries. Organisations in the information technology industry are challenged to appoint black candidates on management and professional levels within a dominantly white male environment. Therefore, employees in the information technology industry face high demands and often little support which impact on their well-being. Given the fierce competition for skills in the industry, organisations have to do more than just pay equitable salaries to keep their staff (Hall & Fourie, 2007).

Although a certain level of turnover of employees could be regarded as healthy, organisations in the information technology industry face a large turnover. Turnover of staff is costly and can amount to 70% to 200% of an employee's annual salary. Therefore, the shortage of qualified information technology staff is probably the biggest challenge facing information technology organisations (Gaylard et al., 2005).

Some employers approach the problem of motivation and retention of information technology professionals by increasing economic incentives (salaries and benefits), but at the same time expect of them to work extra hard and to neglect family and personal interests (Jiang & Klein, 2000; Niedermann, 1999). Employers in the information technology industry want employees who are productive in the work environment, are teachable and loyal team players who work towards deadlines, have the ability to make good presentations, possess social skills, are sensitive to organisational impacts and have good technical skills (Lowry et al., 2006). In addition, Goleman (1998) stated that rules in the world of work are changing and that workers are being judged in terms of new dimensions, namely not by their smartness, expertise or training, but also in terms of the way in which they handle themselves and others.

Turner and Lowry (2000) found that information technology students were most attracted by a friendly work environment, supportive supervisors and promotional opportunities, while salary and fringe benefits were rated less important. Lowry et al. (2006) confirmed that information technology students valued the work environment most, while practitioners valued tangible rewards most. Employers of information technology practitioners valued internal relations most.

Ethical behaviour is another important issue in the information technology profession. Unethical behaviour is evident in fraud, embezzlement of company funds, breaches of confidentiality, falsification of records, unauthorised access to information, destruction or theft of information, violations of privacy and software piracy (Bricknell & Cohen, 2005). Therefore, promoting ethical behaviour of staff has become an important part of the agenda of organisations in the information technology industry. Stanton, Stam, Guzman, and Caldera (2003) found that organisational commitment of information technology professionals predicted their information security behaviour.

Linked to the issue of ethical behaviour, internet abuse (i.e. the use of the internet for non-work-related purposes) is regarded as a pervasive problem in organisations (Woon & Pee, 2004). The consequences of internet abuse include bandwidth waste, legal liability and exposing the organisation to threats. Positive affect and, specifically orientation towards pleasure, is a significant predictor of internet usage intention (Cheung & Chang, 2001). Job dissatisfaction and disengagement at work have been linked to internet abuse. Social norms

and perceived consequences of behaviour also contribute significantly to internet abuse (Woon & Pee, 2004).

It is imperative to take a strategic approach towards human resource management in the information technology industry. Armstrong (2006) distinguished between various approaches towards strategic human resource management, namely high performance management, high commitment management and high involvement management. High commitment management seems specifically relevant because it aims to elicit commitment of employees so that behaviour is primarily self-regulated rather than controlled by sanctions and pressures external to the individual; while relations within the organisation are based on high levels of trust. High involvement management encompasses communication with and involvement of employees.

Efforts to promote the flourishing and optimal functioning of employees will affect organisational outcomes, including job satisfaction, organisational commitment, intention to stay/leave, organisational citizenship behaviour and counterproductive behaviour (see Armstrong, 2006).

Job satisfaction refers to the general attitudes a person holds towards the job; positive attitudes being more indicative of high job satisfaction (Robbins, Judge, Odendaal, & Roodt, 2009). Organisational commitment refers to the employee's identification with the organisational goals and strategies, the willingness to apply considerable effort to attain those goals and a strong desire to remain an employee within the company (Harrison & Hubbard, 1998). Dalal (2005) defines organisational citizenship behaviour as intentional, unrestricted employee behaviour that leads to improved organisational functioning. Organisational citizenship behaviour comprises an interpersonal dimension (e.g., offering to assist a co-worker), and an organisational dimension (e.g., commending the organisation to outsiders) (Organ & Paine, 1999). Counterproductive behaviour refers to acts that harm organisations or their people (Spector & Fox, 2005). Spector et al. (2006) distinguish between five types of counterproductive behaviour, namely abuse (harmful behaviours that affect other people); production-deviance (purposely doing one's job incorrectly or allowing errors to occur); sabotage (destroying organisational property); theft (wrongfully taking the personal goods or property of another); and withdrawal (avoiding work through being late or absent).

1.2 PROBLEM STATEMENT

Hedonism and eudaimonia (Ryan, Huta, & Deci, 2008) are two perspectives from which optimal functioning can be studied. The hedonic perspective is aimed at capitalizing on pleasure and avoiding pain, and can include living a superficial life, greediness and mistreatment of others (Vella-Brodrick, Park, & Peterson, 2008). Ryan et al. (2008, p. 140) state that the eudaimonic perspective focuses on the “content of one’s life and the processes in living well”. These two concepts, hedonic well-being (i.e. feeling good) and eudaimonic well-being (functioning well), are two distinctive but related concepts according to Keyes and Annas (2009). When individuals experience both hedonic and eudaimonic well-being in their lives and in their work, they flourish.

The flourishing or languishing of information technology professionals can be regarded as an important research theme for several reasons. Flourishing of individuals predicts positive individual and organisational outcomes such as job satisfaction, organisational commitment, organisational citizenship behaviour, low turnover intention, work engagement, productivity and subjective well-being (Bakker, Demerouti, & Schaufeli, 2003; Harter, Schmidt, & Hayes, 2002; Simpson, 2008). However, no studies have been conducted regarding the flourishing of employees in the information technology industry in South Africa. In fact, no international studies have been conducted linking flourishing to individual and organisational outcomes.

Regarding flourishing in life, Keyes and Annas (2009) suggest that it can be classified in terms of three dimensions, namely emotional well-being, psychological well-being and social well-being (Keyes, 2005). Emotional well-being consists of life satisfaction, positive affect and low negative affect. Psychological well-being includes holding goals and beliefs that affirm a sense of direction in life and feeling that life has purpose and meaning; showing insight into one’s own development and being open to new and challenging experiences; holding positive attitudes towards oneself and accepting various aspects of the self by having warm, satisfying and trusting personal relationships while being capable of empathy and intimacy; exhibiting the capability to manage a complex environment to suit needs and showing self-direction by own socially accepted internal standards. Social well-being consists of a feeling that one’s life is useful to society and that one’s output of activities is useful to others; having a sense of belonging to a community and deriving support and comfort from the community; believing that people, groups and society have potential and can grow

positively; and holding a positive attitude towards others in accepting differences and being interested in society or social life in view of feeling that society is coherent (Keyes, 2007).

Keyes (2005) found that in daily activities, flourishing adults reported the fewest health limitations, the lowest absenteeism from work and the healthiest psychosocial functioning. In a study on mental health, Keyes and Annas (2009) reported the following statistical results: 48.5% of the participants measured high on hedonic well-being, 18% measured high on both hedonic and eudaimonic well-being, while 30.5% measured high on hedonic well-being and moderate on eudaimonic well-being. A high measurement on hedonic well-being and moderate measurement on eudaimonic well-being approximately doubled the rate of mental illness in the specific individuals, compared to those individuals who measured high on both types of well-being. However, the Mental Health Continuum Short Form (MHC-SF) which was developed by Keyes (2009) has not yet been validated in the information technology environment in South Africa.

A research problem is that scientific information is needed regarding the antecedents of flourishing of information technology professionals. In this study the antecedents of flourishing are investigated from the perspective of two theoretical frameworks, namely the Self-Determination Theory (Deci & Ryan, 1985) and Psychological Contract Theory (Rousseau, 1995).

Flourishing of people is affected by the type or quality of activities in which they engage, providing that they continue pursuing their particular goals (Sheldon et al., 2010); whilst the positivity of proximal experiences that are happening at present strongly affects flourishing levels. The positivity of individuals' experiences can be understood through Deci and Ryan's Self-Determination Theory (SDT) (Deci & Ryan, 1985; Ryan et al. 2008). SDT is based on three pillars according to people's basic psychological needs, namely the need for autonomy (the independence to make their own decisions and choices in order to retain interest and meaning in what they are doing); competence (to excel at doing things in life they feel comfortable with); and relatedness (to experience a sense of belonging with those who matter in life, based on values of mutual understanding and caring).

Based on the research of Kahn (1990) and May, Gilson, and Harter (2004), satisfaction of the need for competence will be influenced by physical energy, cognitive energy, emotional

energy, insecurity (e.g., lack of self-confidence, heightened self-consciousness and ambivalence about fit with the organisation) and non-work events. Various studies (Bakker, Demerouti, & Verbeke, 2004; Coetzer & Rothmann, 2007; Rothmann & Joubert, 2007) have confirmed that low competence is the result of high job demands and insufficient job resources. Therefore, individuals who experience high cognitive, emotional and physical demands and low resources will feel less competent to engage at work. Supervisor and co-worker relations that are supportive and trustworthy affect the satisfaction of the need for relatedness (Kahn, 1990).

The psychological contract, according to Rousseau (1995), refers to an exchange agreement between organisations and individuals, including individual beliefs, namely expectations and obligations based on perceived promises. The psychological contract emphasises the importance of the norm of reciprocity in predicting employees' attitudes and behaviours. The norm of reciprocity defines a social norm through which efforts by one party are reciprocated by a second party to create balance (Wu et al., 2006). The perceived relationship between employer and employee forms the concrete terms upon which the content of the psychological contract is built. In the absence of a specified contract, the employee would soon experience a breach and violation thereof, which is a direct result of the subjective nature of the psychological contract; because there might be a discrepancy between the employee's expectations and the employer's obligations.

Obligations can include both transactional and relational components (Rousseau, 1989). Included in the transactional component of the psychological contract are short-term monetary or economic exchanges between employer and employee which are largely based on performance-related considerations; whereas the relational component refers to non-monetary exchange agreements, such as trust and good faith (Rousseau, 1990). According to Davidson (2001), there has been a shift in the psychological contract of information technology practitioners in the United Kingdom in the last few years, moving from a relational contract, based on trust and loyalty to the company (Rousseau, 1995), to a transactional relationship of limited duration, focused on economic exchange and limited worker involvement in the organisation. Loyalty increased for managers, those with less than two years' experience and those with 10 or more years in information technology, while the most valuable employees who possess the marketability to negotiate better benefits in other companies, were those most likely to leave.

Investment in workforce skills has been shown to build longer-term, commitment-based relational contracts (Guest, 2004). For the information technology industry, Rousseau's (1995) "balanced" contract, which is a fusion of transactional and relational characteristics, may better represent the combination of high performance required by small firms concerned with survival, and skilled professionals' desire for career development. Information technology professionals, like traditional professions, tend to show high commitment to their work and identification with the goals of the company in return for certain social exchanges (Alvesson, 2000). Perceptions of fair treatment may be the foundation of reciprocal commitment (Crawshaw, 2006).

Should an individual experience psychological contract breach, i.e. a discrepancy between what is received and what has been promised, a sense of contract violation may follow (De Cuyper, Bernhard-Oettel, Berntson, De Witte, & Alarco, 2008). Across many studies, Flood, Ramamoorthy, McDermott, and Conway (2008) analysed the significant impact of perceived psychological contract violation on the attitudes and behaviours of employees such as job satisfaction; citizenship behaviours; organisational commitment; turnover intentions and actual turnover; perceived job security; and motivation and performance. Psychological contract breach is likely to have a greater impact than fulfilment due to its emotional implications. Psychological contracts based on mutual high obligations seem to be most desirable and they exhibit favourable employees' attitudes, including organisational support, trust and fairness as well as affective organisational commitment (De Jong, Schalk, & De Cuyper, 2009).

Based on the above-mentioned discussion, the research problems can be summarised as follows: First, it is clear that information is needed regarding the job satisfaction, organisational commitment, retention, counterproductive behaviour and organisational citizenship behaviour of information technology professionals. Second, it is unclear what the levels of flourishing of information technology professionals are and how job satisfaction and engagement at work contribute to their flourishing. Furthermore, information is needed regarding the relationships between flourishing of information technology professionals, job satisfaction, organisational commitment, turnover intention, counterproductive behaviour and organisational citizenship behaviour. Third, scientific information is needed regarding antecedents of flourishing or languishing. It is not clear whether unfulfilled expectations, work role fit, supervisor relations and resources will impact on the flourishing of IT

professionals and how psychological needs mediate between antecedents and flourishing (in terms of feeling well and functioning well). Scientific information is also needed regarding the psychometric properties (validity, bias and equivalence) of the measuring instruments of flourishing, its antecedents and outcomes for employees in the information technology industry.

Flowing from the above, the following more specific research questions are posed:

- What does flourishing in life and at work entail?
- Is flourishing of information technology professionals related to organisational outcomes (in terms of job satisfaction, organisational commitment, turnover intention, counterproductive behaviour and organisational citizenship behaviour)?
- What are the effects of breach and violation of the psychological contract on psychological need satisfaction?
- Does psychological need satisfaction mediate the relationships between breach and violation of the psychological contract and employee outcomes (job satisfaction, work engagement and flourishing)?
- What are the effects of work role fit, supervisor relations and availability of resources on the satisfaction of psychological needs, flourishing and organisational outcomes?
- What are the effects of satisfaction of psychological needs on flourishing and organisational outcomes?

This study will make the following contributions to the field of employment relations, a concept integrating human resource management and labour relations management (Nel, Kirsten, Swanepoel, Erasmus, & Poisat, 2012): First, it will result in reliable, valid, unbiased and equivalent measuring instruments of flourishing, its antecedents and outcomes. Second, it will result in validated models of flourishing and languishing of information technology professionals. Third, it will result in new scientific information regarding the relationships between psychological contracts and the violation thereof, and individual and organisational outcomes (job satisfaction, organisational commitment, turnover intention, counterproductive behaviour and organisational citizenship behaviour) of information technology professionals. Fourth, new information will exist regarding the relationship between flourishing and its antecedents and job satisfaction, organisational commitment, turnover intention, counter-

productive behaviour and organisational citizenship behaviour of information technology professionals.

Nel et al. (2012) argue that employment relations as a field has a multidimensional range integrating aspects of human resource management, industrial or labour relations, sociology, economics, politics, technology and psychology, and has to be studied in the context of broader theoretical perspectives in order to understand the dynamics thereof. The roots of employment relations in general are entrenched in the relationship between employers and employees in which the human element plays an integral role. The well-being of these stakeholders, the information technology industry *per se*, is an essential prerequisite for positive employment relationships which in turn have a profound influence on the governance and financial prosperity of South Africa.

1.3 AIMS OF THE RESEARCH

1.3.1 General aim

The general aim of this study is to investigate the flourishing of employees in the information technology industry and to determine the antecedents and outcomes thereof.

1.3.2 Specific objectives

The specific objectives of this research are to:

- Investigate what flourishing in life and at work entails.
- Study the relationships between flourishing, job satisfaction, organisational commitment, turnover intention, counterproductive behaviour and organisational citizenship behaviour of information technology professionals.
- Determine the effects of breach and violation of the psychological contract on psychological need satisfaction.
- Investigate whether psychological need satisfaction mediates the relationships between breach and violation of the psychological contract and employee outcomes (job satisfaction, work engagement and flourishing).

- Study the effects of work role fit, supervisor relations and availability of resources on the satisfaction of psychological needs, flourishing and organisational outcomes.
- Determine the effects of satisfaction of psychological needs on flourishing and organisational outcomes.

1.4 RESEARCH METHOD

1.4.1 Research design

This study is descriptive, cross-sectional and quantitative and will utilise a survey to gather data regarding flourishing of information technology professionals, its antecedents and outcomes. Cross-sectional surveys allow comparisons between groups measured at one point in time (Gravetter & Forzano, 2006).

1.4.2 Participants

A convenience sampling will be followed in this study. The reason for choosing convenience sampling is entirely done on the basis of availability. Respondents are selected because of their accessibility and articulateness (Struwig & Stead, 2007). The participants will include all the available information technology professionals in a variety of positions, ranging from the most specialised to the least specialised in information technology software and software implementation organisations of which their core business is information technology; and secondly organisations that house information technology departments within the organisation that render information technology services to the company. In the latter the core business of the organisation is not information technology. A minimum total of 200 respondents will partake in this study.

1.4.3 Measuring instruments

In this research, the following measuring instruments will be used:

- The *Mental Health Continuum Short Form* (MHC-SF; Keyes, 2009) will be used to measure flourishing. The MCH-SF comprises 14 items that were chosen as the most prototypical items representing the construct definition for each facet of well-being.

Emotional well-being will be represented by three items (happy, interested in life and satisfied), psychological well-being will be represented by six items whilst social well-being will be represented by five items. Nationally representative samples of US adults and college students confirmed the three factor structure of the long and short forms of the MHC - emotional, psychological and social well-being (Keyes, 2009).

- The *Job Satisfaction Scale* (JSS; Rothmann, 2010) will be used to measure job satisfaction. Three items will measure how satisfied individuals feel with their jobs (e.g., “I feel fairly satisfied with my present job” and “I find real enjoyment in my work”). Response options range from 1 (*totally disagree*) to 5 (*totally agree*). The Cronbach alpha coefficient for the JSS was 0.84.
- The *Work Engagement Scale* (WES; Rothmann, 2010) will be used to measure work engagement. The WES consists of 9 items. A 7-point frequency scale varying from 1 (*almost never or never*) to 7 (*always or almost always*) will be used for all items. The three components of Kahn’s (1990) conceptualisation of work engagement will be reflected in the items, namely cognitive, emotional and physical engagement. Evidence for the construct validity of the WES was reported by Rothmann (2010) and the following alpha coefficients for the three scales of the WES were found: physical engagement = 0.80; emotional engagement = 0.82; and cognitive engagement = 0.78.
- The *Work-related Basic Need Satisfaction Scale* (WBNSS; Van den Broeck, Vansteenkiste, De Witte, Soenens, & Lens, 2010) will be used to measure psychological need satisfaction. The WBNSS measures the satisfaction of three psychological needs, namely autonomy (5 items; e.g., “I feel like I can pretty much be myself at work”), competence (5 items; e.g., “I feel competent at work”) and relatedness (5 items, e.g., “People at work care about me”). The items will be evaluated on a 5-point scale varying from 1 (*totally disagree*) to 5 (*totally agree*). Cronbach’s alpha coefficients of 0.86, 0.88 and 0.86 confirm the reliability for autonomy, competence and relatedness satisfaction, respectively.
- The *Work Role Fit Scale* (WRFS; May et al., 2004) will be used to measure work role fit by averaging four items (e.g., “My job ‘fits’ how I see myself”), which measure

individuals' perceived fit with their jobs and self-concept. For all items, a five-point agreement-disagreement Likert scale varying from 1 (*never*) to 5 (*always*) was used. The reliability of the WRFS was confirmed by a study done by Olivier and Rothmann (2007) in a petrochemical company ($\alpha = 0.90$).

- The *Psychological Contract Inventory* (PCI: Rousseau, 2000) will be used to measure the content and fulfilment of the psychological contract. It assesses a variety of specific terms (e.g., “provide secure job for certain period”); (“help with upwards progress in firm”); and (“give assignments that enhance employability”) that can arise in employment and the extent to which the respondent believes that the employer has fulfilled its commitments in turn. Respondents will evaluate their psychological contracts by assessing the extent to which the manager had made such commitments or obligations to them. All items will use a 5-point Likert-type scale ranging from 1 (*not at all*) to 5 (*to a great extent*). Participants will respond to a set of 32 items, measuring the employer's obligations to them across three types of psychological contract: transactional, relational and balanced. Rousseau (2000) reported acceptable reliabilities and validity of the PCI scales.
- The *Violations of Psychological Contract Questionnaire* (Isaksson et al., 2003) will be used to measure psychological contract violation. The questionnaire consists of 6 items which are rated on a 5-point scale, ranging from 1 (*strongly agree*) to 5 (*strongly disagree*). The questions focus on six feelings concerning the perception of the psychological contract (happy, angry, pleased, violated, disappointed and grateful). Isaksson et al. (2003) reported an acceptable alpha coefficient for the questionnaire.
- The *Organisational Commitment Scale* (OCS) developed by Rothmann (2010) will be utilised to measure organisational commitment. The OCS consists of six items and the scale measures attachment (loyalty, e.g., “I feel personally attached to my work organisation”) and pride (identification, e.g., “I feel proud to be an employee of this organisation”). Response options range from 1 (*strongly disagree*) to 7 (*strongly disagree*). The Cronbach alpha coefficient for the OCS was 0.85.

- Intention to leave will be measured by the *Turnover Intention Scale* (TIS) developed by Sjöberg and Sverke (2000). The TIS consists of three items and an example of an item is “If I was completely free to choose I would leave this job” (Sjöberg & Sverke, 2000). Response options range from 1 (*strongly disagree*) to 5 (*strongly agree*). The TIS reported a Cronbach alpha coefficient of 0.83.
- A measure of *counterproductive work behaviour* of information technology professionals will be developed for the purposes of this study. First, a definition of counterproductive work behaviour will be provided to a group of subject matter experts (e.g., employees or managers familiar with the specific jobs). Second, subject matter experts will be asked to generate example behaviours relevant to the jobs in question that are consistent with counterproductive work behaviour. Third, after the initial list of relevant behaviours has been created, a second group of subject matter experts will be asked to make recommendations regarding irrelevant, ambiguous and redundant items. Fourth, items will be developed to measure counterproductive work behaviour. Participants will rate the items on a frequency scale varying from 1 (*never*) to 5 (*every day*).
- The *Organisational Citizenship Behaviour Scale* (OCBS; Rothmann, 2010) will be utilised to measure organisational citizenship behaviour. The OCBS consists of six items, three which measure assistance to co-workers in the organisation (e.g., “I give up time to help co-workers who have work or non-work problems”) and three which measure assistance to the organisation (e.g., “I take action to protect the organisation from potential problems”). Response options range from 1 (*strongly disagree*) to 7 (*strongly agree*). The Cronbach alpha coefficients for the two scales were 0.78 (assistance to co-workers) and 0.80 (assistance to the organisation).
- Information regarding age, gender, ethnicity, marital status, language of choice, current position at the company, years working at the specific company and level of education will be gathered from a *biographical questionnaire*.

1.4.4 Research procedure

The researcher will contact organisations in the information technology industry in South Africa to obtain permission to conduct the research. A cover letter explaining the purpose of the study and emphasising the confidentiality of the research project will accompany the questionnaire. Participation in the project will be voluntary, whereby respondents have the option to withdraw at any time. Participants will complete the questionnaires on-line and responses to items will be captured in an on-line excel sheet, after which it will be prepared for analysis with the SPSS software program.

1.4.5 Statistical analysis

The SPSS19 program (SPSS, 2011) is used to analyse the data. When applicable, the distinction of measures will be confirmed by conducting common method variance tests (through structural equation modelling or exploratory factor analysis). Validity and reliability of the measuring instruments will be determined by confirmatory factor analyses and Cronbach's alpha coefficients.

Data will be described by using descriptive statistics (means and standard deviations). Pearson product-moment correlation coefficients will be used to specify the relationships between the variables. The level of statistical significance will be set at $p < 0.05$. Effect sizes (Steyn, 1999) will be used to decide on the practical significance of the findings. A cut-off point of 0.30 (medium effect) will be set for the practical significance of correlation coefficients.

Structural equation modelling (SEM) methods as implemented in AMOS (Arbuckle, 2008) will be used to test the factorial models and structural equivalence of the measuring instruments by using the maximum likelihood analyses. Bootstrapping will be used to construct two-sided bias-corrected confidence intervals so as to evaluate mediation effects (Hayes, 2009). The statistical significance of bootstrap estimated indirect effects will be assessed (Preacher & Hayes, 2008). Furthermore, 90 percent bootstrap confidence intervals (2000 trials) for all indirect effects will be computed to assess whether they include zeros.

1.5 ETHICAL CONSIDERATIONS

The research project has been evaluated and approved by the Ethics Committee of the North-West University. All participants will be briefed about the research project and afforded the opportunity to ask questions and raise concerns about any issues before considering participation. A clear outline of the roles and responsibilities of all the parties involved will be given. It will clearly be stated that participation in the project is voluntary and anonymous and participants will be required to sign a consent form stating that the information obtained via the research would be used for research purposes only. Feedback on the results of the study will be given to the participants.

1.6 CHAPTER LAYOUT

Chapter 1: Introduction

Chapter 2: Article 1: Flourishing of information technology professionals: Effects on individual and organisational outcomes

Chapter 3: Article 2: Flourishing of information technology professionals: The role of psychological contract fulfilment and violation, and psychological need satisfaction

Chapter 4: Article 3: Flourishing of information technology professionals: Antecedents of well-being at work and the role of psychological need satisfaction

Chapter 5: Conclusions, limitations and recommendations

REFERENCES

- Alvesson, M. (2000). Social identity and the problem of loyalty in knowledge intensive companies. *Journal of Management Studies*, 27, 1103–1123.
- Arbuckle, J. L. (2008). *Amos 17.0*. Crawfordville, FL: AMOS Development Corporation.
- Armstrong, M. (2006). *Strategic human resources management: A guide to action* (3rd ed.). London, United Kingdom: Kogan Page.
- Bakker, A. B., Demerouti, E., & Schaufeli, W. B. (2003). Dual processes at work in a call centre: An application of the job demands-resources model. *European Journal of Work and Organizational Psychology*, 12, 393–417.
- Bakker, A. B., Demerouti, E., & Verbeke, W. (2004). Using the job demands-resources model to predict burnout and performance. *Human Resources Management*, 43(1), 83–104.
- Bhorat, H., & Hodge, J. (1999). Decomposing shifts in labour demand in South Africa. *South African Journal of Economics*, 67, 348–380.
- Bricknell, K. I., & Cohen, J. F. (2005). Codes of ethics and the information technology employee: The impact of code institutionalisation, awareness, understanding and enforcement. *Southern African Business Review*, 2005, 9(3), 54–65.
- Cheung, W., & Chang, M. K. (2001). Determinants of the intention to use the internet/www at work: A confirmatory study. *Information and Management*, 30, 1–14.
- Coetzer, C. F., & Rothmann, S. (2007). Job demands, job resources, and work engagement of employees in a manufacturing organization. *Southern African Business Review*, 11(3), 17–32.
- Crawshaw, J. R. (2006). Justice source and justice content: Evaluating the fairness of organisational career management practices. *Human Resource Management Journal*, 16, 98–120.
- Dalal, R. S. (2005). A meta-analysis of the relationship between organizational citizenship behavior and counterproductive work behavior. *Journal of Applied Psychology*, 90, 1241–1255.
- Davidson, P. (2001). *The changing nature of the psychological contract in the IT Industry: 1997–2001*. Research Papers in Human Resource Management, Kingston University Business School.
- Deci, E., & Ryan, R. (1985). *Intrinsic motivation and self-determination in human behavior*. New York, NY: Plenum.

- De Cuyper, N., Bernhard-Oettel, C., Berntson, E., De Witte, H., & Alarco, B. (2008). Employability, and employees' well-being: Mediation by job insecurity. *Applied Psychology: An International Review*, 57, 488–509.
- De Jong, J., Schalk, R., & De Cuyper, N. (2009). Balanced versus unbalanced psychological contracts in temporary and permanent employment: Associations with employee attitudes. *Management and Organization Review*, 5, 329–351.
- Flood, P. C., Ramamoorthy, N., McDermott, A., & E. Conway (2008) *Leadership, human resource management and the content of the psychological contract*. Working Paper Series (Paper No. 03-08). Dublin City University, Ireland: The Learning, Innovation and Knowledge Research Centre.
- Gaylard, M., Sutherland, M., & Viedge, C. (2005). The factors perceived to influence the retention of information technology workers. *South African Journal of Business Management*, 36(3), 87–97.
- Goleman, D. (1998). *Working with emotional intelligence*. London, United Kingdom: Bloomsbury.
- Gravetter, J. F., & Forzano, L. B. (2006). *Research methods for the behavioural sciences*. Toronto, Canada: Thomson Wadworths.
- Guest, D. E. (2004). The psychology of the employment relationship: An analysis based on the psychological contract. *Applied Psychology: An International Journal*, 53, 541–555.
- Hall, C., & Fourie, L. (2007). Exploring the role of the human resource function in the South African information technology industry. *South African Journal of Human Resource Management*, 5(1), 54-64.
- Harrison, J. K., & Hubbard, R. (1998). Antecedents to organizational commitment among Mexican employees of a U.S. firm in Mexico. *The Journal of Social Psychology*, 138, 609–623.
- 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.
- Hayes, A. F. (2009). Beyond Baron and Kenny: Statistical mediation analysis in the new millennium. *Communication Monographs*, 76, 408–420.
- Hodge, J., & Miller, J. (1996, October). Information technology in South Africa. Paper presented at the UNU/INTECH Conference in Maastricht, The Netherlands.

- Isaksson, K., Bernhard, C., Claes, R., De Witte, H., Guest, D., Krausz, M., Peiro, J. M., Mohr, G., & Schalk, R. (2003). *PSYCONES. Results from pilot phase*. Working Paper 2-HPSE-CT-2002-00121 Date of issue: 2003/09/15.
- Jiang, J. J., & Klein, G. (2000). Supervisor support and career anchor impact on career satisfaction of the entry-level information systems professional. *Journal of Information Management Systems, 16*, 219–230.
- Kahn, W. A. (1990). Psychological conditions of personal engagement and disengagement at work. *Academy of Management Journal, 33*, 692–724.
- Keyes, C. L. M. (2005). Mental illness and/or mental health? Investigating axioms of the complete state model of health. *Journal of Consulting and Clinical Psychology, 73*, 539–548.
- Keyes, C. L. M. (2007). Promoting and protecting mental health as flourishing. *American Psychologist, 62*, 95–108.
- Keyes, C. L. M. (2009). Atlanta: *Brief description of the mental health continuum short form (MHC-SF)*. Available: <http://www.sociology.emory.edu/ckeyes/>. [On-line, retrieved 14 December 2010].
- Keyes, C. L. M., & Annas, J. (2009). Feeling good and functioning well: Distinctive concepts in ancient philosophy and contemporary science. *Journal of Positive Psychology, 4*, 197–201.
- Lowry, G., Turner, R., & Fisher, J. (2006). The contribution of employment satisfaction factors to recruiting, retaining and career development of information systems and technology professionals. *The Review of Business Information Systems, 10*(1), 137-150.
- May, D., Gilson, R., & Harter, L. (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.
- Nel, P. S., Kirsten, M., Swanepoel, B. J., Erasmus, B. J., & Poisat, P. (2012). *South African employment relations theory and practice* (7th ed.). Pretoria, South Africa: Van Schaik Publishers.
- Niedermann, F. (1999). Global information management and human resource management. *Journal of Global Information Management, 7*(2), 33–39.
- Olivier, A. L., & Rothmann, S. (2007). Antecedents of work engagement in a multinational oil company. *South African Journal of Industrial Psychology, 33*(3), 49–56.
- Organ, D. W., & Paine, J. B. (1999). A new kind of performance for industrial and organizational psychology: Recent contributions to the study of organizational

- citizenship behavior. *International Review of Industrial and Organizational Psychology*, *14*, 337–368.
- Preacher, K. J., & Hayes, A. F. (2008). Asymptotic and resampling strategies for assessing and comparing indirect effects in multiple mediator models. *Behavior Research Methods*, *40*, 879–891.
- Robbins, S. P., Judge, T. A., Odendaal, A., & Roodt, G. (2009). *Organisational behaviour: Global and South African perspectives*. Cape Town, South Africa: Pearson Education.
- Roodt, J., & Paterson, A. (2008). ICT skills in the labour market: an occupational-level analysis focusing on computer professionals and associate professionals, 1996-2005: Scarce and critical skills research project for the Department of Labour in South Africa. http://www.labour.gov.za/downloads/documents/research-documents/ICT%20skills_DoL_Report.pdf
- Rothmann, S. (2010). *Unpublished research report: The reliability and validity of measuring instruments of happiness in the Southern African context*. Vanderbijlpark: North-West University.
- Rothmann, S., & Joubert, J. H. M. (2007). Job demands, job resources, burnout and work engagement of managers at a platinum mine in the North West Province. *South African Journal of Business Management*, *38*(3), 49–61.
- Rousseau, D. M. (1989). Psychological and implicit contracts in organizations. *Employee Responsibilities and Rights Journal*, *2*, 121–139.
- Rousseau, D. M. (1990). New hire perceptions of their own and their employer's obligations: A study of psychological contracts. *Journal of Organizational Behavior*, *11*, 389–400
- Rousseau, D. M. (1995). *Psychological contracts in organizations: Understanding written and unwritten agreements*. Thousand Oaks, CA: Sage.
- Rousseau, D. M. (2000). *Psychological Contract Inventory: Technical report*. Pittsburgh, Pennsylvania: Graduate School of Industrial Administration, Carnegie Mellon University.
- Ryan, R. M., Huta, V., & Deci, E. L. (2008). Living well: A self-determination theory perspective on eudaimonia. *Journal of Happiness Studies*, *9*, 139–170.
- Sheldon, K. M., Abad, N., Ferguson, Y., Gunz, A., Houser-Marko, L., Nichols, C. P., & Lyubomirsky, S. (2010). Persistent pursuit of need-satisfying goals leads to increased happiness: A 6-month experimental longitudinal study. *Motivation and Emotion*, *34*, 39–48.

- Simpson, M. R. (2008). Engagement at work: A review of the literature. *International Journal of Nursing Studies*, 1, 1–13.
- Sjöberg, A., & Sverke, M. (2000). The interactive effect of job involvement and organizational commitment on job turnover revisited: A note on the mediating role of turnover intention. *Scandinavian Journal of Psychology*, 3, 247–252.
- Spector, P. E., & Fox, S. (2005). The stressor-emotion model of counterproductive work behavior. In S. Fox & P. E. Spector (Eds.), *Counterproductive work behavior: Investigations of actors and targets* (pp. 151–174). Washington, DC: American Psychological Association.
- Spector, P. E., Fox, S., Penney, L. M., Bruursema, K., Goh, A., & Kessler, S. (2006). The dimensionality of counter-productivity: Are counterproductive behaviours created equal? *Journal of Vocational Behavior*, 68, 446–460.
- SPSS Inc. (2011). *SPSS 19.0 for Windows*. Chicago, IL: SPSS Inc.
- Stanton, J. M., Stam, K. R., Guzman, I., & Caldera, C. (2003). *Examining the linkage between organizational commitment and information security*. Proceedings of the IEEE Systems, Man, and Cybernetics Conference, Washington, DC.
- Steyn, H. S. (1999). *Praktiese betekenisvolheid: Die gebruik van effekgroottes*. Wetenskaplike bydraes – Reeks B: Natuurwetenskappe Nr. 117. Potchefstroom: PU vir CHO.
- Struwig, F. W., & Stead, G. B. (2007). *Planning, designing and reporting research*. Cape Town, South Africa: Pearson Education.
- Turner, R., & Lowry, G. (2000). Motivating and recruiting intending IS professionals: A study of what attracts IS students to prospective employment. *South African Computer Journal*, 24(3), 132–137.
- Van den Broeck, A., Vansteenkiste, M., De Witte, H., Soenens, B., & Lens, W. (2010). Capturing autonomy, relatedness and competence at work: Construction and validation of the Work-related Basic Need Satisfaction Scale. *Journal of Occupational and Organizational Psychology*, 83, 981–1002.
- Vella-Brodrick, D., Park, N., & Peterson, C. (2009). Three ways to be happy: Pleasure, engagement, and meaning: Findings from Australian and US samples. *Social Indicators Research*, 90, 156–179.
- Woon, I. M. Y., & Pee, L. G. (2004, December). *Behavioral factors affecting internet abuse in the workplace: An empirical investigation*. Proceedings of the Third Annual Workshop on HCI Research in MIS, Washington.

Wu, J. B., Hom, P. W., Tetrick, L. E., Shore, L. M., Jia, L., Li, C., & Song, L. J. (2006). The norm of reciprocity: Scale development and validation in the Chinese context. *Management and Organization Review*, 2, 377–402.

CHAPTER 2

ARTICLE 1

FLOURISHING OF INFORMATION TECHNOLOGY PROFESSIONALS: EFFECTS ON INDIVIDUAL AND ORGANISATIONAL OUTCOMES

ABSTRACT

The aim of this study was to investigate the relationship between flourishing and individual and organisational outcomes, including job satisfaction, organisational commitment, organisational citizenship behaviour, turnover intention and counterproductive behaviour. A convenience sample ($N = 205$) was taken of employees in information technology organisations in South Africa. A biographical questionnaire, the Mental Health Continuum Short Form, Job Satisfaction Scale, Organisational Commitment Scale, Turnover Intention Scale, Organisational Citizenship Behaviour Scale and a Counterproductive Behaviour Scale were administered. Flourishing impacted job satisfaction, organisational commitment, organisational citizenship behaviour and organisational commitment directly and indirectly. Job satisfaction had strong direct effects on organisational commitment (positive) and turnover intention (negative), and a moderate negative effect on counterproductive work behaviour. Flourishing had an indirect and negative effect (via organisational commitment) on turnover intention.

Key terms: Flourishing, job satisfaction, organisational commitment, turnover, organisational citizenship behaviour, counterproductive behaviour

Organisations worldwide are challenged by the task of attracting and retaining talented employees (Bakker & Schaufeli, 2008). In the light of the serious skills deficit and the prediction of a possible shortage of 29 027 information technology (IT) professionals for South Africa in 2015, the attraction and retention of IT professionals is a big challenge. Not only is there a global shortage of qualified candidates (Lowry, Turner, & Fisher, 2006; Turner & Lowry, 2000), but also a high turnover of IT professionals (Roodt & Paterson, 2008). Although a certain level of turnover of employees could be regarded as healthy (a rate below 15% annually according to Kenny, 2007), organisations in the IT industry have to deal with a high rate of voluntary employee turnover (Moore & Burke, 2002). Voluntary employee turnover caused by high levels of job dissatisfaction is extremely costly (Lambert, Hogan, & Barton, 2001), and can amount to 70% to 200% of an employee's annual salary (Price, 2001). Therefore, the shortage of qualified information technology staff is probably the biggest challenge facing information technology organisations (Gaylard, Sutherland, & Viedge, 2005).

The challenge of attracting and retaining quality IT professionals should be approached from a strategic human resource management perspective (Armstrong, 2006). High commitment-high involvement management is one specific approach aimed at eliciting and supporting behaviour that is primarily self-regulated rather than controlled by sanctions and pressures external to employees. In the high commitment-high involvement approach, constructs such as job satisfaction (Price, 2001), organisational commitment (Torrington, Hall, & Taylor, 2008), organisational citizenship behaviour (Robbins, Judge, Odendaal, & Roodt, 2009), turnover intention (Armstrong, 2006) and counterproductive behaviour (Spector & Fox, 2005) are relevant. Sparks, Faragher, and Cooper (2001) state that investments in the well-being of employees constitute a win-win situation for both the organisation and its employees – a solid foundation for sound labour and employment relations (Marsden & Moriconi, 2011).

Subjective well-being of employees is expected to affect individual and organisational outcomes (Bowling, Eschleman, & Wang, 2010). According to Waterman (2008), three approaches to well-being are distinguished, namely subjective well-being, psychological well-being and eudaimonic well-being. Keyes and Annas (2009) pointed out that these three types of well-being are all subjective (i.e. rated by the individual him or herself). Diener, Kesebir, and Lucas (2008) define subjective well-being in terms of the judgment an

individual makes over his or her own life and its events in three domains, namely cognitive (life and domain-specific satisfaction), positive and negative affective experiences. In contrast, Keyes (2005) takes a broader view towards well-being and distinguishes between three dimensions of subjective well-being, namely emotional well-being (which indicates hedonic well-being or “feeling well”), psychological well-being and social well-being (which indicate eudaimonic well-being or “functioning well”). Flourishing and languishing are opposite end points on a continuum of mental health indicating the emotional, social and psychological well-being of individuals (Keyes, 2005).

Lyubomirsky, King, and Diener (2005) studied the benefits of frequent positive affect (i.e. the emotional dimension of flourishing) for success in multiple life domains. They found that the positive affect-success link existed not only because success leads to positive affect, but also because positive affect engenders success. Concerning the work context, cross-sectional studies reviewed by Lyubomirsky et al. (2005) showed that frequent positive affect is associated with performance and productivity, job satisfaction and organisational citizenship behaviour. Dispositional affect explained 10% to 25% of the variance in job satisfaction (with a mean correlation of 0.49 between positive affect and job satisfaction). Their results also showed that employees who experience high positive affect (compared to those who experience low positive affect) showed less withdrawal behaviour (e.g., turnover intention). From the results of longitudinal studies, Lyubomirsky et al. (2005) found that positive affect promotes success, in part because happy employees showed adaptive characteristics (e.g., psychological and social well-being).

Although Lyubomirsky et al. (2005) suggested that happy employees showed adaptive characteristics (e.g., psychological and social well-being); this study takes a different perspective. Frequent positive affect (i.e., emotional well-being or “feeling well”) is only one dimension of flourishing (Keyes, 2005). The other two dimensions are psychological and social well-being. Together, these three dimensions reflect the extent to which individuals are feeling and functioning well. Individuals who flourish will probably show better individual and organisational outcomes, not only because they feel well, but also because they function well (Keyes, 2002). Studies (Fredrickson, 2004; Keyes & Haidt, 2003; Seligman & Csikszentmihalyi, 2000; Tugade & Fredrickson, 2004) have shown that positive feelings and positive functioning are to the benefit of both individuals and their employing organisations. Flourishing individuals are expected to show self-regulation, and higher levels of job

satisfaction and commitment (Bowling et al., 2010; Harter, Schmidt, & Keyes, 2002). Languishing might result in low organisational commitment, counterproductive behaviour and unwanted employee turnover (Torrington et al., 2008). However, no studies were found which investigated the relationships between flourishing and individual and organisational outcomes.

The aim of this study was to investigate the relationship between flourishing and individual and organisational outcomes such as job satisfaction, organisational commitment, organisational citizenship behaviour, turnover intention and counterproductive behaviour.

Flourishing

The concept of flourishing originates from the work of psychologists such as Diener (1984) who have explored subjective well-being as early as the 1950s (Deci & Ryan, 2008). Diener (1984) referred to subjective well-being from an “emotional” perspective (see Keyes, 2005). This dimension of well-being consists of an affective component (i.e. positive and negative affect) and a cognitive component (i.e. life satisfaction and domain specific satisfaction). Deci and Ryan (2008) regard emotional well-being – described by Diener (1984) as “subjective well-being” – as hedonic well-being, i.e. feeling good, avoiding pain, deriving maximum pleasure, portraying shallow values such as greed and perhaps exploiting others (Vella-Brodrick, Park, & Peterson, 2009). In contrast to emotional well-being, eudaimonic well-being focuses on functioning well, that is, living life satisfactorily, being content with one’s own life and actualising one’s potential (Deci & Ryan, 2008). Ryff (1989) introduced the concept of “psychological well-being”, that is the extent to which people are thriving in their personal lives - whilst Keyes (2005) introduced the concept of “social well-being” as part of a broader concept of flourishing, which also includes emotional and psychological well-being (Keyes & Annas, 2009).

Keyes and Annas (2009) postulate that people’s feelings and functioning in life are consistent because if they are functioning well, they experience positive emotions toward life whereas if they are malfunctioning, they tend to experience negative emotions in life. Diener, Oishi, and Lucas (2003), and Ryff and Keyes (1995) identified an overlap between psychological and emotional well-being. According to Keyes (2005), the presence of feeling well and

functioning well results in *flourishing* of individuals, meaning that positive mental health is present.

Flourishing encompasses individuals who thrive at work, as well as those who are happy, engaged, intrinsically motivated, successful and learning (Bono, Davies, & Rasch, 2012), and functioning well in life in general (Keyes, 2005). Keyes (2007) operationalised flourishing as a pattern of positive feelings and positive functioning in life, summarising the scales and dimensions of subjective well-being under the following sub-categories: emotional well-being, psychological well-being and social well-being (see Table 1). On the opposite continuum is *languishing* which can be defined as the absence of mental health. In a study on mental health, Keyes and Annas (2009) reported the following results: 48.5% of the participants measured high on hedonic well-being, 18% measured high on both hedonic and eudaimonic well-being, while 30.5% measured high on hedonic well-being and moderate on eudaimonic well-being. Individuals who are in the latter group showed approximately double the rate of mental illness, compared to those who measured high on both types of well-being.

Table 1
Dimensions and Factors Reflecting Mental Health as Flourishing (Adapted from Keyes, 2007)

Dimension	Definition
	<u>Emotional well-being</u> (positive emotions/feelings)
Positive affect Affirmed quality of life	Energetic, regularly cheerful, serene, good-spirited Showing general satisfaction and happiness with life overall
	<u>Psychological well-being</u> (positive psychological functioning)
Self-acceptance Personal growth Purpose in life Environmental mastery Autonomy Positive relations with others	Positive attitudes toward self/own personality Ambitious, seeks to maximise own potential Own life has direction and meaning Shows ability to change and manage personal environment to suit own needs Has socially acceptable internal standards and values as guidelines in life Ability to establish trusting interpersonal relationships
	<u>Social well-being</u> (positive social functioning)
Social acceptance Social actualisation Social coherence Social contribution Social integration	Positive towards and accepting of diversity in people Believes in potential of others (individuals, groups and societies) Finds society and social life meaningful and comprehensible Regards own daily activities as adding value to society and others Experiences sense of relatedness, comfort and support from community

Flourishing, and, individual and organisational outcomes

Various theories could be used to understand the effects of flourishing on individual and organisational outcomes, namely the broaden-and-build (B&B) theory (Fredrickson, 2001),

spillover and expansionist theories (Hecht & Boies, 2009) and part-whole theory (Bowling et al., 2010).

The Broaden-and-Build (B&B) theory (Fredrickson, 1998) postulates that people who experience positive emotions, will intensify their personal resources, which will lead to well-being (Ouwencel, LeBlanc, & Schaufeli, 2011). Flourishing individuals possess a much wider scope of cognitive, physical and social possibilities, which together culminate in empirical and actual successes of a flourishing life (Fredrickson, 1998). Thus, an individual who feels well is more likely to function well, both psychologically and socially, which means meeting the criterion for positive mental health as flourishing.

According to spillover theory, positive and negative spillovers are expected to contribute both independently of each other as well as with contradictory consequences to the prediction of outcomes (Hecht & Boies, 2009). Employees who flourish experience positive feeling and functioning which will spill over to their work (Hecht & Boies, 2009). Consequently, flourishing employees will exhibit positive individual and organisational outcomes such as job satisfaction, organisational commitment, organisational citizenship behaviour, and less turnover intention and counterproductive behaviour (Bakker, Demerouti, & Schaufeli, 2003; Harter, Schmidt, & Hayes, 2002; Ouwencel et al., 2011). The expansionist theory suggests that participation in one specific role can increase the resources that individuals have for other roles.

Bowling et al. (2010) refer to the part-whole theory (job satisfaction is regarded as a sub-dimension of subjective well-being) to explain the causal relationship of job satisfaction with subjective well-being, whereas the dispositional approach states that subjective well-being has a causal relationship with job satisfaction. Individuals who are subjectively well, a requirement for mental health as flourishing, are said to exhibit more job satisfaction than those who are not.

Sverke, Hellgren, and Näswall (2002) group psychological outcome variables according to proximal variables, which refer to outcomes that are affected directly, and distal variables which are affected indirectly because they develop over time or because they are mediated by proximal variables (De Cuyper & De Witte, 2007). Distal outcome effects seem to be weaker compared to proximal factors. Variables can also be grouped as those that have direct

consequences for the individual and indirect consequences for the organisation, and those that are primarily of organisational concern (De Cuyper & De Witte, 2007).

Proximal and individual: Job satisfaction

Job satisfaction refers to employees' attitudes and feelings toward their work. Job satisfaction is indicative of positive and favourable attitudes toward the job, whereas negative and unfavourable attitudes toward the job indicate job dissatisfaction (Armstrong, 2006). An employee with positive affect and life satisfaction (which are criteria for the emotional component of flourishing) will exhibit more job satisfaction (Connolly & Viswesvaran, 2000; Le Pine, Erez, & Johnson, 2002; Thoresen, Kaplan, Barsky, Warren, & de Chermont, 2003). Bowling et al. (2010) found positive relationships between job satisfaction and life satisfaction on the one hand, and positive affect (emotional well-being) and the absence of negative affect (emotional well-being) on the other. Personal resources can be linked to positive self-evaluations which relate to resilient behaviour, environmental mastery, and to achieving goals (which relates to having a purpose in life, i.e. psychological well-being); all of which strongly relate to job satisfaction (Judge, Van Vianen, & De Pater, 2004). In their longitudinal studies, it was suggested that there was a stronger causal relationship from subjective well-being to job satisfaction than from job satisfaction to subjective well-being (Bowling et al., 2010). Therefore, individuals who are emotionally, psychologically and socially well will experience more job satisfaction than individuals who are not subjectively well.

Hypothesis 1: Flourishing relates positively to job satisfaction.

Proximal and organisation: Organisational commitment

Organisational commitment refers to attachment to the organisation, goal attainment, identifying with the organisation, loyalty and trustworthiness towards the organisation (Harrison & Hubbard, 1998). According to Meyer and Allen (1997), employees who show strong affective commitment want to stay with the organisation as they are related to and identify with the organisation which enhances their involvement in organisational activities. Trimble (2006) found that job satisfaction predicted affective organisational commitment. Cohen (2003) states that the importance of organisational commitment as a research topic can be related to the fact that it provides a clearer understanding of the nature of the psychological process through which individuals master their environments and find purpose

in life (psychological well-being). Bateman and Strasser (1984) argue that the importance of organisational commitment can be related to employee behaviour and performance effectiveness.

Hypothesis 2: Job satisfaction relates positively to organisational commitment.

Hypothesis 3: Flourishing relates positively to organisational commitment.

Distal and organisation: Turnover intention

In a longitudinal study done on organisational commitment, job satisfaction and turnover amongst psychiatric technicians, it was reported that organisational commitment discriminated better between stayers and leavers than did the various components of job-satisfaction (Porter, Steers, Mowday, & Boulian, 1974). Trimble (2006) showed that low affective organisational commitment leads to turnover intention. Research shows that an individual's level of organisational commitment is a better predictor of turnover than job satisfaction, explaining 34% of the variance (Robbins et al., 2009). According to Thatcher, Stepina, and Boyle (2002), organisational commitment is the primary indicator of turnover intention. Rhoades, Eisenberger, and Armeli (2001) found that positive work conditions increase affective commitment which in turn leads to low employee turnover.

Hypothesis 4: Organisational commitment relates negatively to turnover intention.

Hypothesis 5: Organisational commitment mediates the relationship between job satisfaction and turnover intention.

Distal and organisation: Organisational citizenship behaviour

Organisational Citizenship Behaviour (OCB) is defined as employee behaviour that contributes more to an organisation than the job basically requires (Lambert, 2006). OCB comprises four dimensions: helping (altruism), loyalty, advocacy, functional participation and obedience. Helping is the extent to which the individual offers actions to others; loyalty refers to identifying with or loyalty to the organisation (defending the organisation, being cooperative and serving the interests of the organisation); advocacy is behaviour aimed at others within the organisation, maintaining high standards, challenging others, suggesting change; whilst functional participation has a more personal focus, although still contributing towards organisational effectiveness (Coyle-Shapiro, 2002; Van Dyne, Graham, & Dienesch, 1994).

Humanistic psychological theory proposes that a prosocial or altruistic orientation is the major motivator for all mankind. People find meaning through their unselfish, philanthropic acts towards others (Morgan & Farsides, 2008). Already in earlier studies job satisfaction showed a direct predictive path to altruism (Smith, Organ, & Near, 1983). Altruism relates strongly to the dimension of positive social functioning of flourishing behaviour. Moore and Love (2005) state that information technology professionals show significantly lower OCB (e.g., assisting other employees learn a new software system, acting as informal mentors to new employees) than professionals in non-IT areas, which they attribute to perceptions of unfairness with regard to work overload.

Job satisfaction is a major determinant of OCB (Robbins et al., 2009). Manifestation of OCB arising from job satisfaction has its theoretical foundation in Blau's (1964) social exchange theory. Blau describes social exchange as an open-stream of resource transactions by developing and supporting employee relationships founded in trust (Rousseau, 1998). Robbins et al. (2009) state that satisfied employees would be more likely to talk positively about the organisation, assist others and generally do more than expected in the line of duty (social well-being). When employees perceive that they are empowered by the organisation, i.e. by receiving the necessary resources, they will put in extra effort or do more than what is expected from them within the work environment (Organ, 1988). Bateman and Organ (1983) in their study indicated that job satisfaction has a significant and positive relationship with OCB, ranging from 0.19 to 0.25.

Hypothesis 6: Job satisfaction relates positively to organisational citizenship behaviour.

In a study of educators in Turkey, it was found that organisational citizenship behaviour is related to organisational commitment (Yilmaz & Cokluk-Bokeoglu, 2008). Le Pine et al. (2002) indicate that whereas past researchers (such as Organ, 1988) proposed the relation between OCB and organisational commitment not beyond utilising factor analysis, they used meta-analysis to demonstrate the strong relation between OCB and organisational commitment. Based on the social exchange theory (Organ, 1988, 1990), employees exhibit citizenship behaviour to requite the treatment they received from the organisation. When this treatment is perceived as positive, employees are more inclined to perform citizenship behaviour, because they regard it as a role obligation towards the organisation rather than discretionary (Coyle-Shapiro & Kessler, 2002). Positive citizenship behaviour (psychological

and social well-being) leads to greater affective commitment (emotional well-being) towards the organisation in general which result in flourishing behaviour.

Hypothesis 7: Organisational citizenship behaviour relates positively to organisational commitment.

Distal and organisation: Counterproductive behaviour

Counterproductive behaviour refers to acts that harm organisations or their people (Spector & Fox, 2005). Spector, Fox, Penney, Bruursema, Goh, and Kessler (2006) distinguish between five types of counterproductive behaviour, namely abuse (harmful behaviours that affect other people); production-deviance (purposely doing one's job incorrectly or allowing errors to occur); sabotage (destroying organisational property); theft (wrongfully taking the personal goods or property of another); and withdrawal (avoiding work through being late or absent). Linked to the issue of ethical behaviour is the matter of internet abuse (that is the use of the internet for non-work-related purposes) which is regarded as a fundamental problem in organisations (Woon & Pee, 2004). Internet abuse can have dire consequences such as bandwidth waste, legal liability, and exposing the organisation to threats. According to Chang and Cheung (2001), positive affect and more specifically an inclination towards pleasure are important predictors of internet usage intention. Job dissatisfaction and disengagement at work have been linked to internet abuse ($p < 0.05$), whilst social norms and perceived behavioural consequences also contribute significantly to internet abuse (Woon & Pee, 2004). It can be inferred that flourishing individuals who exhibit greater job satisfaction which relates positively to OCB, which relates positively to organisational commitment, which relates positively to turnover intention, will exhibit less counterproductive behaviour at work.

Hypothesis 8: Job dissatisfaction relates positively to counterproductive behaviour such as internet abuse.

Hypothesis 9: Flourishing indirectly affects organisational commitment, turnover intention, organisational citizenship behaviour and counterproductive behaviour.

Hypothesis 10: Job satisfaction indirectly affects turnover intention and organisational citizenship behaviour.

METHOD

Research design

This study followed a descriptive, cross-sectional and quantitative approach and a non-random field survey design utilising questionnaires was used to gather data regarding the flourishing of information technology professionals and its outcomes (Field, 2009).

Participants

The sample includes 205 individuals working as information technology professionals in organisations providing specialised software services. A total of Table 2 shows that 69.3% of the sample comprised males, while 30.7% were females. The ages of the participants varied from 25 years to 65 years. A majority of 67.3% of the participants spoke Afrikaans and the majority of the participants (84.9%) were white.

Table 2

Characteristics of the Participants (N=205)

Item	Category	Frequency	Percentage
Gender	Male	142	69.3
	Female	63	30.7
Race	White	174	84.9
	African	23	11.2
	Coloured	3	1.5
	Indian	4	2.0
	Other	1	.5
Age	25 years	55	26.8
	35 years	74	36.1
	45 years	53	25.9
	55 years	21	10.2
	65 years	2	1.0
Tenure	1 year	48	23.4
	2 years	25	12.2
	3 years	27	13.2
	4 years	23	11.2
	5-9 years	25	12.2
	10+ years	57	27.8
Marital status	Single/widow/widower	65	31.7
	Married	123	60.0
	Divorced	12	5.9
	Remarried	5	2.4
Home language	Afrikaans	138	67.3
	English	45	22.0
	Other	22	10.7
Salary per month	Less than R10 000	17	8.3
	R10 000 – R20 000	48	23.4
	R20 000 – R40 000	73	35.6
	R40 000 – R60 000	33	16.1
	R60 000 – R80 000	18	8.8
	R80 000 – R100 000	9	4.4
	R100 000+	7	3.4

Employment-related characteristics of the participants are reported in Table 3. The results in Table 3 show that more than 90% of the participants were employed on a permanent basis. A total of 66.8% worked more than 41 hours per week. Only 2.4% reported that they played internet games at work.

Table 3

Characteristics of the Participants (N=205)

Item	Category	Frequency	Percentage
Basis employed	Permanent	187	91.2
	Long term contract	11	5.4
	Hourly contract	4	2.0
	Other	3	1.5
Work hours per week	Up to 10	1	.5
	21 – 30	1	.5
	31 – 40	66	32.2
	41 – 50	113	55.1
	51 or more	24	11.7
Overtime hours per week	5	133	64.9
	10	55	26.8
	15	7	3.4
	20	10	4.9
Playing internet games at work	Yes	5	2.4
	No	200	97.6

Measuring instruments

In this study, the following measuring instruments were used: the Mental Health Continuum Short Form, Organisational Commitment Scale, Turnover Intention Scale, Organisational Citizenship Behaviour Scale and Job Satisfaction Scale.

The *Mental Health Continuum Short Form* (MHC-SF; Keyes, 2009) was used to measure flourishing. The MHC-SF consists of 14 items measuring three dimensions, namely emotional well-being (three items, “During the past month, how often did you feel happy?”), social well-being (five items, “During the past month, how often did you feel that you had something important to contribute to society?”), and psychological well-being (six items, “During the past month, how often did you feel that you liked most parts of your personality?”). Response options ranged from 1 (*never*) to 6 (*every day*). Nationally representative samples of US adults and college students confirmed the three factor structure of the long and short forms of the MHC - emotional, psychological, and social well-being, and results have shown excellent internal consistency (> 0.80) in studies in the U.S.A., the Netherlands and in South Africa (Keyes, 2009; Keyes et al., 2008). In order to be diagnosed with *flourishing* mental health, individuals must have experienced ‘every day’ or ‘almost every day’ on at least one of the three signs of emotional well-being, and at least six of the eleven signs of positive functioning (social and psychological well-being) during the past

month. Individuals who measure low (i.e. 'never' or 'once or twice' during the past month) on at least one item of emotional well-being and at least six items of positive functioning are diagnosed with *languishing* mental health. Individuals who are neither flourishing nor languishing are diagnosed with *moderate* mental health (Keyes, 2009).

The *Job Satisfaction Scale* (JSS; Rothmann, 2010) was used to measure job satisfaction. Three items measured how satisfied individuals felt with their jobs (e.g., "I feel fairly satisfied with my present job"; and "I find real enjoyment in my work"). Response options ranged from 1 (*totally disagree*) to 5 (*totally agree*). The Cronbach alpha coefficient for the JSS was 0.84.

Organisational commitment was measured by the *Organisational Commitment Scale* (OCS; Rothmann, 2010). Six items measured attachment (loyalty; "I feel personally attached to my work organisation"), and pride (identification; "I feel proud to be an employee of this organisation"). Response options ranged from 1 (*strongly disagree*) to 7 (*strongly disagree*). The Cronbach alpha coefficient for the OCS was 0.85.

The Turnover Intention Scale (TIS; Sjöberg & Sverke, 2000) was used to measure the intention to leave. The TIS consisted of three items and an example of an item is "If I was completely free to choose I would leave this job". Response options ranged from 1 (*strongly disagree*) to 5 (*strongly agree*). The TIS reported a Cronbach alpha coefficient of 0.83.

A measure of *counterproductive work behaviour* of information technology professionals was developed for the purposes of this study. A definition of counterproductive work behaviour was provided to line managers who were familiar with the specific jobs. Line managers were then asked to generate example behaviours relevant to the jobs in question that were consistent with counterproductive work behaviour. Three items were then developed to measure counterproductive work behaviour ("I use the internet more than I ought to", "My use of the internet sometimes seems beyond my control" and "People complain that I use the internet too much"). Participants rated the items on a frequency scale varying from 1 (*never*) to 5 (*every day*).

The *Organisational Citizenship Behaviour Scale* (OCBS, Rothmann, 2010) was utilised to measure organisational citizenship behaviour. The OCBS consisted of six items, three which

measured assistance to co-workers in the organisation (“I give up time to help co-workers who have work or non-work problems”) and three which measured assistance to the organisation (“I take action to protect the organisation from potential problems”). Response options ranged from 1 (*strongly disagree*) to 7 (*strongly agree*). The Cronbach alpha coefficients for the two scales were 0.78 (assistance to co-workers) and 0.80 (assistance to the organisation).

Research procedure

The researcher administered a survey questionnaire to the participants electronically. The questionnaire was accompanied by a cover letter explaining the purpose and emphasising the confidentiality of the research project. Managers from various information technology organisations were contacted to introduce the research topic to them and to obtain permission from them to involve their employees in the project. Respondents were assured that their participation was anonymous and voluntary and that they could withdraw at any stage. From May 2011 until July 2011 questionnaires were made available online. The raw data was captured and converted to an SPSS dataset.

Statistical analyses

Structural equation modelling (SEM) methods as implemented in AMOS (Arbuckle, 2009) were used to test the measurement and structural models. The following indices produced by AMOS were used in this study: a) absolute fit indices, including the Chi-square statistic, which is the test of absolute fit of the model, the Standardized Root Mean Residual (SRMR) and the Root-Means-Square Error of Approximation (RMSEA), b) incremental fit indices, including the Tucker-Lewis Index (TLI) and the Comparative Fit Index (Hair, Black, Babin, & Andersen, 2010). TLI and CFI values higher than 0.90 are considered acceptable. RMSEA values lower than 0.05 and a SRMR lower than 0.08 indicate a close fit between the model and the data. Descriptive statistics (means and standard deviations) and Pearson correlations were computed using the SPSS19 program (SPSS, 2011). The level of statistical significance was set at $p < 0.05$.

RESULTS

Testing the measurement model

Structural equation modelling (SEM) methods, as implemented by AMOS (Arbuckle, 2009), were used to test the measurement model. Global assessments of model fit were based on several goodness-of-fit statistics (CFI, TLI, RMSEA and RMSR).

Hypothesised models

In the hypothesised models each of the observed variables loaded on only one latent factor. The observed variables in the model were treated as continuous variables. Errors of measurement associated with observed variables were uncorrelated while latent variables were allowed to correlate.

The following nested measurement models were tested:

- Model 1: A three-factor model of flourishing consisting of three first-order latent factors, namely emotional well-being (three items), social well-being (five items) and psychological well-being (six items) with five further latent factors representing organisational and individual outcomes, including turnover intention (three items), organisational commitment (six items), counterproductive behaviour (three items), job satisfaction (three items) and organisational citizenship behaviour (four items).
- Model 2: A one-factor model of flourishing (consisting of 14 observed variables) and five latent factors representing organisational and individual outcomes, including turnover intention (three items), organisational commitment (six items), counterproductive behaviour (three items), job satisfaction (three items) and organisational citizenship behaviour (four items).
- Model 3: A three-factor model of flourishing consisting of three first order latent factors, namely emotional well-being (three items), social well-being (five items) and psychological well-being (six items) with two latent factors representing organisational outcomes (turnover intention – three items; organisational commitment – six items and organisational citizenship behaviour – four items) and individual outcomes (counterproductive behaviour – three items and job satisfaction – three items).

- Model 4: A one-factor model of flourishing (consisting of 14 observed variables) and two latent factors representing organisational outcomes (turnover intention – three items; organisational commitment – six items and organisational citizenship behaviour – four items) and individual outcomes (counterproductive behaviour – three items and job satisfaction – three items).
- Model 5: A one-factor model of flourishing including all variables, namely emotional well-being (three items), social well-being (five items), psychological well-being (six items), organisational and individual outcomes including turnover intention (three items), organisational commitment (six items), counterproductive behaviour (three items), job satisfaction (three items) and organisational citizenship behaviour (four items). In a cross-sectional survey a common method variance can be a problem as the multiple data in one questionnaire is very closely related. Therefore, the one-factor model was tested.

Table 4 presents fit statistics for the test of the various models.

Table 4

Fit Statistics of Competing Measurement Models (N=205)

Model	χ^2	<i>df</i>	TLI	CFI	RMSEA	SRMR	AIC	BIC
Model 1	839.99	477	0.89	0.90	0.06	0.06	1007.98	1041.59
Model 2	1030.59	480	0.83	0.85	0.08	0.07	1192.59	1224.99
Model 3	1314.05	489	0.76	0.77	0.09	0.09	1458.05	1486.85
Model 4	1504.83	492	0.70	0.72	0.10	0.09	1642.84	1670.44
Model 5	2237.23	495	0.49	0.52	0.13	0.12	2369.23	2395.63

df= degrees of freedom; TLI= Tucker-Lewis Index; CFI= Comparative Fit Index; RMSEA= Root Mean Square Error of Approximation; SRMR= Standardised Root Mean Square Residual; AIC = Akaike Information Criterion; BIC = Bayes Information Criterion

Two fit statistics, namely the AIC and BIC were used in addition to other fit indices in this study. The AIC, which is a comparative measure of fit, is meaningful when different models are estimated. The lowest AIC is the best fitting model. The BIC provides an indication of model parsimony (Kline, 2010). Comparison of the fit indices indicates that Model 1 fitted the data best. The other four models showed a poor fit to the data.

The first model hypothesised that flourishing consists of three latent first-order factors, namely emotional well-being (3 items), social well-being (5 items) and psychological well-being (6 items), one latent second-order factor, namely flourishing and five first-order latent factors, namely turnover intention (three items), organisational commitment (six items), counterproductive behaviour (internet abuse – three items), job satisfaction (three items) and organisational citizenship behaviour (four items). It was assumed that the errors of items are uncorrelated. The model was over-identified: It had 561 distinct sample moments, 84 distinct parameters to be estimated and 477 degrees of freedom.

The standardised regression coefficients were all statistically significant ($p < 0.01$). The weights for flourishing ranged from 0.72 to 0.99, whereas emotional well-being ranged from the lowest weight 0.78 to the highest of 0.90. Social well-being ranged from 0.60 to 0.80, whilst psychological well-being ranged from 0.55 to 0.82. The lowest weight for organisational commitment was 0.69 and the highest was 0.84; counterproductive behaviour (internet) reported the lowest weight of 0.64 ranging to 0.81. Weights for organisational citizenship behaviour varied from 0.57 to 0.82; job satisfaction varied from -0.63 to 0.93, whilst turnover intention ranged from the lowest weight being -0.55 to the highest weight of 0.87.

Testing the structural model

The descriptive statistics and alpha coefficients of the measuring instruments after adapting the measurement model are reported in Table 5. The results in Table 5 show that all the scales had acceptable alpha coefficients (> 0.70) (see Nunnally & Bernstein, 1994).

Table 5

Descriptive Statistics, Alpha Coefficients and Pearson Correlations of the Scales (N=205)

Variable	Mean	SD	α	1	2	3	4	5	6	7	8
1. MHC: TOTAL	3.11	0.85	0.91	-	-	-	-	-	-	-	-
2. MHC: EWB	3.49	0.93	0.87	0.78**	-	-	-	-	-	-	-
3. MHC: SWB	2.48	1.09	0.82	0.87**	0.51**	-	-	-	-	-	-
4. MHC: PWB	3.44	0.90	0.86	0.91**	0.68**	0.64**	-	-	-	-	-
5. Job Satisfaction	3.64	0.76	0.84	0.42**	0.42**	0.28**	0.43**	-	-	-	-
6. Organisational Commitment	3.70	0.70	0.90	0.49**	0.35**	0.40**	0.49**	0.63**	-	-	-
7. Counterproductive Behaviour	1.03	1.02	0.74	-0.13	-0.15*	-0.04	-0.17*	-0.38**	-0.28**	-	-
8. Organisational Citizenship Behaviour	3.54	1.17	0.81	0.36**	0.24**	0.30**	0.36**	0.23**	0.36**	-0.01	-
9. Turnover Intention	2.34	0.88	0.79	-0.25**	-0.22**	-0.16*	-0.27**	-0.66**	-0.60**	0.23**	-0.11

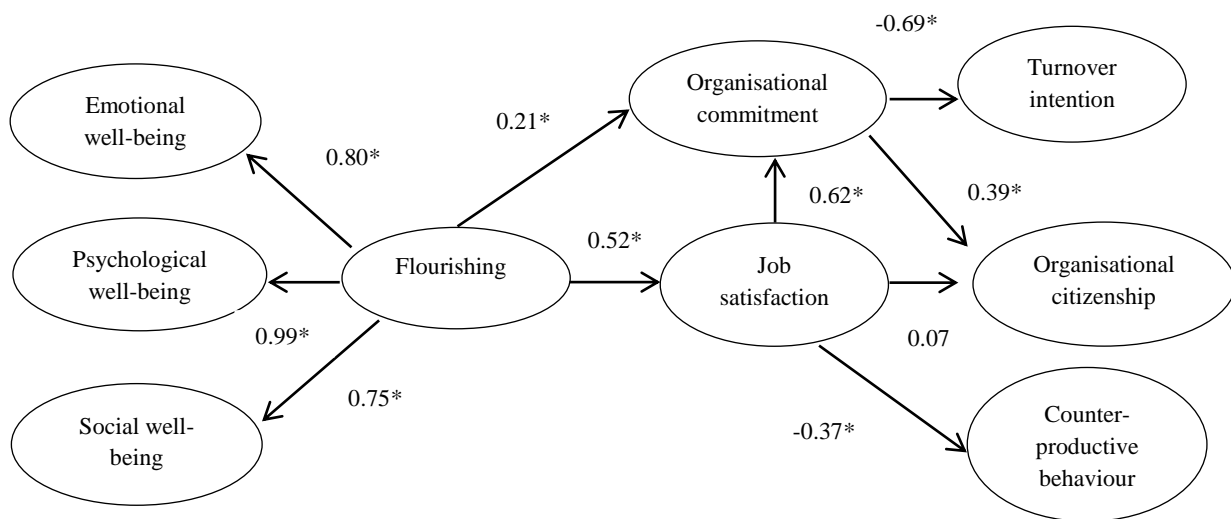
* Correlation is significant at the 0.05 level (2-tailed)

** Correlation is significant at the 0.01 level (2-tailed)

The structural revised model showed acceptable fit: $\chi^2 = 864.21$, $df = 484$, $TLI = 0.89$, $CFI = 0.90$, $RMSEA = 0.06$ and $SRMR = 0.07$, although it is clear that the model fit could be improved ($TLI < 0.90$).

Evaluating the proposed model

Figure 1 shows the standardized path coefficients estimated by AMOS for the proposed theoretical model.



* $p < 0.05$

Figure 1. Maximum likelihood estimate for the hypothesised model of flourishing

Hypothesis 1

All path coefficients predicting flourishing were significant and had the expected sign. Flourishing had a significant positive relation with job satisfaction ($R^2 = 0.65$). This result provides support for Hypothesis 1.

Hypotheses 2 and 3

For the portion of the model predicting organisational commitment, the path coefficient was significant and had the expected sign. Job satisfaction and flourishing had significant and positive relations with organisational commitment ($R^2 = 0.33$). This result provides support for Hypotheses 2 and 3.

Hypothesis 4

For the portion of the model predicting turnover intention, the path coefficient was significant and had the expected sign. Organisational commitment had a significant and negative relation with turnover intention ($R^2 = 0.69$). This result provides support for Hypothesis 4.

Hypothesis 6

Job satisfaction did not have a significant positive relation with organisational citizenship behaviour. This result does not provide support for Hypothesis 6.

Hypothesis 7

Organisational commitment had a significant positive relation with organisational citizenship behaviour ($R^2 = 0.15$). This result provides support for Hypothesis 7.

Hypothesis 8

For the portion of the model predicting counterproductive behaviour (internet abuse), the path coefficient was significant and had the expected sign. Job dissatisfaction had a negatively significant relation with internet abuse. The ML-estimated equation accounted for a moderate proportion of variance in counterproductive behaviour ($R^2 = 0.37$). This result provides support for Hypothesis 8.

It was hypothesised that job satisfaction would mediate the relationships between flourishing and individual and organisational outcomes (hypotheses 9 and 10). To meet the conditions for mediation (as described by Preacher & Hayes, 2008, 2009), three different models using the AMOS18 program (Arbuckle, 2009) were analysed. The three competing models were as follows: a) Model 1 ('Indirect effects' model) estimated paths from the independent variable to its hypothesized mediator and from each mediator to turnover intention, organisational citizenship behaviour and counterproductive behaviour (internet abuse). b) Model 2 ('Direct effects' model) estimated direct paths from the independent variable to its hypothesized mediator and to organisational commitment. c) Model 3 ('Full' model) estimated direct and indirect paths from the independent variable to its proposed mediator and outcome variables.

Path analysis was used to examine the fit of these models to the data. Because the indirect effects model and the direct effects model are both hierarchically nested within the full model, differences in fit can be determined using the chi-square (i.e. $\Delta\chi^2$) test described by

Kline (2010). The fit statistics for the different models are reported in Table 6. The significant χ^2 difference tests indicate that the hypothesized model (Model 1) has a better overall fit to the data than the direct effects model ($\Delta\chi^2 = 85.47$, $\Delta df = 41$, $p < 0.01$). However, the full model (Model 3) has a better overall fit than the indirect effects model (Model 1; $\Delta\chi^2 = 51.80$, $\Delta df = 4$, $p < 0.01$). This suggests that mediation as conceived in the original theoretical framework does not explain the covariation in the data better than a model allowing partial mediation (i.e. Model 3). When the direct path between flourishing and turnover intention is added to the framework, the relationship between organisational commitment and turnover intention becomes positive. The relations between flourishing on the one hand and organisational commitment and turnover intention on the other hand, are all statistically significant ($p < 0.01$). Table 6 reports the fit indices and path coefficients for Models 1, 2 and 3.

Revised model

Given that the full model fit the data better than the originally theorised model, it was decided to examine whether a revised model based on the original framework could improve its explanatory power and overall fit with the data. The paths which were not statistically significant in the revised model were deleted. The revised model showed acceptable fit: $\chi^2 = 818.14$, $df = 483$, $TLI = 0.90$, $CFI = 0.91$, $RMSEA = 0.06$ and $SRMR = 0.07$. The non-significant chi-squared difference tests after these path deletions indicated that removal of these paths did not significantly impact the model's degree of overall fit ($\Delta\chi^2 = 5.73$, $\Delta df = 3$, $p > 0.01$). Compared with the hypothesized model, the revised model still showed a statistically significant improvement ($\Delta\chi^2 = 46.07$, $\Delta df = 1$, $p < 0.01$). The final model is given in Figure 2.

Table 6

Initial Framework Fit Indices and Standardized Path Coefficients

Measures		Indirect effects (Model 1)	Direct effects (Model 2)	Direct and indirect effects (Model 3)
Fit Indices	χ^2	864.21	949.68	812.41
	df	484	483	480
	TLI	0.89	0.86	0.90
	CFI	0.90	0.87	0.91
	RMSEA	0.06	0.07	0.06
	SRMR	0.07	0.16	0.06
Direct Effects on Turnover Intention	Flourishing	-	-0.70*	0.18*
	Organisational commitment	-0.69*	-0.34*	-0.26*
	Job satisfaction	-	-0.73*	-0.66*
Direct Effects on Organisational Commitment	Flourishing	0.20*	0.84*	0.22*
	Job satisfaction	0.66*	-	0.62*
Direct Effects on Job Satisfaction	Flourishing	0.52*	0.85*	0.52*
Direct Effects on Counterproductive Behaviour	Flourishing	-	-0.35*	0.03
	Job satisfaction	-0.37 *	-0.38*	-0.38*
	Organisational commitment	-	-	-
	Organisational citizenship	-	-	-
Direct Effects on Organisational Citizenship Behaviour	Flourishing	-	0.46*	0.28*
	Organisational commitment	0.39*	-	0.31*
	Job satisfaction	0.07	-	-0.03

$p < 0.01$

To determine whether any relationships in the revised model were indeed mediated by job satisfaction and organisational commitment, the indirect effects of the independent variables via the proposed mediators were computed. The procedures were described by Hayes (2009) to determine whether the indirect effects were different from zero. Bootstrapping was used to construct two-sided bias-corrected confidence intervals so as to evaluate mediation effects (see Table 7).

Table 7

Indirect (Mediation Effects) of Flourishing and Job Satisfaction

	Flourishing			Job Satisfaction		
	Estimate	SE	90% CI	Estimate	SE	90% CI
Organisational Commitment	0.31*	0.05	0.24 to 0.40	-	-	-
Turnover Intention	-0.41*	0.05	-0.50 to -0.33	-0.12*	0.07	-0.23 to -0.02
Organisational Citizenship Behaviour	0.16*	0.05	0.08 to 0.25	0.18*	0.06	0.09 to 0.29
Counterproductive Behaviour	-0.18*	0.05	-0.27 to -0.11	-	-	-

* $p < 0.01$

Table 7 shows that the bootstrap estimated indirect effects of flourishing on organisational commitment, turnover intention, organisational citizenship behaviour and counterproductive behaviour were statistically significant ($p < 0.01$) and different from zero (Preacher & Hayes, 2008). Furthermore, the bootstrap estimated indirect effects of job satisfaction on turnover intention and organisational citizenship behaviour were statistically significant ($p < 0.01$) and different from zero. Therefore, hypotheses 9 and 10 were accepted.

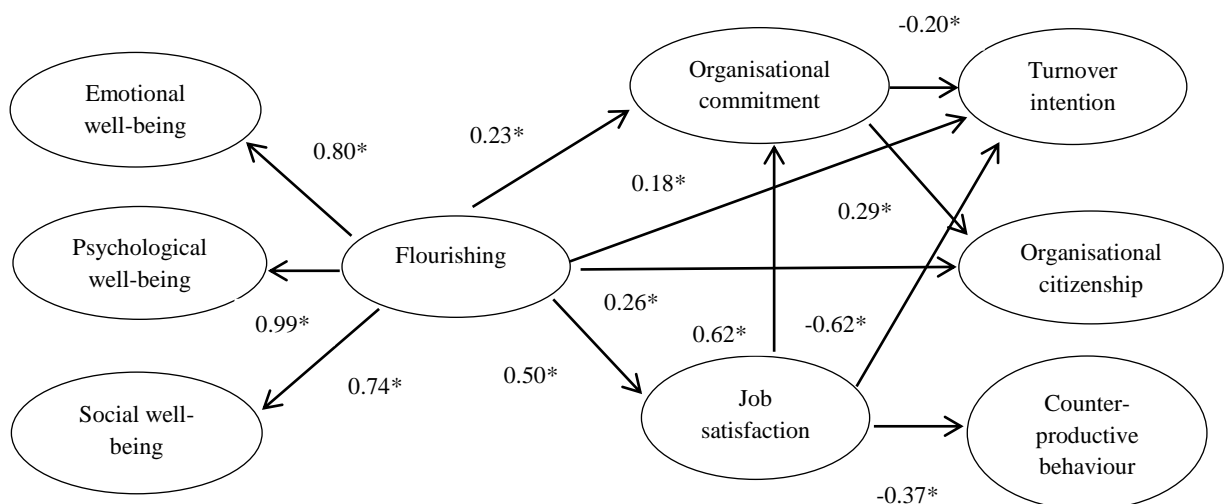


Figure 2. Maximum likelihood estimates for the hypothesized model of flourishing (standardized solution).

Taken together, the model fit indices suggest that the relationships posited in the revised model (see Figure 2) account for a substantial amount of the covariation in the data. The revised model accounts for a large proportion of the variance in the mediators (27% and 58% of the variance in job satisfaction and organisational commitment respectively) and in the dependent variables, namely turnover intention (62%), organisational citizenship behaviour (24%) and counterproductive behaviour (13%), lending more empirical support for the revised model's fit.

DISCUSSION

The aim of this study was to investigate the relationship between flourishing and individual and organisational outcomes such as job satisfaction, organisational commitment, organisational citizenship behaviour, turnover intention and counterproductive behaviour. The results provided support for a model in which flourishing (i.e. emotional, psychological and social well-being) of employees had both direct and indirect effects on individual and organisational outcomes. Flourishing of IT professionals had a direct positive effect on their job satisfaction, which in turn had a strong positive effect on their organisational commitment and a negative effect on their turnover intention. Job satisfaction also impacted counterproductive work behaviour directly and negatively. Flourishing impacted organisational citizenship behaviour directly and positively as well as indirectly (through organisational commitment). Flourishing impacted organisational commitment indirectly (through a positive effect on job satisfaction), while it impacted turnover intention indirectly (through a reversed effect on job dissatisfaction and a lack of organisational commitment).

Flourishing was strongly related to job satisfaction in this study (27% of the variance shared). Psychological well-being contributed most to flourishing in the model, followed by emotional well-being and social well-being. Therefore, employees who were emotionally, psychologically and socially well were also more satisfied with their jobs. This is in line with findings in studies by Connolly and Viswesvaran (2000), Pierce and Gardner (2004). This result supports the finding of Lyubomirsky et al. (2005) regarding the relation between positive affect and job satisfaction. According to the part-whole theory of Bowling et al. (2010), job satisfaction is strongly affected by an individual's level of subjective well-being.

Flourishing had a strong relation with organisational commitment. However, the structural model showed that flourishing affected organisational commitment directly, but most strongly through its relationship with job satisfaction (an indirect effect). This finding suggests that employees who flourish experience higher levels of job satisfaction, which result in their being more committed to the organisation. Flourishing also had a direct effect on the commitment of employees, although the effect was small.

Job satisfaction had important effects in the structural model in this study. Flourishing impacted organisational commitment moderately through its effect on job satisfaction, but also impacted turnover intention strongly (indirectly) through its effects on job satisfaction and organisational commitment. IT professionals who were satisfied with their jobs showed more commitment towards their organisation. Employees who were less committed to the organisation showed a higher level of turnover intention. Meyer and Allen (1997) and Harrison and Hubbard (1998) also found a significant relation between job satisfaction and organisational commitment. However, job dissatisfaction also impacted turnover intention directly and strongly.

The results are in line with both the spillover theory, which postulates that a positive outcome has a positive effect on another outcome, and a negative effect will have negative spillover on another outcome, and the expansionist theory, which states that one role increases resources for other roles (Hecht & Boies, 2009). These theories support the finding in this study that IT professionals with lower job satisfaction tend to engage in counterproductive behaviour, such as internet abuse and playing games (Woon & Pee, 2004). Linking to the part-whole theory as well as the spillover and expansionist theories, is Fredrickson's (1998) broaden-and-build theory that states that positive emotions in IT professionals will intensify their personal resources which in turn will predict their future well-being (Ouwencel et al., 2011). Lyubomirsky, Sheldon, and Schkade (2005) propose that such resources enable individuals to thrive and succeed at work, in relationships and with health. An individual who feels well is more likely to function well, both psychologically and socially, which means meeting the criterion for positive mental health as flourishing. Thus, it was found that flourishing has an influence on all individual and organisational outcomes in this study, in that flourishing has a direct effect on the following aspects: on job satisfaction; on organisational commitment with job satisfaction as partial mediator; on counterproductive behaviour with job satisfaction fully

mediating the relationship; on turnover intention; and OCB with organisational commitment partially mediating the relationship.

The results of this study showed that job satisfaction did not have a direct effect on organisational citizenship behaviour. However, it had a small effect on organisational citizenship behaviour through its relation with organisational commitment. Employees who were satisfied with their jobs, showed higher levels of organisational commitment, which in turn impacted on their willingness to be helpful towards others in the organisation and generally do more than what the job requires. One would expect satisfied employees to reciprocate their positive experiences and from evidence in the psychological literature persons who experience positive affect tend to engage in prosocial behaviours (Clark & Isen, 1982). Several studies produced results suggesting that job satisfaction relates positively and significantly with organisational citizenship behaviour (Bateman & Organ, 1983; Puffer, 1987). However, Schnake, Cochran, and Dumler (1995) found that job satisfaction accounted for the variance in only two of the five OCB dimensions.

The results indicated that flourishing individuals engaged in citizenship behaviour by doing things for the organisation and other individuals outside the parameters of their jobs. Languishing employees, those who do not function optimally on social, emotional and psychological dimensions, engage less in citizenship behaviour besides being dissatisfied with their jobs and lacking commitment towards the organisation. Employees engaging in citizenship behaviour do so because they probably believe that they could make a difference. This argument links perfectly with the part-whole theory (Bowling et al., 2010). An accumulation of emotional well-being (positive affect and satisfaction with life), psychological well-being (having a purpose in life and positive relations with others) and social well-being (exhibiting positive social functioning) (Keyes, 2007) seems to have a moderate direct effect on organisational citizenship behaviour.

It can be concluded that flourishing strongly impacts job satisfaction, while job satisfaction impacts organisational commitment and turnover intention. The findings emphasise the important relationship between flourishing and individual and organisational outcomes. Therefore, flourishing employees in the IT industry seem to be to the benefit of not only the individual's well-being, but also to the benefit of the organisation (Sparks et al., 2001). This study had various limitations. First, due to the cross-sectional design used in the study, causal

relationships cannot be ascertained. However, Lyubomirsky et al. (2005) and Bowling et al. (2010) present strong evidence that job satisfaction and positive organisational outcomes result because of well-being. Second, the sample size was relatively small compared to the number of variables used. Despite its size, however, the sample in this study is representative of a very important, distinguished and scarce category of information technology professionals.

RECOMMENDATIONS

This study showed that flourishing is positively associated with individual and organisational outcomes. Therefore, it is necessary to understand the nature and etiology of the strengths and competencies of flourishing people to promote their mental health (Keyes, 2002). Interventions should be implemented to promote flourishing of IT professionals. Not only emotional well-being, but also psychological and social well-being should be the focus of interventions. Cognitive-behavioural processes, interpersonal attachment, coping and meaning-making of individuals should be addressed to promote their flourishing (Keyes, 2005). Future studies should employ longitudinal panel as well as experimental designs to study the causality of relationships between flourishing and individual and organisational outcomes. Interventions to promote flourishing should be developed and evaluated. Furthermore, objective measures should be developed to assess the flourishing of employees.

REFERENCES

- Arbuckle, J. L. (2009). *Amos 18.0*. Crawfordville, FL: AMOS Development Corporation.
- Armstrong, M. (2006). *A handbook of human resource management practice* (10th ed.). London, United Kingdom: Kogan Page.
- Bakker, A. B., & Schaufeli, W. B. (2008). Positive organizational behavior: Engaged employees in flourishing organizations. *Journal of Organizational Behavior, 29*, 147–154.
- Bakker, A. B., Demerouti, E., & Schaufeli, W. B. (2003). Dual processes at work in a call centre : An application of the Job-Demands Resources Model. *European Journal of Work and Organizational Psychology, 12*, 393–417.
- Bateman, T. S., & Organ, D. W. (1983). Job satisfaction and the good soldier: the relationship between affect and citizenship. *Academy of Management Journal, 26*, 587–595.
- Bateman, T., & Strasser, S. (1984). A longitudinal analysis of the antecedents of organizational commitment. *Academy of Management Journal, 21*, 95–112.
- Blau, P. (1964). *Exchange and power in social life*. New York, NY: Wiley.
- Bono, J. E., Davies, S. E., & Rasch, R. L. (2012). Some traits associated with flourishing at work. In K. Cameron & G. M. Spreitzer (Eds.), *The Oxford handbook of positive organizational scholarship* (pp. 125–137). New York, NY: Oxford University Press.
- Bowling, N. A., Eschleman, K. J., & Wang, Q. (2010). A meta-analytic examination of the relationship between job satisfaction and subjective well-being. *Journal of Occupational and Organizational Psychology, 83*, 915–934.
- Chang, M. K., & Cheung, W. (2001). Determinants of the intention to use internet/WWW at work: A confirmatory study. *Information and Management, 39*, 1–14.
- Clark, M. S., & Isen, A. M. (1982). Toward understanding the relationship between feeling states and social behaviour. In A. H. Hastorf & A. M. Isen (Eds.), *Cognitive social psychology* (pp. 73–108). New York, NY: Elsevier.
- Cohen, A. (2003). *Multiple commitments in the workplace: An integrative approach*. London, United Kingdom: Lawrence Erlbaum Associates.
- Connolly, J. J., & Viswesvaran, C. (2000). The role of affectivity in job satisfaction: A meta-analysis. *Personality and Individual Differences, 29*, 265–281.
- Coyle-Shapiro, J. A. (2002). A psychological contract perspective on organizational citizenship behavior. *Journal of Organizational Behavior, 23*, 927–946.

- Coyle-Shapiro, J. A., & Kessler, I. (2002). Contingent and non-contingent working in local government: Contrasting psychological contracts. *Public Administration, 80*, 77–101.
- Deci, E. L., & Ryan, R. M. (2008). Self-determination theory: A macrotheory of human motivation, development, and health. *Canadian Psychology, 49*(3), 182–185.
- De Cuyper, N., & De Witte, H. (2007). Job insecurity among temporary versus permanent workers: Effects on job satisfaction, organizational commitment, life satisfaction and self-rated performance. *Work and Stress, 21*, 65–84.
- De Cuyper, N., Bernhard-Oettel, C., Berntson, E., De Witte, H., & Alarco, B. (2008). Employability and employees' well-being: Mediation by job insecurity. *Applied Psychology: An International Review, 57*, 488–509.
- Diener, E. (1984). Subjective well-being. *Psychological Bulletin, 95*, 542–575.
- Diener, E., Kesebir, P., & Lucas, R. (2008). Benefits of accounts of well-being - For societies and for psychological science. *Applied Psychology: An International Journal, 57*, 37–53.
- Diener, E., Oishi, S., & Lucas, R. E. (2003). Personality, culture, and subjective well-being: Emotional and cognitive evaluations of life. *Annual Review of Psychology, 54*, 403–425.
- Field, A. (2009). *Discovering statistics using SPSS* (3rd ed.). Los Angeles, CA: SAGE.
- Fredrickson, B. L. (1998). What good are positive emotions? *Review of General Psychology, 2*, 300–319.
- Fredrickson, B. L. (2001). The role of positive emotions on positive psychology: The broaden-and-build theory of positive emotions. *American Psychological Association, 56*, 218–226.
- Fredrickson, B. L. (2004). The broaden-and-build theory of positive emotions. *Philosophical Transaction: Biological Sciences, 359*, 1367–1377.
- Gaylard, M., Sutherland, M., & Viedge, C. (2005). The factors perceived to influence the retention of information technology workers. *South African Journal of Business Management, 36*, 87–97.
- Hair, J. F., Black, W.C., Babin, B. J., & Andersen, R. E. (2010). *Multivariate data analysis: A global perspective*. Upper Saddle River, NJ: Person.
- Harrison, J. K., & Hubbard, R. (1998). Antecedents to organisational commitment among Mexican employees of a U.S. firm in Mexico. *The Journal of Social Psychology, 138*, 609–623.
- 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.

- Harter, J. K., Schmidt, F. L., & Keyes, C. L. M. (2002). Well-being in the workplace and its relationship to business outcomes: A review of the Gallup Studies. In C. L. M. Keyes & J. Haidt (Eds.), *Flourishing: The positive person and the good life* (pp. 205–224). Washington, DC: American Psychological Association.
- Hayes, A. F. (2009). Beyond Baron and Kenny: Statistical mediation analysis in the new millennium. *Communication Monographs*, *76*, 408–420.
- Hecht, D. H., & Boies, K. (2009). Structure and correlates of spillover from nonwork to work: An examination of nonwork activities, well-being, and work outcomes. *Journal of Organizational Health Psychology*, *14*, 414–426.
- Judge, T. A., Van Vianen, A. E. M., & De Pater, I. (2004). Emotional stability, core self-evaluations, and job outcomes: A review of the evidence and an agenda for future research. *Human Performance*, *17*, 325–346.
- Kenny, B. (2007, April). *The coming crisis in employee turnover*. Forbes Magazine.
- Keyes, C. L. M. (2002). The mental health continuum: From languishing to flourishing in life. *Journal of Health and Social Behavior*, *43*, 207–222.
- Keyes, C. L. M. (2005). Mental illness and/or mental health? Investing axioms of the complete state model of health. *Journal of Consulting and Clinical Psychology*, *73*, 539–548.
- Keyes, C. L. M. (2007). Promoting and protecting mental health as flourishing. *American Psychologist*, *62*, 95–108.
- Keyes, C. L. M. (2009). *Brief description of the Mental Health Continuum Short Form (MHC-SF)*. Available: <http://www.sociology.emory.edu/ckeyes/>. [On-line, retrieved 14 December 2010].
- Keyes, C. L. M., & Annas, J. (2009). Feeling good and functioning well: Distinctive concepts in ancient philosophy and contemporary science. *Journal of Positive Psychology*, *4*, 197–201).
- Keyes, C. L. M., & Haidt, J. (2003). *Flourishing: Positive psychology and the life well-lived*. Washington, DC: American Psychological Association.
- Keyes, C. L. M., Wissing, M., Potgieter, J. P., Temane, M., Kruger, A., & Van Rooy, S. (2008). Evaluation of the Mental Health Continuum Short Form (MHC-SF) in Setswana speaking South Africans. *Clinical Psychology and Psychotherapy*, *15*, 181–192.
- Kline, R. B. (2010). *Principles and practice of structural equation modelling* (3rd ed.). New York, NY: Guilford Press.

- Lambert, S. J. (2006). Both art and science: Employing organizational documentation in workplace-based research. In M. Pitt-Catsouphes, E. E., Kossek & S. Sweet (Eds.), *The work and family handbook: Multi-disciplinary perspectives, methods, and approaches* (pp. 503–525). Mahwah, NJ: Lawrence Erlbaum Associates.
- Lambert, E. G., Hogan, N. L., & Barton, S. M. (2001). The impact of job satisfaction on turnover intent: A test of a structural measurement model using a national sample of workers. *The Social Science Journal*, 38, 233–250.
- LePine, J. A., Erez, A., & Johnson, D. E. (2002). The nature and dimensionality of organizational citizenship behaviour: A critical review and meta-analysis. *Journal of Applied Psychology*, 87, 52–65.
- Lowry, G., Turner, R., & Fisher, J. (2006). The contribution of employment satisfaction factors to recruiting, retaining and career development of information systems and technology professionals. *The Review of Business Information Systems*, 10, 137–150.
- Lyubomirsky, S., King, L., & Diener, E. (2005). The benefits of frequent positive affect: Does happiness lead to success? *Psychological Bulletin*, 131, 803–855.
- Lyubomirsky, S., Sheldon, K. M., & Schkade, D. (2005). Pursuing happiness: The architecture of sustainable change. *Review of General Psychology*, 9, 111–131.
- Marsden, D., & Moriconi, S. (2011). The impact of employee well-being policies and sickness absence on workplace performance. In D. Lewin, B. E., Kaufman, & P. J. Gollan (Eds.), *Advances in industrial and labor relations, Volume 18* (pp. 115–152). London, United Kingdom: Emerald Group Publishing.
- Meyer, J. P., & Allen, N. J. (1997). *Commitment in the workplace: Theory, research and application*. Thousand Oaks, CA: SAGE Publications.
- Moore, J. E., & Burke, L. A. (2002). How to turn around ‘turnover culture’ in IT. *Communications of the ACM*, 45, 73–78.
- Moore, J. E., & Love, M. S. (2005). IT professionals as organizational citizens. *Communications of the ACM*, 48, 89–93.
- Morgan, J., & Farsides, T. (2008). Measuring meaning in life. *Journal of Happiness Studies*. Published online at <http://www.springerlink.com/content/3x1725245j2605n6/>.
- Nunnally, J. C., & Bernstein, I. H. (1994). *Psychometric theory* (3rd ed.). New York, NY: McGraw-Hill.
- Organ, D. W. (1988). *Organizational citizenship behavior: The good soldier syndrome*. Lexington, MA: Lexington Books.

- Organ, D. W. (1990). The motivational basis of organizational citizenship behaviour. In B. M. Staw & L. L. Cummings (Eds.). *Research in organizational behavior* (pp. 43–72). Greenwich, CT: JAI Press.
- Ouwencel, E., LeBlanc, P. M., & Schaufeli, W. B. (2011). Flourishing students: A longitudinal study on positive emotions, personal resources, and study engagement. *The Journal of Positive Psychology, 6*, 142–153.
- Pierce, J. L., & Gardner, D. G. (2004). Self-esteem within the work and organizational context: A review of the organizational-based self-esteem literature. *Journal of Management, 30*, 591–622.
- Porter, L. W., Steers, R. M., Mowday, R. T., & Boulian, P. (1974). Organizational commitment, job satisfaction, and turnover among psychiatric technicians. *Journal of Applied Psychology, 59*, 603–609.
- Preacher, K. J., & Hayes, A. F. (2008). Asymptotic and resampling strategies for assessing and comparing indirect effects in multiple mediator models. *Behavior Research Methods, 40*, 879–891.
- Preacher, K. J., & Hayes, A. F. (2009). Beyond Baron and Kenny: Statistical mediational analysis in the new millennium. *Communication Monographs, 76*, 408–420.
- Price, J. (1997). Handbook of organisational measurement. *International Journal of Manpower, 18*, 303–558.
- Price, J. (2001). Reflections on the determinants of voluntary turnover. *International Journal of Manpower, 22*, 660–624.
- Puffer, S. M. (1987). Prosocial behaviour, non-compliant behaviour, and work performance among commission salespeople. *Journal of Applied Psychology, 72*, 615–621.
- Rhoades, L., Eisenberger, R., & Armeli, S. (2001). Affective commitment to the organization: The contribution of perceived organizational support. *Journal of Applied Psychology, 86*, 825–836.
- Robbins, S. P., Judge, T. A., Odendaal, A., & Roodt, G. (2009). *Organisational behaviour: Global and South African perspectives*. Cape Town, South Africa: Pearson Education.
- Roodt, J., & Paterson, A. (2008). *ICT skills in the labour market: an occupational-level analysis focusing on computer professionals and associate professionals, 1996-2005: Scarce and critical skills research project for the Department of Labour in South Africa*. http://www.labour.gov.za/downloads/documents/researchdocuments/ICT%20skills_DoL_Report.pdf

- Rothmann, S. (2010). *The reliability and validity of measuring instruments of happiness in the Southern African context*. Vanderbijlpark, South Africa: North-West University.
- Rousseau, D. M. (1998). Why workers still identify with organizations. *Journal of Organizational Behavior*, 19, 217–233.
- Ryff, C. D. (1989). Happiness is everything, or is it? Explorations on 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.
- Schnake, M., Cochran, D., & Dumler, M. (1995). Encouraging organizational citizenship: The effects on job satisfaction, perceived equity and leadership. *Journal of Managerial Issues*, 7, 209–221.
- Seligman, M. E. P., & Csikszentmihalyi, M. (2000). Positive psychology: An introduction. *American Psychologist*, 55, 5–14.
- Sjöberg, A., & Sverke, M. (2000). The interactive effect of job involvement and organizational commitment revisited: A note on the mediating role of turnover intention. *Scandinavian Journal of Psychology*, 41, 247–252.
- Smith, C. A., Organ, D. W., & Near, J. P. (1983). Organizational citizenship behavior: Its nature and antecedents. *Journal of Applied Psychology*, 68, 653–663.
- Sparks, K., Faragher, B., & Cooper, C. L. (2001). Well-being and occupational health in the 21st century workplace. *Journal of Occupational and Organizational Psychology*, 74, 489–509.
- Spector, P. E., & Fox, S. (2005). The stressor-emotion model of counterproductive work behavior. In S. Fox & P. E. Spector (Eds.), *Counterproductive work behavior: Investigations of actors and targets* (pp. 151–174). Washington, DC: American Psychological Association.
- Spector, P., Fox, S., Penney, L. M., Bruursema, K., Goh, A., & Kessler, S. (2006). The dimensionality of counter-productivity: Are counterproductive behaviours created equal? *Journal of Vocational Behavior*, 68, 446–460.
- SPSS Inc. (2011). *SPSS 19.0 for Windows*. Chicago, IL: SPSS Inc.
- Sverke, M., Hellgren, J., & Näswall, K. (2002). No security: A meta-analysis and review of job security and its consequences. *Journal of Occupational Health Psychology*, 7, 242–264.

- Thatcher, J. B., Stepina, L. P., & Boyle, R. J. (2002). Turnover of IT workers: Examining empirically the influence of attitudes, job characteristics and external markets. *Journal of Management Information Systems, 19*, 231–261.
- Thoresen, C. J., Kaplan, S. A., Barsky, A. P., Warren, C. R., & de Chermont, K. (2003). The affective underpinnings of job perceptions and attitudes: A meta-analytic review and integration. *Psychological Bulletin, 129*, 914–945.
- Torrington, D., Hall, L., & Taylor, S. (2008). *Human resource management* (7th ed.). Harlow, FT: Pearson Education.
- Trimble, D. E. (2006). Organizational commitment, job satisfaction, and turnover intention of missionaries. *Journal of Psychology and Theology, 34*, 349–360.
- Tugade, M. M., & Fredrickson, B. L. (2004). Resilient individuals use positive emotions to bounce back from negative emotional experiences. *Journal of Personality and Social Psychology, 86*, 320–333.
- Turner, R., & Lowry, G. (2000). Motivating and recruiting intending IS professionals: A study of what attracts IS students to prospective employment. *South African Computer Journal, 24*, 132–137.
- Van Dyne, L., Graham, J. W., & Dienesch, R. M. (1994). Organizational citizenship behavior: Construct, definition, measurement, and validation. *Academy of Management Journal, 37*, 765–802.
- Vella-Brodrick, D., Park, N., & Peterson, C. (2009). Three ways to be happy: Pleasure, engagement, and meaning: Findings from Australian and US samples. *Social Indicators Research, 90*, 156–179.
- Waterman, A. S. (2008). Reconsidering happiness: A eudaimonist's perspective. *Journal of Positive Psychology, 3*, 234–252.
- Woon, I. M. Y., & Pee, L. G. (2004, December). *Behavioral factors affecting internet abuse in the workplace: An empirical investigation*. Proceedings of the Third Annual Workshop on HCI Research in MIS, Washington.
- Yilmaz, K., & Cokluk-Bokeoglu, O. (2008). Organizational citizenship behaviors and organizational commitment in Turkish primary schools. *World Applied Sciences Journal, 3*, 775–780.

CHAPTER 3

ARTICLE 2

**PSYCHOLOGICAL CONTRACT FULFILMENT AND VIOLATION AND
FLOURISHING OF INFORMATION TECHNOLOGY PROFESSIONALS: THE
ROLE OF PSYCHOLOGICAL NEED SATISFACTION**

ABSTRACT

The aim of this study was to investigate the relationship between psychological contract fulfilment and violation, satisfaction of psychological needs and job satisfaction, work engagement, turnover intention and flourishing. A convenience sample ($N = 205$) was taken of employees in information technology organisations in South Africa. A biographical questionnaire, the Psychological Contract Inventory, Violations of Psychological Contract Questionnaire, Work-related Basic Need Satisfaction Scale, Job Satisfaction Scale, Work Engagement Scale, Turnover Intention Scale and Mental Health Continuum Short Form were administered. The results showed that psychological contract breach and violation strongly and negatively impacted flourishing at work and in life. The results provided support for a model in which psychological contract breach and violation had both direct and indirect effects via satisfaction of psychological needs (i.e. autonomy, competence and relatedness) on job satisfaction, work engagement, turnover intention and flourishing of IT professionals.

Key terms: Psychological contract, self-determination theory, job satisfaction, work engagement, turnover intention, flourishing

The information technology (IT) industry in South Africa is a fast-paced, aggressive and highly competitive environment (Mulligan & Gordon, 2002). Organisations in the industry are challenged by high turnover, often attributed to high demands employees face as well as a lack of support from their employers (Hall & Fourie, 2007). Positive employer-employee relations are essential towards enabling individuals to flourish at work (as indicated by job satisfaction and work engagement) and in life (as indicated by emotional, psychological and social well-being) (Ramlall, 2008; Wright, Cropanzano, & Bonnet, 2007). On the other hand, negative employment relations characterised by unfulfilled expectations and accompanied by negative feelings result in job dissatisfaction, disengagement, turnover intention and poor well-being (Armstrong, 2006). Therefore, managing the employee-employer relation effectively is highly relevant in the IT industry (Cappelli, 1999; Coyle-Shapiro & Kessler, 2000; Rousseau, 1995).

The psychological contract refers to an exchange agreement between employer and employee which sets out mutual obligations (Rousseau, 1989). Although the psychological contract is not the only contributor toward positive relations, it makes an important contribution to understanding the exchange relationship between employers and employees. A psychological contract provides a framework that can be used to understand how employees are affected by the employment relationship (Guest, 2004; Guest & Conway, 2002). Perceptions that promises have not been fulfilled might constitute psychological contract breach, which may result in reduced loyalty, lesser job satisfaction, diminished work engagement and reduced well-being (Bal, Chiaburu, & Jansen, 2010).

Flourishing of people (i.e. emotional, psychological and social well-being; Keyes, 2002) is affected by the type or quality of activities in which they engage. Therefore, a positive experience (such as psychological contract fulfilment) can affect flourishing levels and outcomes such as job satisfaction, work engagement and turnover intention (Armstrong, 2006). Research by Flood, Ramamoorthy, McDermott and Conway (2008) showed that perceived psychological contract breach and violation impact employees' attitudes, behaviours and motivation significantly and negatively.

Self-Determination Theory (SDT) (Deci & Ryan, 2000) presents a theoretical framework which can explain why psychological contract fulfilment and violation relate to outcomes such as job satisfaction, work engagement, turnover intention and flourishing. SDT postulates

that satisfaction of three basic psychological needs, i.e. autonomy, competence and relatedness is essential to ensure optimal functioning and well-being of individuals (Van den Broeck, Vansteenkiste, De Witte, & Lens, 2008). According to Deci and Ryan (2000), intrinsically motivated behaviours are facilitated by conditions that are conducive toward psychological need satisfaction; whereas more regulated or controlled need satisfaction will undermine intrinsic motivation. Satisfaction of the psychological needs for autonomy, competence and relatedness is expected to result in positive work-related outcomes, such as job satisfaction, work engagement, low turnover intention (Baard, Deci, & Ryan, 2004) and flourishing (Keyes, 2002).

Although there is literature available on the psychological contract, SDT and flourishing as unique concepts, there is a lack of literature linking the psychological contract, breach and violation thereof and the satisfaction of basic psychological needs such as autonomy, competence and relatedness (within SDT theory) to job satisfaction, work engagement, turnover intention and flourishing (Bakker, Demerouti, & Schaufeli, 2003; Deci & Ryan, 2000; Harter, Schmidt, & Hayes, 2002; Rousseau, 2000; Saks, 2006). No studies regarding the antecedents of flourishing in work and life contexts and specifically about the role of psychological need satisfaction in flourishing have been found.

The current study is built on the SDT and flourishing at work and in life literatures to hypothesize a model in which psychological need fulfilment partially mediates the relations between psychological contract fulfilment and violation on the one hand and job satisfaction, work engagement, turnover intention and flourishing on the other. It is proposed that fulfilment and non-violation of the psychological contract satisfy psychological needs which in turn relate to favourable employee outcomes. The current study will contribute to the literature by exploring the processes through which psychological contract fulfilment and non-violation influence job satisfaction, work engagement, turnover intention and flourishing of IT professionals. The study also contributes to the SDT literature by investigating the types of psychological contract fulfilment that contribute to psychological need satisfaction, by studying the relation between psychological contract violation and psychological need satisfaction and by investigating the relations between psychological need satisfaction and job satisfaction, work engagement, turnover intention and flourishing of IT professionals.

The aim of this study was to investigate the relationship between psychological contract fulfilment, breach and violation thereof, psychological need satisfaction, work engagement, job satisfaction, turnover intention and flourishing.

Psychological contract and breach and violation

Researchers have used the psychological contract as framework to understand the employment relationship (Coyle-Shapiro & Parzefall, 2008). Although the psychological contract is not regarded as an official, legal employment contract according to common law, it sets the dynamics for the employer-employee relationship (Shore & Barksdale, 1998). The psychological contract (PC) can be defined as an individual's belief regarding the terms and conditions of a mutual agreement of exchange between employer and employee which forms the core of the employment contract (Rousseau, 1989). Rousseau states that the PC is threefold, namely (1) when one party believes that a promise has been made of some future return (e.g., rewards for services rendered); (2) a contribution has been given (e.g., some form of exchange); and (3) the creation of an obligation towards future benefits. In empirical studies, two types of obligations were demonstrated (Rousseau, 1990): transactional obligations of high pay and career development in exchange for hard work; and relational obligations exchanging job security for loyalty and a minimum length of stay. Transactional and relational terms are essential components of most employment contracts and time frame and performance requirements form the essence of these contracts (Rousseau, 1995).

According to Rousseau (2001), PCs are mental models that govern the relationships between workers and their employers (Rousseau & Schalk, 2000) and can be typified as relational, transactional, transitional or balanced (Rousseau, 2000). A healthy PC can nurture and motivate a rewarding employment relationship, whereas breach or violation of the PC can result in the termination of such a relationship. The content of the PC is built upon the perceived relationship between employer and employee. In the absence of a specified contract, the employee would soon experience contract breach or violation which can be directly ascribed to the subjective nature of the PC, namely a discrepancy between what was promised and what was received (Rousseau, 1995). The PC should be acknowledged as an influential predictor of behaviour in organisations (Robbins, Judge, Odendaal, & Roodt, 2009). Table 1 provides a more detailed typology of the PC as distinguished by Rousseau (2000).

Table 1

Types of Psychological Contracts (Rousseau, 2000)

Contract type	Content	Employer obligation	Employee obligation
Relational	Long term, open-ended based upon mutual trust and loyalty. Rewards are subject to performance, membership of and participation in the organisation.		
	1) Stability	Offers stable wage and long-term employment contract	Remains with organisation and performs to retain job
	2) Loyalty	Supports well-being and interests of employee and family members	Supports organisation and shows loyalty, commitment and organisational citizenship
Balanced	Dynamic, open-ended agreements in the employment relationship, subject to the economic success of the organisation, as well as opportunities for the employees to develop their careers. The contributions of employer and employee are equally important to each other's learning and development.		
	1) External employability.	Committed to enhance employee's long-term employability within and outside organisation	Obligated to develop marketable skills
	2) Internal advancement	Provides opportunities for career development	Develops skills as required by employer
	3) Dynamic performance	Promotes continuous learning in order to meet performance standards	Successfully performs new and more demanding, changing goals
Transactional	Employment agreements are short-term and limited, with the major focus upon economic exchange; limited employee involvement in the organisation		
	1) Narrow	Committed to offer employee limited involvement, few developmental opportunities	Only does limited set of duties; only does what employee is paid for
	2) Short-term	Offers temporary employment, no future commitments	No obligation to remain with organisation
Transitional	Refers to the consequences of organisational change and transitions that are not in line with previous employment arrangements		
	1) Mistrust	Has withheld important information from employees, mistrusts them	Mistrusts organisation, believes organisation is not consistently credible
	2) Uncertainty	Employer measure assesses extent of employee's uncertainty towards employer's future commitments	Uncertain of own future obligations towards organisation
	3) Erosion	Institutes negative, downward changes to employee benefits and wages	Anticipates continuing declines in organisation's future contributions

The PC is grounded in the social exchange theory (Blau, 1964) which suggests that employees do not have only financial, but also social expectations from their employers (Shore, Coyle-Shapiro, Chen, & Tetrick, 2009). Social exchange encompasses socio-emotional resources with trust as an investment between the exchange partners (Shore, Bommer, Rao, & Seo, 2009). Whereas Blau (1964) emphasises the importance of trust between the donor and the recipient in the social exchange relationship, Gouldner (1960) emphasises the principle of reciprocity stating that over the course of time social exchange develops when both parties reciprocate the receipt of valued resources. Greater social exchange generates stronger employee contributions through higher job satisfaction, greater engagement and lower turnover intention (Shore et al., 2009).

A balanced PC combines elements of both relational and transactional contract types, namely the employer providing opportunities for further career development and employees contributing economically to the benefit of both parties. The emphasis in this contract is equally on long-term employer and employee involvement and contributions – an exchange balance (De Cuyper, Rigotti, De Witte, & Mohr, 2008; Rousseau, 1995, 2000). A relational contract is built on trust and loyalty toward the organisation (Rousseau, 1995) and is a more favoured contract compared to a transactional contract based on economic exchange and limited worker involvement (Rousseau, 2004). Its scope is broader, it relates to the emotional and social exchange between the employment parties and it contains a spillover effect between an individual's work and personal life (Coyle-Shapiro & Parzefall, 2008). Monetary rewards, although present, are not paramount and employees tend to be more willing to work overtime even if there is no payment involved. The transactional PC contains highly tangible economic agreements – the terms and conditions are static for the duration of the relationship. This type of contract is characteristic of workers who contribute less to the organisation's competitive advantage, whereas both parties in the employment relationship would not hesitate to sever a transactional agreement that fails to meet expectations (Rousseau, 2004).

Perceived psychological contract breach is indicative of an imbalance in the social exchange process where an obligation towards the employee has not been fulfilled (Raja, Johns, & Ntalianis, 2004). Therefore, PC breach represents a cognitive evaluation of the extent of contract fulfilment. PC violation refers to a more affective perception of contract fulfilment, blaming the organisation for an unbroken promise (Raja et al., 2004). Psychological contract violation refers to emotional distress and feelings of anger and betrayal which arise when an

employee realises that the employer has not fulfilled salient promises (Rousseau, 1989). Cognitions of PC breach intensify feelings of violation in social exchange relationships (Dulac, Coyle-Shapiro, Henderson, & Wayne, 2008).

Motivation is an important function of the PC as it equips employees with the feeling that they are able to direct their fate in the organisation since they are actively involved in the contract, having agreed to its terms and having the choice as to whether or not they would fulfil their obligations (McFarlane Shore & Tetrick, 1994). Employees' cognitions that their organisations had failed to keep their promises result in negative outcomes. This is because failure to keep promises undermines the trust and support in relationships between employer and employee, resulting in reduced subjective well-being (Dulac et al., 2008).

Psychological contract fulfilment, violation and well-being

Subjective well-being refers to the appraisals individuals make regarding the quality of their lives (Keyes & Annas, 2009). According to Keyes, Shmotkin, and Ryff (2002), subjective well-being includes feelings towards life (emotional well-being) and functioning in life (psychological and social well-being). However, flourishing can also occur at work (Rothmann, in press) and can be studied in terms of an emotional dimension (e.g., job satisfaction) and a psychological dimension (e.g., work engagement).

Job satisfaction measures the "feeling well" dimension at work and refers to employees' positive and favourable attitudes and feelings toward their work (Armstrong, 2006). According to the affective events theory, affective states may emerge from discrete events which eventually generate attitudes and behaviours (Weiss & Cropanzano, 1996). The work environment determines the occurrence of positive or negative "affective events". Affective events generate affective states which progressively generate attitudes characterising the overall employment relationship, such as job satisfaction (Guerrero & Herrbach, 2008). These authors argue that psychological contract fulfilment and workplace affect should be related as an employee's job characteristics and perceived work experiences contribute towards perceived organisational support by means of a positive employment relationship. Thus, PC fulfilment generates positive affect (as obligations were honoured), whereas PC violation generates negative affect which is linked to experiencing negative events on the job, such as job dissatisfaction (Guerrero & Herrbach, 2008).

Schalk, De Bot, and Freese (1995) found that poor PC fulfilment relates to lower job satisfaction; whereas Robinson and Rousseau (1994) state that the relational PC based on trust may elicit strong emotional reactions and lower trust when breached, resulting in job dissatisfaction. Thus, irrespective of the type of contract, studies consistently indicate negative correlations between perceived psychological contract breach and job satisfaction (Guest & Conway, 1998; Tekleab, Takeuchi, & Taylor, 2005).

The breach of all psychological contract types may negatively impact job satisfaction. However, the relational PC which involves obligations towards loyalty, trust and support is directly related to the extrinsic job satisfaction of employees as reflected in the hygiene factors of pay, organisational support and general working conditions (Nelson, Tonks, & Weymouth, 2006). Breach and violation of relational obligations may change the nature of the social relationship in which these obligations are embedded, minimising their value (Robinson, Kraatz, & Rousseau, 1994). Breach of the balanced PC might influence the intrinsic component of job satisfaction negatively. An employee who perceives a violation of the PC may no longer desire a long-term commitment with the current employer and may exhibit less loyalty due to the employer not having honoured the relational dimensions (e.g., providing job security or personal support) or balanced dimensions of the contract (Robinson et al., 1994). On the basis of this literature support, the following hypotheses are proposed:

Hypothesis 1a: PC fulfilment positively relates to job satisfaction.

Hypothesis 1b: Perceived PC violation negatively relates to job satisfaction.

PC fulfilment and non-violation are expected to relate to work engagement. According to Kahn (1990, p. 694), engagement is defined as “the harnessing of organizational members’ selves to their work role by which they employ and express themselves physically, cognitively and emotionally during role performance”. Engaged employees are physically involved in their work, are alert, absorbed and show dedication and commitment. Work engagement is one indicator of the extent to which employees function well at work (Rothmann, in press). Kahn’s (1990) research on engagement and social exchange theory suggests that reciprocity in the employment relationship supplies a solid foundation for employee engagement. According to Shore and Barksdale (1998), the basis of a balanced PC is mutually high obligations. Therefore, when an exchange balance is achieved (as in the balanced PC), employees become more cognitively, physically and emotionally engaged

(Kahn, 1990); whereas breach and violation of this exchange balance will result in employees disengaging themselves from their jobs.

In line with two major approaches, namely engagement as an extension of the self (Kahn, 1990) and work activities as reference for engagement (Bakker, Schaufeli, Leiter, & Taris, 2008), studies showed that the availability of job resources (e.g., social support from supervisors and colleagues, the intrinsic nature of the job and organisational support) in dealing with job demands, promotes work engagement. Therefore, fulfilment of the balanced PC (i.e. support in meeting higher goals, assistance to progress in the organisation, allowing advancement within the firm, providing development opportunities in the organisation, support to perform better, help to develop marketable skills and help to achieve better quality levels at work) is expected to promote work engagement. On the basis of this literature support, the following hypotheses are proposed.

Hypothesis 2a: PC fulfilment positively relates to work engagement.

Hypothesis 2b: Perceived PC violation negatively relates to work engagement.

Breach and violation of the balanced, relational and transactional PCs would result in turnover intention. Violations to transactional obligations, drawn from principles of equity theory (Lambert, 2011), create inequity in the economic exchange (i.e. an imbalance between inducements and contributions), leaving employees with feelings of injustice and betrayal (Rousseau, 1989). Rousseau (1995) refers to the transactional PC as an easy-to-exit agreement with relatively high turnover intent. In their longitudinal study, Robinson et al. (1994) found that the relationship between PC breach and turnover intent is high and that even less severe breach also leads to turnover intent (Guzzo, Noonan, & Elron, 1994; Schalk et al., 1995). Despite the strong emphasis on economic fulfilment in the transactional PC, Rousseau (1995) states that the longer a relationship continues between the employment parties, the greater the chances are of developing feelings of mutual trust, loyalty and support; something which is not really possible with the short-term commitment of the transactional PC. On the basis of this literature support, the following hypotheses are proposed.

Hypothesis 3a: PC breach positively relates to turnover intention.

Hypothesis 3b: Perceived PC violation positively relates to turnover intention.

Keyes (2002, 2007) who coined the concepts of flourishing and languishing, postulates that subjective well-being comprises three dimensions of feeling and functioning well, namely emotional well-being (positive affect and being satisfied with life overall), psychological well-being (self-acceptance, personal growth, purpose in life, environmental mastery, autonomy and positive relations with others) and social well-being (social acceptance, social actualisation, social contribution, social coherence and social integration). Flourishing can thus be defined as the presence of mental health; whilst languishing refers to the absence of mental health and subsequent lack of well-being (Keyes, 2007).

Experiences at work affect the emotional, psychological and social well-being of employees (Lyubomirsky, King, & Diener, 2005). PC fulfilment, which is a positive experience, will strongly affect flourishing levels of employees; whereas perceived PC violation will have a negative impact on flourishing (Flood et al., 2008).

On the basis of this literature support, the following hypotheses are proposed.

Hypothesis 4a: PC fulfilment positively relates to flourishing.

Hypothesis 4b: Perceived PC violation negatively relates to flourishing.

Self-determination theory: The role of psychological need satisfaction

Deci and Ryan's self-determination theory (SDT) (1980, 1985, 1991) is a general personality and motivation theory which propagates that human behaviour is motivated by the following three innate, essential and universal needs, namely autonomy, competence and relatedness (Deci & Ryan, 2000). Deci and Ryan (2000, 2011) regard psychological need fulfilment as paramount for reaching individuals' full potential and subjective well-being. Autonomy relates to people feeling that they direct and determine their own behaviour. Competence refers to controlling the outcomes and feeling efficient. Relatedness means standing in relation to others, showing concern for others, experiencing acceptance by others and being satisfied with the social world. In order to develop and function optimally, each of the psychological needs has to be satisfied (Deci & Ryan, 2011).

Within the SDT framework, it is the satisfaction of the three needs rather than the strength of the desire that is important in predicting outcomes (Deci & Ryan, 2000). Satisfying the three

psychological needs always leads to favourable outcomes (including intrinsic motivation and well-being), because it is not logical for the satisfaction of a need (which is essential) to lead to unfavourable outcomes. Although the needs for autonomy, competence and relatedness are universal, individuals differ in terms of the degree to which they are able to satisfy the needs (Deci & Ryan, 2000). Therefore, variance exists in psychological need satisfaction that predicts individual outcomes (e.g., job satisfaction, work engagement, turnover intention and flourishing). Fulfilment of expectations promotes or inhibits employees' ability to satisfy needs (Lambert, 2011).

SDT differentiates motivation into autonomous and controlled motivation. Autonomous motivation predicts perseverance and adherence (Deci & Ryan, 2008) and relates to psychological well-being. The psychological needs for autonomy, competence and relatedness complement autonomous motivation. Autonomous motivation elicits behaviour by choice and volition; whereas controlled motivation acts to forces external to the self, under pressure and demand. Deci and Ryan (2011) point out that if psychological needs are continuously satisfied, individuals are more likely to develop and function effectively and experience well-being; whereas individuals with more extrinsic aspirations, such as accumulating riches and becoming famous are more likely to exhibit ill-being and non-optimal functioning (Deci & Ryan, 2000; 2011; Ryan & Deci, 2000). Intrinsic motivation moves people to act because of the positive feelings they derive from the activities they engage in; whereas extrinsic motivation drives people to act because of the tangible rewards they might receive or to avoid punishment. Choice, however, tends to increase intrinsic motivation as it satisfies the need for autonomy, whereas punishment, threats, surveillance and rewards diminish satisfaction of the autonomy need.

The extent to which the psychological contract meets employees' needs plays an important role in individuals' flourishing at work and in life. PC fulfilment and violation of the psychological contract relate to the need satisfaction of individuals. Fulfilment of expectations according to the balanced contract (which entails that an employer provides opportunities for career development and promotes continuous learning in order to meet performance standards) contributes to satisfying the psychological needs for autonomy and competence. The relational PC offers employees membership of and participation in the organisation (Rousseau, 2000), thus addressing the relatedness need of the SDT. The transactional PC hinders self-regulation and autonomy, offering the employee pre-conditional

acceptance only. The PC gives employees autonomy by directing employee behaviour without deeming it necessary for management to constantly observe them. Having an understood agreement with the employer, employees monitor their own behaviour based on the belief that they will reap the rewards in the short-term or distant future (McFarlane Shore & Tetrick, 1994).

Both PC breach and violation are mechanisms in social exchange relationships that affect employee motivation and well-being and result in negative outcomes e.g., lower job satisfaction and work engagement and higher turnover intent (Conway & Briner, 2005; Guest, Conway, Briner, & Dickman, 1996; Robinson & Rousseau, 1994; Tekleab et al., 2005; Turnley & Feldham, 2000). When reciprocal needs are not met in the employer-employee relationship, employees might be branded as having negative attitudes, will become demotivated and even try to leave the organisation. According to Dulac et al. (2008), perceptions of PC breach tend to result in unfavourable employee reactions that influence outcomes (e.g., job satisfaction and work engagement). Accounting for cognitions of PC breach is helpful in explaining outcomes, but cognitions which are not associated with emotions will not trigger instrumental processes (Zajonc, 1998). Violation of the PC (which represents the emotions which follow cognitions of PC breach) is expected to mediate the relation between PC breach and outcomes such as job satisfaction, work engagement, flourishing and turnover intention. This is in line with the cognitive-motivational-relational theory of emotion (Lazarus, 1991), which suggests that emotional response follows cognitive appraisal (interpretation of PC fulfilment). Given the cognitive appraisal (of PC breach) and the negative emotional response (to PC violation), psychological need satisfaction will be frustrated.

Keyes (2007) states that in terms of psychosocial functioning, completely mentally healthy individuals – referred to as flourishing individuals – reported the lowest level of dependence (in other words, they feel competent), the highest level of directed goals (autonomy), the highest level of resilience (e.g., learning from setbacks) and the highest level of intimacy (relatedness). Results of various studies have shown a positive relation between autonomy (Cohrs, Abele, & Dette, 2006); competence (McMurtrey, Grover, Teng, & Lightner, 2002); and relatedness (Barak & Levin, 2002) with job satisfaction in the IT industry. Psychological contract breach relates to turnover intention of IT professionals (Kamalanabhan, Sai, & Mayuri, 2009). A flourishing workforce, characterised by self-regulation, should result in

happier and more productive workers (Harter, Schmidt, & Keyes, 2002); whereas dissatisfaction with work or the organisation as a result of psychological contract violation can lead to low job satisfaction, low work engagement and unwanted employee turnover (Torrington, Hall, & Taylor, 2008).

According to Deci and Ryan (2000), psychological need fulfilment contributes to feeling well (i.e. emotional well-being) as well as functioning well (i.e. psychological well-being). In order for individuals to function optimally, a work ambience conducive to satisfying the basic psychological needs for autonomy, relatedness and competence should be created (Deci & Ryan, 2008). Rewards linked to performance and positive performance feedback will satisfy the competence need without being experienced as controlling. Supportive and informational social climates enhance intrinsic motivation; whereas pressuring and controlling social climates are not beneficial to intrinsic motivation. Therefore, the following hypotheses are proposed.

Hypothesis 5: PC violation mediates the relation between PC breach and the satisfaction of autonomy, competence and relatedness needs.

Hypothesis 6a: Satisfaction of autonomy, competence and relatedness needs mediates the relation between PC breach and violation and job satisfaction.

Hypothesis 6b: Satisfaction of autonomy, competence and relatedness needs mediates the relation between PC breach and violation and work engagement.

Hypothesis 6c: Satisfaction of autonomy, competence and relatedness needs mediates the relation between PC breach and violation and turnover intention.

Hypothesis 6d: Satisfaction of autonomy, competence and relatedness needs mediates the relation between PC fulfilment and violation and flourishing.

METHOD

Research design

This study followed a descriptive, cross-sectional and quantitative approach and a non-random field survey design utilising questionnaires was used to gather data (Field, 2009).

Participants

The sample includes 205 individuals working as information technology professionals in organisations providing specialised software services. The characteristics of the participants are reported in Table 2.

Table 2

Characteristics of the Participants (N=205)

Item	Category	Frequency	Percentage
Gender	Male	142	69.3
	Female	63	30.7
Race	White	174	84.9
	African	23	11.2
	Coloured	3	1.5
	Indian	4	2.0
	Other	1	.5
	Age	18 – 25 years	55
	26 – 35 years	74	36.1
	36 – 45 years	53	25.9
	46 – 55 years	21	10.2
	56 – 65 years	2	1.0
Tenure	1 year	48	23.4
	2 years	25	12.2
	3 years	27	13.2
	4 years	23	11.2
	5–9 years	25	12.2
	10+ years	57	27.8
Salary per month	Less than R10 000	17	8.3
	R10 000 – R20 000	48	23.4
	R20 000 – R40 000	73	35.6
	R40 000 – R60 000	33	16.1
	R60 000 – R80 000	18	8.8
	R80 000 – R100 000	9	4.4
	R100 000+	7	3.4

Table 2 shows that 69.3% of the sample consisted of males, while 30.7% were females. The ages of the participants varied from 25 years to 65 years. Participants with tenure less than two years constituted 23.4%; whereas the longest tenure (27.8%) with the present organisation was 10 or more years. Remuneration wise the largest percentage of the sample falls into the category R20 000 to R40 000 per month, namely 35.6%; whereas the top remuneration brackets (R60 000 - R100 000+ per month) comprise 16.6% in total of the sample.

Measuring instruments

In this study, the following measuring instruments were used: the Psychological Contract Inventory, the Violations of Psychological Contract Questionnaire, the Work-related Basic Need Satisfaction Scale, Work Engagement Scale, Job Satisfaction Scale, Turnover Intention Scale and Mental Health Continuum Short Form.

The *Psychological Contract Inventory* (PCI; Rousseau, 2000) was used to measure the content and fulfilment of the PC. Although the PCI consists of 32 items, a principal factor analysis which was conducted in this study showed that 29 items could be used to measure four factors. The four factors were labelled as Balanced PC (10 items; e.g., “Support me in meeting higher goals”), Relational PC (12 items; e.g., “Making an effort for me to remain in the company”), PC Employability (4 items; e.g., “Seek out assignments that enhance my employability”) and Transactional PC (3 items; e.g., “Ask me to perform only the required tasks”). It assesses a variety of specific terms that can arise in employment and the extent to which the respondent believes that the employer has fulfilled its commitments to the employee. Respondents evaluated their psychological contracts by assessing the extent to which the manager had made such commitments or obligations to them. All items were measured on a 5-point Likert-type scale ranging from 1 (*not at all*) to 5 (*to a great extent*). Rousseau (2000) reported acceptable reliabilities and validity of the PCI scales.

The *Violations of Psychological Contract Questionnaire* (VPCQ; Isaksson et al., 2003) was used to measure emotional reactions towards the psychological contract. The questionnaire consists of 6 items which are rated on a 5-point scale, ranging from 1 (*strongly agree*) to 5 (*strongly disagree*). The questions focus on six feelings, concerning the perception of the psychological contract (happy, angry, pleased, violated, disappointed and grateful). Isaksson et al. (2003) reported an acceptable alpha coefficient for the questionnaire. Scores on the instrument were reversed so that the scale indicates violation of the psychological contract.

The *Work-related Basic Need Satisfaction Scale* (WBNSS; Van den Broeck, Vansteenkiste, De Witte, Soenens, & Lens, 2010) was used to measure psychological need satisfaction. The WBNSS measures the satisfaction of three psychological needs, namely autonomy (5 items; e.g., “I feel like I can pretty much be myself at work”), competence (5 items; e.g., “I feel competent at work”) and relatedness (5 items, e.g., “People at work care about me”). The

items were evaluated on a 5-point scale varying from 1 (*totally disagree*) to 5 (*totally agree*). Cronbach's alpha coefficients of 0.86, 0.88 and 0.86 confirm the reliability for autonomy, competence and relatedness satisfaction, respectively.

The *Job Satisfaction Scale* (JSS; Rothmann, 2010) was used to measure job satisfaction. Three items measured how satisfied individuals felt with their jobs (e.g., "I feel fairly satisfied with my present job"; and "I find real enjoyment in my work"). Response options ranged from 1 (*totally disagree*) to 5 (*totally agree*). The Cronbach alpha coefficient for the JSS was 0.84.

The *Work Engagement Scale* (WES; Rothmann, 2010) was used to measure work engagement. The WES consists of three scales which are summed to assess work engagement, namely cognitive engagement (3 items; e.g., "I get so into my job that I lose track of time"), emotional engagement (3 items; e.g., "I am passionate about my job") and physical engagement (3 items; e.g., "I feel a lot of energy when I am performing my job"). A 7-point frequency scale varying from 1 (*almost never or never*) to 7 (*always or almost always*) was used for all items. Evidence for the construct validity of the WES was reported by Rothmann (2010) and the following alpha coefficients for the three scales of the WES were found: physical engagement = 0.80; emotional engagement = 0.82; and cognitive engagement = 0.78.

The *Turnover Intention Scale* (TIS; Sjöberg & Sverke, 2000) was used to measure intention to leave. The TIS consists of three items (e.g., "If I was completely free to choose, I would leave this job"). Response options ranged from 1 (*strongly disagree*) to 5 (*strongly agree*). The TIS reported a Cronbach alpha coefficient of 0.83.

The *Mental Health Continuum Short Form* (MHC-SF; Keyes, 2009) was used to measure flourishing. The MHC-SF consists of 14 items measuring three dimensions, namely emotional well-being (three items, e.g., "During the past month, how often did you feel happy?"), social well-being (five items, e.g., "During the past month, how often did you feel that you had something important to contribute to society?") and psychological well-being (six items, e.g., "During the past month, how often did you feel that you liked most parts of your personality?"). Response options ranged from 1 (*never*) to 6 (*every day*). Studies by Keyes (2009) and Keyes et al. (2008) confirmed the three factor structure of the short form of

the MHC – in the USA and South Africa. The alpha coefficients of the three scales were higher than 0.80.

Research procedure

The survey was administered electronically. Ethical clearance for the research project was obtained through the Ethics Committee of the North-West University. The questionnaire was accompanied by a cover letter explaining the purpose and emphasising the confidentiality of the research project. Managers from various information technology organisations were contacted to introduce the research topic and to obtain permission from them to involve their employees in the project. Respondents were assured that their participation was anonymous and voluntary and that they could withdraw at any stage. From May 2011 until July 2011 questionnaires were made available online. The raw data was captured and converted to an SPSS dataset.

Statistical analysis

The analyses were carried out with the SPSS19 program (SPSS, 2011). The data was explored by using descriptive statistics. Cronbach alpha coefficients assessed the internal consistencies of the measuring instruments. The relationships between the variables were specified by Pearson correlation coefficients. The level of statistical significance was set at $p \leq 0.05$. Effect sizes (Steyn, 1999) were used to decide on the practical significance of the findings. Hierarchical multiple regression analyses were conducted to determine the amount of variance in the dependent variable, predicted by the independent variables (Tabachnick & Fidell, 2001).

Mediation analyses were conducted to assess the mediating effects of PC violation on the relation between PC fulfilment and psychological need satisfaction. Furthermore, mediation analyses were carried out using multiple mediators to simultaneously assess the mediating effects of multiple aspects of psychological need satisfaction on the relations between PC fulfilment and violation and job satisfaction, work engagement, turnover intention and flourishing. Contrary to earlier approaches (e.g., Baron & Kenny, 1986), mediation is not determined by the significance of direct and total effects, but is determined entirely by the

size of indirect effect (Preacher & Hayes, 2009). The MEDIATE procedure developed by Hayes and Preacher (in press) was used to estimate the indirect effects of independent variables on outcome variables through proposed mediator variables. The procedure provides an omnibus test for indirect effects for a set of independent variables. Bootstrap procedures suggested by Preacher and Hayes (2009) were used to make inferences for indirect effects. Bootstrap percentile confidence intervals (5000 trials) which were used to assess whether indirect effects were different from zero, were set at 0.95. Such procedures, suited for mediation analyses with small samples, are regarded as best practice when assessing indirect effects (Preacher & Hayes, 2009).

RESULTS

Descriptive statistics, alpha coefficients and correlations

The descriptive statistics, alpha coefficients and correlations of PC fulfilment, PC violation, psychological need satisfaction, job satisfaction, work engagement, turnover intention and flourishing are reported in Table 3. Table 3 shows that the alpha coefficients of all the scales were higher than 0.70, which indicate acceptable internal consistency (Nunnally & Bernstein, 1994).

Table 3 shows that balanced PC fulfilment is practically significantly and positively related to job satisfaction (large effect), work engagement (medium effect) and flourishing (medium effect). Balanced PC fulfilment is also practically significantly and negatively related to turnover intention (medium effect) and PC violation (large effect). Balanced PC fulfilment is practically significantly related to satisfaction of the psychological needs for autonomy (large effect) and relatedness (medium effect). Relational PC fulfilment is practically significantly and positively related to job satisfaction, work engagement and flourishing (all medium effects). Relational PC fulfilment is also practically significantly and negatively related to turnover intention (medium effect) and PC violation (large effect). Relational PC fulfilment is practically significantly related to satisfaction of the psychological needs for autonomy and relatedness (both medium effects).

Table 3

Descriptive Statistics, Alpha Coefficients and Pearson Correlations of the Scales (N=205)

Variable	Mean	SD	α	1	2	3	4	5	6	7	8	9	10	11
1. PC: Balanced	2.52	1.01	0.95	-	-	-	-	-	-	-	-	-	-	-
2. PC: Relational	2.78	0.87	0.93	0.67 ^{**++}	-	-	-	-	-	-	-	-	-	-
3. PC: Employability	2.03	1.20	0.88	0.67 ^{**++}	0.51 ^{**++}	-	-	-	-	-	-	-	-	-
4. PC: Transactional	2.48	0.96	0.70	0.46 ^{**+}	0.58 ^{**++}	0.28 ^{**}	-	-	-	-	-	-	-	-
5. PC: Violation	3.96	1.32	0.90	0.61 ^{**++}	-0.63 ^{**++}	-0.40 ^{**+}	-0.43 ^{**+}	-	-	-	-	-	-	-
6. Autonomy	3.49	0.66	0.79	0.52 ^{**++}	0.42 ^{**+}	0.37 ^{**+}	0.21 ^{**}	-0.60 ^{**++}	-	-	-	-	-	-
7. Competence	3.98	0.54	0.79	0.20 ^{**}	0.11	0.15 [*]	-0.01	-0.26 ^{**}	0.43 ^{**+}	-	-	-	-	-
8. Relatedness	3.60	0.69	0.81	0.39 ^{**+}	0.38 ^{**+}	0.31 ^{**+}	0.21 ^{**}	-0.46 ^{**+}	0.67 ^{**++}	0.27 ^{**}	-	-	-	-
9. Job Satisfaction	3.64	0.76	0.84	0.52 ^{**++}	0.47 ^{**+}	0.36 ^{**+}	0.26 ^{**}	-0.62 ^{**++}	0.70 ^{**++}	0.38 ^{**+}	0.49 ^{**+}	-	-	-
10. Work Engagement	5.06	1.01	0.92	0.36 ^{**+}	0.24 ^{**}	0.30 ^{**}	0.13	-0.36 ^{**+}	0.54 ^{**++}	0.36 ^{**+}	0.39 ^{**+}	0.60 ^{**++}	-	-
11. Turnover Intention	2.35	0.88	0.79	-0.44 ^{**+}	-0.44 ^{**+}	-0.29 ^{**}	-0.37 ^{**+}	0.58 ^{**++}	-0.49 ^{**+}	-0.13 ^{**}	-0.36 ^{**+}	-0.36 ^{**+}	-0.66 ^{**++}	-
12. Flourishing	3.11	0.85	0.91	0.39 ^{**+}	0.29 ^{**}	0.29 ^{**}	0.13	-0.49 ^{**+}	0.30 ^{**}	0.57 ^{**++}	0.36 ^{**+}	0.36 ^{**+}	0.62 ^{**++}	0.42 ^{**+}

* Correlation is significant at the 0.05 level (2-tailed)

** Correlation is significant at the 0.01 level (2-tailed)

+ Practically significant, medium effect ($r > 0.30$)

++ Practically significant, large effect ($r > 0.50$)

Table 3 shows that PC fulfilment of external employability is practically significantly and positively related to job satisfaction, work engagement and flourishing (all medium effects). Fulfilment of the employability PC is also practically significantly and negatively related to PC violation (medium effect) and positively related to satisfaction of the psychological needs for autonomy and relatedness (both medium effects). Transactional PC fulfilment is practically significantly and negatively related to PC violation (medium effect). Table 3 also shows that transactional PC fulfilment is practically significantly and negatively related to turnover intention (medium effect).

Table 3 shows that PC violation is practically significantly and negatively related to satisfaction of psychological needs for relatedness (medium effect), competence and autonomy (large effect), work engagement (medium effect), job satisfaction (large effect), flourishing (medium effect) and positively related to turnover intention (large effect). Job satisfaction and work engagement are practically significantly and positively related to satisfaction of psychological needs for autonomy (large effect) and competence and relatedness (both medium effects). Flourishing is practically significantly and positively related to satisfaction of psychological needs for competence (large effect) and autonomy and relatedness (both medium effects). Satisfaction of psychological needs for autonomy and relatedness are also practically significantly and negatively related to turnover intention (both medium effects).

Work engagement is practically significantly and positively related to job satisfaction and flourishing (large effect) and practically significantly and negatively related to turnover intention (medium effect). Job satisfaction is practically significantly and positively related to flourishing (large effect) and practically significantly and negatively related to turnover intention (large effect). Turnover intention is practically significantly and negatively related to flourishing (medium effect).

Hierarchical regression analyses

Hierarchical multiple regression analyses were performed. In step 1, the contribution of the different types of PC fulfilment to work engagement, job satisfaction, turnover intention and flourishing was assessed. In step 2, the contributions of PC fulfilment and violation thereof (indicated by a low score) to work engagement, job satisfaction, turnover intention and

flourishing were assessed. In step 3, the contributions of PC fulfilment, violation thereof and satisfaction of the psychological needs (autonomy, competence and relatedness), to work engagement, job satisfaction, turnover intention and flourishing were assessed (see Table 4).

Table 4 shows that PC fulfilment predicted 30% of the variance in the job satisfaction ($F = 21.76, p < 0.01$). The regression coefficients of the balanced PC ($\beta = 0.40, p < 0.01$) and relational PC ($\beta = 0.25, p < 0.01$) were statistically significant. Entering PC violation as independent variable in step 2, resulted in a statistically significant improvement in R^2 ($\Delta F = 41.27, p < 0.01, \Delta R^2 = 0.12$). The regression coefficients of two variables, namely the balanced PC ($\beta = 0.23, p < 0.01$) and PC violation ($\beta = -0.47, p < 0.01$) were statistically significant. Entering psychological needs in step 3 resulted in a statistically significant increase in the prediction of the variance in job satisfaction ($\Delta F = 21.07, p < 0.01, \Delta R^2 = 0.14$). The regression coefficients of three variables were statistically significant, namely PC violation ($\beta = -0.23, p < 0.01$), competence ($\beta = 0.10, p < 0.01$) and autonomy ($\beta = 0.44, p < 0.01$).

PC fulfilment predicted 14% of the variance in the work engagement of IT professionals ($F = 7.81, p < 0.01$). The regression coefficient of the balanced PC was statistically significant ($\beta = 0.31, p < 0.01$). When PC violation was entered as independent variable in step 2, it resulted in a statistically significant increase in the prediction of the variance in work engagement ($\Delta F = 9.57, p < 0.01, \Delta R^2 = 0.04$). The regression coefficients of the balanced PC ($\beta = 0.21, p < 0.01$) and PC violation ($\beta = -0.27, p < 0.01$) were statistically significant. Adding psychological need satisfaction in step 3 resulted in an additional 15% of the variance in work engagement explained ($\Delta F = 14.98, p < 0.01, \Delta R^2 = 0.15$). The regression coefficients of competence ($\beta = 0.16, p < 0.01$) and autonomy ($\beta = 0.38, p < 0.01$) were statistically significant.

Table 4

Hierarchical Multiple Regression Analyses of PC Fulfilment and Violation, Psychological Needs and Well-being

Variable	Job Satisfaction (β)			Work Engagement (β)			Turnover Intention (β)			Flourishing (β)		
	1	2	3	1	2	3	1	2	3	1	2	3
PC Balanced	0.40*	0.23*	0.10	0.31*	0.21*	0.08	-0.26*	-0.09	-0.03	0.36*	0.23*	0.13
PC Relational	0.25*	0.07	0.09	0.01	-0.09	-0.08	-0.20*	0.02	0.01	0.09	-0.04	-0.05
PC Employability	-0.02	0.00	-0.02	0.10	0.11	0.09	0.03	0.00	0.01	0.03	0.05	0.02
PC Transactional	-0.06	-0.09	-0.02	-0.05	-0.07	0.01	-0.15*	-0.12	-0.14	-0.10	-0.12	-0.05
PC Violation	-	-0.47*	-0.23*	-	-0.27*	-0.02	-	0.47*	0.37*	-	-0.34*	-0.11
SDT Autonomy	-	-	0.44*	-	-	0.38*	-	-	-0.26*	-	-	0.26*
SDT Competence	-	-	0.10*	-	-	0.16*	-	-	0.08	-	-	0.14*
SDT Relatedness	-	-	-0.00	-	-	0.05	-	-	0.02	-	-	0.20*
R^2	0.30	0.41	0.56	0.14	0.18	0.33	0.25	0.37	0.40	0.16	0.23	0.38
F	21.76*	29.17*	31.65*	7.81*	8.43*	11.99*	16.53*	22.93*	16.27*	9.67*	11.61*	14.96*
ΔR^2	0.30*	0.12*	0.14*	0.14*	0.04*	0.15*	0.25*	0.12*	0.03*	0.16*	0.06*	0.15*
ΔF	21.76*	41.27*	21.07*	7.81*	9.57*	14.98*	16.53*	36.71*	3.65*	9.67*	16.38*	16.14*

* $p < 0.01$

PC fulfilment predicted 25% of the variance in turnover intention ($F = 16.53, p < 0.01$). The regression coefficients of the balanced PC ($\beta = -0.26, p < 0.01$), relational PC ($\beta = -0.20, p < 0.01$), as well as transactional PC ($\beta = -0.15, p < 0.01$) were statistically significant. In step 2, PC violation was entered as independent variable resulting in an additional 12% of the variance in turnover intention explained ($\Delta F = 36.71, p < 0.01, \Delta R^2 = 0.37$). The regression coefficient of PC violation ($\beta = 0.47, p < 0.01$) was statistically significant. Adding psychological need satisfaction to the regression equation (in step 3) resulted in a statistically significant improvement in the model ($\Delta F = 3.65, p < 0.01, \Delta R^2 = 0.03$). The regression coefficients of PC violation ($\beta = 0.37, p < 0.01$) and autonomy ($\beta = -0.26, p < 0.01$) were statistically significant.

PC fulfilment predicted 16% of the variance in the flourishing of IT professionals ($F = 9.67, p < 0.01$). The regression coefficient of the balanced PC was statistically significant ($\beta = 0.36, p < 0.01$). When PC violation was entered as independent variable in step 2, a statistically significant increase in R^2 resulted ($\Delta F = 16.38, p < 0.01, \Delta R^2 = 0.06$). The regression coefficients of the balanced PC ($\beta = 0.23, p < 0.01$) and PC violation ($\beta = -0.34, p < 0.01$) were statistically significant. Adding psychological need satisfaction to the regression equation of flourishing (in step 3) resulted in a statistically significant improvement in the model ($\Delta F = 16.14, p < 0.01, \Delta R^2 = 0.15$). The regression coefficients of autonomy ($\beta = 0.26, p < 0.01$), competence ($\beta = 0.14, p < 0.01$) and relatedness ($\beta = 0.20, p < 0.01$) were statistically significant.

Hierarchical multiple regression analyses were also performed with psychological need satisfaction as dependent variables. In step 1, the contributions of the different types of PC fulfilment to autonomy, competence and relatedness were assessed. In step 2, the contributions of PC fulfilment and violation thereof to autonomy, competence and relatedness were assessed.

PC fulfilment predicted 29% of the variance in autonomy satisfaction ($F = 20.45, p < 0.01$). The regression coefficients of the balanced PC ($\beta = 0.45, p < 0.01$) and relational PC ($\beta = 0.18, p < 0.05$) were statistically significant. When PC violation was entered as independent variable in step 2, a statistically significant increase in R^2 resulted ($\Delta F = 43.92, p < 0.01, \Delta R^2 = 0.13$). The regression coefficients of the balanced PC ($\beta = 0.27, p < 0.01$) and PC violation ($\beta = -0.49, p < 0.01$) were statistically significant. PC fulfilment predicted 5% of the variance

in the competence satisfaction ($F = 2.82, p < 0.05$). The regression coefficient of the balanced PC ($\beta = 0.24, p < 0.05$) was statistically significant. When PC violation was entered as independent variable in step 2, a statistically significant increase in R^2 resulted ($\Delta F = 10.58, p < 0.01, \Delta R^2 = 0.05$). The regression coefficient of PC violation ($\beta = -0.30, p < 0.01$) was statistically significant. Finally, PC fulfilment predicted 18% of the variance in the relatedness satisfaction ($F = 10.99, p < 0.01$). The regression coefficients of the balanced PC ($\beta = 0.21, p < 0.05$) and relational PC ($\beta = 0.23, p < 0.05$) were statistically significant. When PC violation was entered as independent variable in step 2, a statistically significant increase in R^2 resulted ($\Delta F = 15.62, p < 0.01, \Delta R^2 = 0.06$). The regression coefficient of PC violation ($\beta = -0.33, p < 0.01$) was statistically significant.

Mediation effects

To test whether PC violation functioned as a mediator between PC fulfilment and psychological need satisfaction, mediation analyses were conducted using the analytical approach of Hayes and Preacher (in press), who recommended percentile confidence intervals (CIs) as obtained through bootstrapping to measure indirect effects. Lower CIs (LCIs) and upper CI (UCIs) are reported. The results are reported in Table 5.

Table 5

Indirect Effects of PC Fulfilment on Psychological Need Satisfaction (via PC Violation)

Variable	Autonomy				Competence				Relatedness			
	Effect	SE	LCI	UCI	Effect	SE	LCI	UCI	Effect	SE	LCI	UCI
Omnibus	0.06	0.01	0.04	0.08	0.03	0.01	0.01	0.05	0.04	0.01	0.02	0.06
Balanced PC	0.11	0.04	0.05	0.19	0.06	0.02	0.02	0.11	0.03	0.03	0.03	0.15
Relational PC	0.14	0.05	0.06	0.25	0.07	0.03	0.02	0.14	0.10	0.04	0.03	0.20

The 95% CI for the omnibus indirect effect of PC fulfilment on autonomy, competence and relatedness satisfaction (via PC violation) did not include zeros. The 95% CIs for two types of contracts did not include zeros, namely balanced PC and relational PC.

To test whether psychological need satisfaction functioned as mediators between PC fulfilment and violation on the one hand and job satisfaction, work engagement, turnover intention and flourishing on the other hand, mediation analyses were conducted.

Regarding the indirect effects on job satisfaction, the omnibus indirect effect for autonomy was 0.20 (SE = 0.01) and the confidence interval did not include zero [95% CI = 0.13 (LCI) and 0.30 (UCI)]. Concerning the specific independent variables, the 95% CIs for two independent variables did not include zeros, namely balanced PC (effect = 0.09, SE = 0.04, LCI = 0.03, UCI = 0.17) and PC violation (effect = -0.06, SE = 0.02, LCI = -0.03, UCI = -0.10). The 95% confidence intervals for the omnibus indirect effects (and all the independent variables) for competence (effect = 0.01, SE = 0.01) and relatedness (effect = -0.00, SE = 0.03) included zeros.

Regarding the indirect effects on work engagement, the omnibus indirect effect for autonomy was 0.23 (SE = 0.07) and the confidence interval did not include zero [95% LCI = 0.12 and 0.39 (UCI)]. Concerning the specific independent variables, the 95% CIs for two independent variables did not include zeros, namely PC violation (effect = -0.07, SE = 0.02, LCI = -0.03, UCI = -0.12) and balanced PC (effect = 0.10, SE = 0.05, LCI = 0.03, UCI = 0.20). The omnibus indirect effect for competence was 0.02 (SE = 0.02) and the confidence interval did not include zero ([95% LCI = 0.01 and 0.08 (UCI)]. Concerning the specific independent variables, the 95% CIs for one independent variable did not include zero, namely PC violation (effect = -0.02, SE = 0.01, LCI = -0.01, UCI = -0.05). The 95% confidence intervals for the omnibus indirect effects (and all the independent variables) for relatedness (effect = -0.02, SE = 0.02) included zeros.

Concerning the indirect effects on turnover intention, the omnibus indirect effect for autonomy was -0.14 (SE = 0.05) and the confidence interval did not include zero [95% LCI = -0.26 and -0.05 (UCI)]. The 95% CIs for two independent variables did not include zeros, namely balanced PC (effect = -0.06, SE = 0.03, LCI = -0.13, UCI = -0.01) and PC violation (effect = 0.04, SE = 0.02, LCI = 0.08, UCI = 0.01). The 95% confidence intervals for the omnibus indirect effects (and all the independent variables) for competence (effect = 0.01, SE = 0.05) and relatedness (effect = 0.00, SE = 0.03) included zeros.

Regarding the indirect effects on flourishing, the omnibus indirect effect for autonomy was 0.14 (SE = 0.05) and the confidence interval did not include zero [95% LCI = 0.04 and 0.25 (UCI)]. Concerning the specific independent variables, the 95% CIs for two independent variables did not include zeros, namely balanced PC (effect = 0.06, SE = 0.03, LCI = 0.01, UCI = 0.13) and PC violation (effect = -0.04, SE = 0.02, LCI = -0.01, UCI = -0.07). The omnibus indirect effect for competence was 0.02 (SE = 0.03) and the confidence interval did not include zero ([95% LCI = 0.02 and 0.12 (UCI)]. Concerning the specific independent variables, the 95% CIs for one independent variable did not include zero, namely PC violation (effect = -0.01, SE = 0.01, LCI = -0.01, UCI = -0.03). The omnibus indirect effect for relatedness was 0.06 (SE = 0.03) and the confidence interval did not include zero [95% LCI = 0.02 and 0.12 (UCI)]. Concerning the specific independent variables, the 95% CIs for one independent variable did not include zero, namely PC violation (effect = -0.02, SE = 0.01, LCI = -0.01, UCI = -0.04).

With reference to the literature review and the empirical analyses, the results of the hypotheses testing in this study are reported in Table 6.

Table 6

Results of Hypotheses Testing

HYPOTHESIS	FINDING
1a	Accepted. PC fulfilment is positively associated with job satisfaction (30% of the variance explained). Two dimensions of the PC fulfilment, namely the balanced contract and the relational contract statistically significantly predicted job satisfaction.
1b	Accepted. PC violation is negatively associated with job satisfaction. Two dimensions, namely breach of the balanced contract and violation of the PC were statistically significant predictors in a model which explained 41% of the variance in job dissatisfaction.
2a	Accepted. Fulfilment of the balanced, relational and employability contracts is positively associated with work engagement (14% of the variance explained). One dimension of PC fulfilment, namely the balanced contract was a statistically significant predictor of work engagement.
2b	Accepted. PC violation is negatively associated with work engagement. Two dimensions, namely breach of the balanced contract and violation of the PC were statistically significant predictors in a model which explained 18% of the variance in work engagement.

Table 6

Results of Hypotheses Testing (continued)

HYPOTHESIS	FINDING
3a	Accepted. PC fulfilment is negatively associated with turnover intention (25% of the variance explained). Three dimensions of the PC fulfilment, namely the balanced, relational and transactional contracts statistically significantly predicted turnover intention.
3b	Accepted. PC violation is positively associated with turnover intention. PC violation was the only statistically significant predictor in a model which explained 37% of the variance in turnover intention.
4a	Accepted. Fulfilment of the balanced, relational and employability contracts is positively associated with flourishing (16% of the variance explained). One dimension of PC fulfilment, namely the balanced contract was a statistically significant predictor of flourishing).
4b	Accepted. PC violation is negatively associated with flourishing. Two dimensions, namely breach of the balanced contract and violation of the PC, were statistically significant predictors in a model which explained 23% of the variance in flourishing.
5	Accepted. PC fulfilment affects psychological need satisfaction (autonomy, competence and relatedness) through PC violation.
6a	Partially accepted. Fulfilment of the balanced PC and non-violation of the PC affected job satisfaction indirectly via the satisfaction of autonomy needs.
6b	Partially accepted: Fulfilment of the balanced PC and non-violation of the PC affected work engagement indirectly via satisfaction of autonomy needs. Non-violation of the PC affected work engagement indirectly via the satisfaction of competence needs.
6c	Partially accepted: Fulfilment of the balanced PC and non-violation of the PC affected turnover intention indirectly via the satisfaction of autonomy needs.
6d	Partially accepted: Fulfilment of the balanced PC and non-violation of the PC affected turnover intention indirectly via the satisfaction of autonomy needs. Non-violation of the PC affected turnover intention indirectly via the satisfaction of competence and relatedness needs.

DISCUSSION

The aim of this study was to investigate the relationship between PC breach and violation, satisfaction of psychological needs and job satisfaction, work engagement, turnover intention and flourishing. The results provided support for a model in which PC breach and violation had both direct and indirect effects via satisfaction of psychological needs for autonomy, competence and relatedness as mediators on job satisfaction, work engagement, turnover

intention and flourishing (i.e. emotional, psychological and social well-being) of IT employees.

Breach of the PC (i.e. when employees experience that their expectations are not fulfilled) had the strongest negative effect on job satisfaction (30% of the variance explained) and the strongest positive effect on turnover intention (25% of the variance explained). Robinson and Rousseau (1994) and Gakovic and Tetrick (2007) also found that PC breach contributes to job dissatisfaction. PC breach also had moderate negative effects on the work engagement (14% of the variance explained) and flourishing in life (16% of the variance explained) of IT professionals. Flourishing is affected by the type and/or quality of activities in which individuals engage. Therefore, a positive experience (such as PC fulfilment) can affect flourishing levels positively.

The results showed that one dimension of PC breach, namely the balanced contract impacted job satisfaction, work engagement and flourishing directly when controlling for PC violation. However, PC breach did not significantly affect turnover intention (when controlling for PC violation). Therefore, violation of the PC played an important role in affecting dimensions of feeling well and functioning well, as well as turnover intention of IT professionals. According to Rousseau (1989), a distinctive feature of PC breach is that it could not easily be mended once a promise had been broken. When the PCs of IT professionals were perceived to be violated, their job satisfaction, work engagement and flourishing decreased significantly, while their turnover intention increased. Employees, who perceive the employer as not having honoured its part in the exchange process, redress the imbalance by disengaging themselves from their jobs and the organisation (Coyle-Shapiro & Kessler, 2000).

The balanced PC is characterised by support in meeting higher goals, assistance to progress in the organisation, allowing advancement within the firm, providing development opportunities in the organisation, offering support to perform better, helping to develop marketable skills and assisting to achieve better quality levels at work. The relational PC is characterised by providing job security, offering a stable salary and benefits, making an effort to keep the employee in the company, concern for the well-being and personal welfare of employees, making decisions with employees' interests in mind and by being responsive to employees' concerns. Fulfilment of the balanced PC positively predicted job satisfaction,

work engagement and flourishing while it negatively predicted turnover intention of IT professionals. Furthermore, balanced and relational PC fulfilment influenced job satisfaction and turnover intention positively and negatively respectively.

Breach of the balanced, relational and transactional contracts predicted turnover intention. Robinson and Rousseau (1994) also found that contract violations related positively with turnover intention. Haq, Jam, Azeem, Ali, and Fatima (2011) found turnover intent to be positively related to the transactional PC. The transactional contract contains highly tangible economic agreements and is what Rousseau (1995) calls an easy-to-exit agreement with relatively high turnover intent. However, the results showed that the regression coefficients of PC breach were not statistically significant when PC violation was entered as a predictor of turnover intention in the regression equation. Therefore, IT professionals who perceive that their PCs are violated are more inclined to consider resigning from their organisations.

PC fulfilment and non-violation were related to satisfaction of the psychological needs for autonomy, competence and relatedness in this study. More specifically, analyses showed that fulfilment of the balanced and relational PC impacted autonomy and relatedness satisfaction directly and indirectly via non-violation of the PC. Fulfilment of the balanced PC also impacted competence satisfaction indirectly via non-violation of the PC. Therefore, when the organisation provides for fulfilment of expectations regarding career development; continuous learning and a stable wage; a long-term employment contract and rewards subject to performance; membership and participation; employees experience satisfaction of the needs for autonomy, competence and relatedness; partially because they feel that the organisation is not violating the PC, but also because the organisation creates a psychological need fulfilling environment (Deci & Ryan, 2008).

PC breach and violation had indirect effects on job satisfaction, work engagement, turnover intention and flourishing of IT professionals via satisfaction of the psychological needs for autonomy, competence and relatedness. Galletta, Portoghese, and Battistelli (2011) emphasised the importance of autonomy in limiting turnover intention. In addition, PC violation also had direct effects on the job satisfaction and turnover intention (when psychological needs were controlled for).

Autonomy need satisfaction mediated the relation between breach of the balanced PC as well as PC violation and two dependent variables, namely job satisfaction and turnover intention. Dynamic, open-ended agreements in the employment relationship as well as opportunities for the employees to develop their careers and non-violation of the PC, impact autonomy satisfaction which in turn results in higher job satisfaction and lower turnover intention. Autonomy and competence need satisfaction mediated the relation between the balanced PC as well as PC violation and work engagement. Autonomy, competence and relatedness need satisfaction which follow fulfilment of the balanced PC as well as non-violation of the PC, also contribute to flourishing of IT professionals.

Deci and Ryan (2008) reported that by being autonomy supportive, managers create circumstances for employees to experience more job satisfaction, better well-being and more engagement in their work. Moreover, autonomy support facilitates competence and relatedness support (Baard et al., 2004). Managers can support autonomy by taking the perspective of employees, encouraging initiation and a sense of choice and by being responsive to their ideas, questions and initiatives (Deci & Ryan, 2008). This study confirms the importance of managers fulfilling expectations regarding a balanced PC and avoiding PC violation to promote autonomy of IT professionals. However, the results of this study showed that promoting autonomy through non-breach and non-violation of the PC is not only associated with higher job satisfaction and work engagement, but also with flourishing (emotional, psychological and social well-being) and lower turnover intention. If managers support the autonomy of employees, they will feel free to follow their interests and to consider the importance and relevance of social values and norms (Deci & Ryan, 2008).

Within the theoretical framework of the Self-Determination Theory (SDT) (Deci & Ryan, 2000), it becomes evident why fulfilment and breach of the PC relate to outcomes such as job satisfaction, work engagement, turnover intention and flourishing (Deci & Ryan, 2008; Van den Broeck et al., 2008). Satisfaction of the three basic psychological needs for autonomy, competence and relatedness is essential to ensure feeling and functioning well, characterised by job satisfaction, work engagement and flourishing as well as low turnover intention. In many organisations, especially the IT industry, the problem exists that monetary satisfiers can easily be matched or topped by rival companies and relying exclusively on these short-term satisfiers will result in neglecting to address basic psychological need fulfilment (Harter et al., 2002). The results of this study showed that positive well-being and low turnover

intention follow a balanced PC, non-violation of the PC and the resulting satisfaction of needs for autonomy, competence and relatedness.

As is evident from this study, satisfaction of the basic psychological needs for autonomy, competence and relatedness is just as important in predicting job satisfaction. Eckloff and Van Quaquebeke (2007) found that satisfaction of basic psychological needs evoked positive feelings towards the job and that the need for autonomy was the strongest predictor of job satisfaction. Psychological need satisfaction encompasses three needs; admittedly it is therefore not ideal to divorce the three needs, although measuring the indirect effects of psychological need satisfaction in this study showed that of the three needs, autonomy was an important mediator with the greatest effect on job satisfaction, work engagement, turnover intention and flourishing. This supports the finding of Eckloff and Van Quaquebeke (2007).

These findings emphasise the importance of PC fulfilment as foundation for sound employment relations in the exchange relationship, as well as the important mediating function of basic psychological need satisfaction with job satisfaction, work engagement, low turnover intent and subsequent flourishing of IT professionals in South Africa. Interestingly, it seems that PC breach and violation are better predictors of job dissatisfaction and turnover intention than disengagement and languishing.

The study had various limitations. The interpretation of the findings of the study is limited by the cross-sectional nature of the data. Second, the sample size was relatively small compared to the number of variables used and it was also relatively homogeneous regarding gender and cultural group. Third, the findings of this study were based on correlational data, which makes it impossible to prove causality of relationships. Fourth, this research relied on self-report instruments to measure target variables.

RECOMMENDATIONS

Based on the findings of the study, it is recommended that care be taken at the start of the employment relationship to establish a fair PC that would be to the benefit of the employer as well as the employee. Employers should be sensitive to the expectations of employees, especially in terms of the balanced and relational contracts. Also, managers should take care

to detect employees' perceptions and emotional responses regarding their psychological contracts. Given that psychological contract breach and violation influence job satisfaction, work engagement, turnover intention and flourishing of IT professionals, via psychological need satisfaction, managers should be trained to create need-supportive environments. Need-supportive managers should create circumstances for psychological need satisfaction of IT professionals by taking into account the perspective of employees, encouraging initiation and a sense of choice, being responsive to their ideas, questions and initiatives, and promoting learning, competence and belonging (Deci & Ryan, 2008).

To extend the present research, future research may examine the effects of PC breach and violation on psychological need satisfaction and flourishing in a longitudinal design. Future studies should be conducted with larger samples and should be more representative in terms of gender and cultural groups in South Africa. Experimental studies regarding psychological contract breach and violation, psychological need satisfaction and flourishing in work and life are necessary to infer causality of relationships. Objective measures of work engagement, flourishing and turnover intention could be used in future studies. Future studies should explore the relationship between PC fulfilment, basic psychological need satisfaction and flourishing and the impact thereof on individual and organisational outcomes in other industries.

REFERENCES

- Armstrong, M. (2006). *A handbook of human resource management practice* (10th ed.). London, United Kingdom: Kogan Page.
- Baard, P. P., Deci, E. L., & Ryan, R. M. (2004). Intrinsic need satisfaction: A motivational basis of performance and well-being in two work settings. *Journal of Applied Social Psychology, 34*, 2045–2068.
- Bakker, A. B., Demerouti, E., & Schaufeli, W. B. (2003). Dual processes at work in a call centre: An application of the Job-Demands Resources Model. *European Journal of Work and Organizational Psychology, 12*, 393–417.
- Bakker, A. B., Schaufeli, W. B., Leiter, M. P., & Taris, T. W. (2008). Work engagement: An emerging concept in occupational health psychology. *Work and Stress, 22*, 187–200.
- Bal, P. M., Chiaburu, D. S., & Jansen, P. G. W. (2010). Psychological contract breach and work performance: Is social exchange a buffer or an intensifier? *Journal of Managerial Psychology, 25*, 252–273.
- Barak, M. E. M., & Levin, A. (2002). Outside of the corporate mainstream and excluded from the work community: A study of diversity, job satisfaction and well-being. *Community, Work and Family, 5*, 133–157.
- Baron, R. M., & Kenny, D. A. (1986). The moderator-mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology, 51*, 1173–1182.
- Blau, P. (1964). *Exchange and power in social life*. New York: Wiley.
- Cappelli, P. (1999). *The new deal at work: Managing the market-driven workforce*. Boston, MA: Harvard Business School Press.
- Cohrs, J. C., Abele, A. E., & Dette, D.A. (2006). Integrating situational and dispositional determinants of job satisfaction: Findings from three samples of professionals. *The Journal of Psychology, 140*, 363–395.
- Conway, N., & Briner, R. B. (2005). *Understanding psychological contracts at work*. Oxford, United Kingdom: Oxford University Press.
- Coyle-Shapiro, J. A., & Kessler, I. (2000). Consequences of the psychological contract for the employment relationship: A large scale survey. *Journal of Management Studies, 37*, 903–930.

- Coyle-Shapiro, J. A., & Parzefall, M-R. (2008). Psychological contracts. In J. Barling & C. Cooper (Eds.), *Handbook of organizational behavior* (pp. 17–34). London, United Kingdom: SAGE.
- Deci, E. L., & Ryan, R. M. (1980). The empirical exploration of intrinsic motivational processes. In L. Berkowitz (Ed.), *Advances in experimental social psychology* (pp. 39–80). New York, NY: Academic Press.
- Deci, E. L., & Ryan, R. M. (1985). *Intrinsic motivation and self-determination in human behavior*. New York, NY: Plenum.
- Deci, E. L., & Ryan, R. M. (1991). A motivational approach to self: Integration in personality. In R. Dienstbier & N. E. Lincoln (Eds.), *Nebraska symposium on motivation: Vol. 38 - Perspectives on motivation* (pp. 237–288). Nebraska: University of Nebraska Press.
- Deci, E. L., & Ryan, R. M. (2000). The “what” and “why” of goal pursuits: Human needs and the self-determination of behaviour. *Psychological Inquiry*, *11*, 319–338.
- Deci, E. L., & Ryan, R. M. (2008). Self-determination theory: A macro-theory of human motivation, development, and health. *Canadian Psychology*, *49*(3), 182–185.
- Deci, E. L., & Ryan, R. M. (2011). Levels of analysis, regnant causes of behaviour and well-being: The role of psychological needs. *Psychological Inquiry*, *22*, 17–22.
- De Cuyper, N., Rigotti, T., De Witte, H., & Mohr, G. (2008). Balancing psychological contracts: Validation of a typology. *The International Journal of Human Resource Management*, *19*, 543–561.
- Dulac, T., Coyle-Shapiro, J. A. M., Henderson, D. J., & Wayne, S. K. (2008). Not all responses to breach are the same: The interconnection of social exchange and psychological contract processes in organizations. *Academy of Management Journal*, *51*, 1079–1098.
- Eckloff, T., & Van Quaquebeke, N. (2007, May). *Respectful leadership: How satisfying subordinates’ needs for self-determination will lead to identification, respect and satisfaction*. Poster presented at the 13th European Congress of Work and Organizational Psychology, Stockholm, Sweden.
- Field, A. (2009). *Discovering statistics using SPSS* (3rd ed.). Los Angeles, CA: SAGE.
- Flood, P. C., Ramamoorthy, N., McDermott, A., & E. Conway (2008). *Leadership, human resource management and the content of the psychological contract*. Working Paper Series (Paper No. 03-08). Dublin City University, Ireland: The Learning, Innovation and Knowledge Research Centre.

- Gakovic, A., & Tetrick, L. E. (2007). Psychological contract breach as a source of strain for employees. *Journal of Business and Psychology, 18*, 235–246.
- Galletta, M., Portoghese, I., & Battistelli, A. (2011). Intrinsic motivation, job autonomy and turnover intention in the Italian Healthcare: The mediating role of affective commitment. *Journal of Management Research, 3*, 1–19.
- Gouldner, A. W. (1960). The norm of reciprocity: A preliminary statement. *American Sociological Review, 25*, 161–178.
- Guerrero, S., & Herrbach, O. (2008). The affective underpinnings of psychological contract fulfilment. *Journal of Managerial Psychology, 23*, 4–17.
- Guest, D. E. (2004). The psychology of the employment relationship: An analysis based on the psychological contract. *Applied Psychology: An International Review, 53*, 541–555.
- Guest, D., & Conway, N. (1998). *Fairness at work and the psychological contract*. London, United Kingdom: Institute of Personnel and Development.
- Guest, D. E., & Conway, N. (2002). Communicating the psychological contract: An employer perspective. *Human Resource Management Journal, 12*, 22–38.
- Guest, D., Conway, N., Briner, R., & Dickman, M. (1996). *The state of the psychological contract in employment: Issues in people management*. London, United Kingdom: Institute of Personnel and Development.
- Guzzo, R. A., Noonan, K. A., & Elron, E. (1994). Expatriate managers and the psychological contract. *Journal of Applied Psychology, 79*, 617–626.
- Hall, C., & Fourie, L. (2007). Exploring the role of the human resource function in the South African information technology industry. *South African Journal of Human Resource Management, 5*(1), 54–64.
- Haq, I. U., Jam, F. A., Azeem, M. U., Ali, M. A., & Fatima, T. (2011). Psychological contract and job outcomes: Mediating role of affective commitment. *African Journal of Business Management, 5*, 7972–7979.
- Harter, J. K., Schmidt, F. L., & Hayes, T. L. (2002). Business-unit level relationship between employee satisfaction, employee engagement, business outcomes: A meta-analysis. *Journal of Applied Psychology, 87*, 268–279.
- Harter, J. K., Schmidt, F. L., & Keyes, C. L. M. (2002). Well-being in the workplace and its relationship to business outcomes: A review of the Gallup studies. In C. L. M. Keyes & J. Haidt (Eds.), *Flourishing: The positive person and the good life* (pp. 205–224). Washington, DC: American Psychological Association.

- Hayes, A. F., & Preacher, K. J. (in press). Indirect and direct effects of a multi-categorical agent in statistical mediation analysis. Manuscript submitted for publication.
- Isaksson, K., Bernhard, C., Claes, R., De Witte, H., Guest, D., Krausz, M., Peiro, J. M., Mohr, G., & Schalk, R. (2003). *PSYCONES. Results from pilot phase*. Working Paper 2-HPSE-CT-2002-00121 Date of issue: 2003/09/15.
- Kahn, W. A. (1990). Psychological conditions of personal engagement and disengagement at work. *Academy of Management Journal*, *33*, 692–724.
- Kamalanabhan, T. J., Prakash Sai, L., & Mayuri, D. (2009). Employee engagement and job satisfaction in the information technology industry. *Psychological Reports*, *105*, 759–770.
- Keyes, C. L. M. (2002). The mental health continuum: From languishing to flourishing in life. *Journal of Health and Social Behavior*, *43*, 207-222.
- Keyes, C. L. M. (2007). Promoting and protecting mental health as flourishing: A complementary strategy for improving national mental health. *American Psychologist*, *62*, 95-108.
- Keyes, C. L. M. (2009). *Brief description of the Mental Health Continuum Short Form (MHC-SF)*. Available: <http://www.sociology.emory.edu/ckeyes/>. [On-line, retrieved 14 December 2010].
- Keyes, C. L. M., & Annas, J. (2009). Feeling good and functioning well: distinctive concepts in ancient philosophy and contemporary science. *Journal of Positive Psychology*, *4*, 197–201.
- Keyes, C. L. M., Shmotkin, D., & Ryff, C. D. (2002). Optimizing well-being: The empirical encounter of two traditions. *Journal of Personality and Social Psychology*, *82*, 1007–1022.
- Keyes, C. L. M., Wissing, M., Potgieter, J. P., Temane, M., Kruger, A., & Van Rooy, S. (2008). Evaluation of the Mental Health Continuum Short Form (MHC-SF) in Setswana speaking South Africans. *Clinical Psychology and Psychotherapy*, *15*, 181–192.
- Lambert, L. S. (2011). Promised and delivered inducements and contributions: An integrated view of psychological contract appraisal. *Journal of Applied Psychology*, *96*, 695–712.
- Lazarus, R. Z. (1991). Cognition and motivation in emotion. *American Psychologist*, *46*, 352–367.
- Lyubomirsky, S., King, L., & Diener, E. (2005). The benefits of frequent positive affect: Does happiness lead to success? *Psychological Bulletin*, *131*, 803–855.

- McFarlane Shore, L., & Tetrick, L. E. (1994). The psychological contract as an explanatory framework in the employment relationship. In C. L. Cooper & D. M. Rousseau (Eds.), *Trends in organizational behavior* (pp. 91–109). London, United Kingdom: Wiley.
- McMurtrey, M. E., Grover, V., Teng, J. T. C., & Lightner, N. (2002). Job satisfaction of information technology workers: The impact of career orientation and task automation in a CASE environment. *Journal of Management Information Systems, 19*, 273–302.
- Mulligan, P., & Gordon, S. R. (2002). The impact of information technology on customer and supplier relationships in the financial services. *International Journal of Service Industry Management, 13*, 29–46.
- Nelson, L., Tonks, G., & Weymouth, J. (2006). The psychological contract and job satisfaction: Experiences of a group of casual workers. *Research and Practice in Human Resource Management, 14*, 18–33.
- Nunnally, J. C., & Bernstein, I. H. (1994). *Psychometric theory* (3rd ed.). New York, NY: McGraw-Hill.
- Preacher, K. J., & Hayes, A. F. (2009). Beyond Baron and Kenny: Statistical mediational analysis in the new millennium. *Communication Monographs, 76*, 408–420.
- Raja, U., Johns, G., & Ntalianis, F. (2004). The impact of personality on psychological contracts. *Academy of Management Journal, 47*, 350–367.
- Ramlall, S. J. (2008). Enhancing employee performance through positive organizational behaviour. *Journal of Applied Psychology, 38*, 1580–1600.
- Robbins, S. P., Judge, T. A., Odendaal, A., & Roodt, G. (2009). *Organisational behaviour: Global and South African perspectives*. Cape Town, South Africa: Pearson Education.
- Robinson, S. L., Kraatz, M. S., & Rousseau, D. M. (1994). Changing obligations and the psychological contract: A longitudinal study. *Academy of Management Journal, 37*, 137–152.
- Robinson, S. L., & Rousseau, D. M. (1994). Violating the psychological contract: Not the exception but the norm. *Journal of Organizational Behavior, 15*, 245–259.
- Rothmann, S. (2010). *The reliability and validity of measuring instruments of happiness in the Southern African context*. Vanderbijlpark, South Africa: North-West University.
- Rothmann, S. (in press). Flourishing at work: A Southern African perspective. In M.P. Wissing (Ed.), *Cross-cultural advancements in positive psychology*. New York, NY: Springer-Verlag.
- Rousseau, D. M. (1989). Psychological and implicit contracts in organizations. *Employee Responsibilities and Rights Journal, 2*, 121–139.

- Rousseau, D. M. (1990). New hire perceptions of their own and their employer's obligations: A study of psychological contracts. *Journal of Organizational Behavior*, *11*, 389–400.
- Rousseau, D. M. (1995). *Psychological contracts in organizations: Understanding written and unwritten agreements*. Thousand Oaks, CA: Sage Publications.
- Rousseau, D. M. (2000). *Psychological Contract Inventory: Technical report*. Pittsburgh, Pennsylvania: Graduate School of Industrial Administration, Carnegie Mellon University.
- Rousseau, D. M. (2001). Schema, promise and mutuality: The building blocks of the psychological contract. *Journal of Occupational and Organizational Psychology*, *74*, 511–542.
- Rousseau, D. M. (2004). *Psychological contracts in the workplace: Understanding the ties that motivate*. *Academy of Management Executive*, *18*, 120-127.
- Rousseau, D. M., & Schalk, R. (2000). *Psychological contracts in employment: Cross-national perspectives*. Thousand Oaks, CA: SAGE Publications.
- 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.
- Saks, A. M. (2006). Antecedents and consequences of employee engagement. *Journal of Managerial Psychology*, *21*, 600–619.
- Schalk, R., De Bot, M., & Freese, C. (1995). *The psychological contract of temporary and permanent employees: A study in the Netherlands and Australia*. Paper presented at the EAWOP Conference, Verona, Italy.
- Shore, L. M., & Barksdale, K. (1998). Examining degree of balance and level of obligation in the employment relationship: A social exchange approach. *Journal of Organizational Behavior*, *19*, 731–744.
- Shore, L. M., Bommer, W. H., Rao, A. N., & Seo, J. (2009). Social and economic exchange in the employee-organization relationship: The moderating role of reciprocity awareness. *Journal of Managerial Psychology*, *24*, 701–721.
- Shore, L. M., Coyle-Shapiro, J. A., Chen, X., & Tetrick, L. E. (2009). Social exchange in work settings: Content, process, and mixed models. *Management and Organization Review*, *5*, 289–302.
- Sjöberg, A., & Sverke, M. (2000). The interactive effect of job involvement and organizational commitment revisited: A note on the mediating role of turnover intention. *Scandinavian Journal of Psychology*, *41*, 247–252.
- SPSS Inc. (2011). *SPSS 19.0 for Windows*. Chicago, IL: SPSS Inc.

- Steyn, H. S. (1999). *Praktiese betekenisvolheid: Die gebruik van effekgroottes* [Practical significance: The use of effect sizes]. Wetenskaplike bydraes – Reeks B: Natuurwetenskappe Nr. 117. Potchefstroom: PU vir CHO.
- Tabachnick, B. G., & Fidell, L. S. (2001). *Using multivariate statistics* (4th ed.). Boston, MA: Allyn & Bacon.
- Tekleab, A. G., Takeuchi, R., & Taylor, M. S. (2005). Extending the chain of relationships among organizational justice, social exchange, and employee reactions: The role of contract violations. *Academy of Management Journal*, 48, 146–157.
- Torrington, D., Hall, L., & Taylor, S. (2008). *Human resource management* (7th ed.). Harlow, FT: Pearson Education.
- Turnley, W. H., & Feldman, D. C. (2000). Re-examining the effects of psychological contract violations: Unmet expectations and job dissatisfaction as mediators. *Journal of Organizational Behavior*, 21, 25–42.
- Van den Broeck, A., Vansteenkiste, M., De Witte, H., & Lens, W. (2008). Explaining the relationships between job characteristics, burnout, and engagement: The role of basic psychological need satisfaction. *Work & Stress*, 22, 277–294.
- Van den Broeck, A., Vansteenkiste, M., De Witte, H., Soenens, B., & Lens, W. (2010). Capturing autonomy, relatedness and competence at work: Construction and validation of the Work-related Basic Need Satisfaction Scale. *Journal of Occupational and Organizational Psychology*, 83, 981–1002.
- Weiss, H. M., & Cropanzano, R. (1996). Affective events theory: A theoretical discussion of the structure, causes and consequences of affective experiences at work. *Research in Organizational Behavior*, 18, 1–74.
- Wright, T. A., Cropanzano, R., & Bonnett, D. G. (2007). The moderating role of employee positive well-being on the relation between job satisfaction and job performance. *Journal of Occupational Health Psychology*, 12, 93–104.
- Zajonc, R. B. (1998). Emotions. In D. T. Gilbert, S. T. Fiske & G. Lindzey (Eds.), *Handbook of social psychology* (p. 591–632). New York, NY: McGraw-Hill.

CHAPTER 4

ARTICLE 3

FLOURISHING AND ANTECEDENTS OF WELL-BEING AT WORK: THE ROLE OF PSYCHOLOGICAL NEED SATISFACTION

ABSTRACT

The aim of this study was to investigate the relationship between work role fit, the availability of personal resources, supervisor relations, satisfaction of psychological needs and employee outcomes. A convenience sample ($N = 205$) was taken of employees in information technology organisations in South Africa. A biographical questionnaire, Work Role Fit Scale, Work-related Basic Need Satisfaction Scale, Mental Health Continuum Short Form, Job Satisfaction Scale and Work Engagement Scale were administered. The results showed that work role fit and the availability of resources were strong predictors of flourishing at work and in life. Work role fit, the availability of resources and supervisor relations impacted job satisfaction and social well-being indirectly through autonomy satisfaction. The availability of resources impacted work engagement and psychological well-being indirectly via competence satisfaction. Furthermore, work role fit, the availability of resources and supervisor relations impacted psychological well-being indirectly through relatedness.

Key terms: Work role fit, supervisor relations, resources, self-determination theory, job satisfaction, work engagement, flourishing

In the global world of work today, every occupational area experiences increasing work demands. Growing evidence reveals that employees in the information technology (IT) sector are more than frequently confronted with extreme work demands such as prolonged work hours, aggressive and unrealistic timelines, often without the necessary resources at their disposal (Messersmith, 2007). In the light of the serious skills deficit and a shortage of IT professionals (Lowry, Turner, & Fisher, 2006; Roodt & Paterson, 2008; Turner & Lowry, 2000), it is evident that a strategic human resource management approach should be implemented to ensure the effective development and utilisation of the potential of IT staff. According to Keyes and Annas (2009), positive mental health should be fostered given the importance thereof for flourishing of people. Studies (Keyes & Annas, 2009; Keyes et al., 2008) showed that less than a third of people flourish, and that flourishing is associated with improved health, coping, stress management and positive organisational outcomes. The well-being and flourishing of IT professionals is therefore a very real problem that confronts organisations (Leyden, 2003).

Flourishing of individuals at work is evident in job satisfaction and work engagement (Rothmann, in press), while flourishing in life is evident in their emotional, psychological and social well-being (Keyes & Annas, 2009). The type and/or quality of activities in which individuals engage affect their flourishing, providing that they continue pursuing their particular goals (Sheldon et al., 2010). Furthermore, the positivity of proximal experiences that are happening at present strongly affects flourishing levels. Individuals will flourish when they fit into their work roles (Kahn, 1990), when they have the physical, emotional and cognitive resources (May, Gilson, & Harter, 2004; Schaufeli & Bakker, 2004), and when they maintain positive relations, i.e. supportive and trusting relations with supervisors and co-workers (Edmondson, 2004; Ragins & Dutton, 2007).

All individuals inherently yearn to develop and actualise their optimal potential, and the Self-Determination Theory (SDT) postulates that this all depends on individuals' ability to satisfy their three inborn psychological needs for autonomy, relatedness and competence. Conditions conducive towards satisfying these inherent needs facilitate personal growth and intrinsic motivation; whereas the opposite is also true – conditions inhibiting need satisfaction hinder personal growth and intrinsic motivation (Deci & Ryan, 2000). The degree of a person's need satisfaction results in positive work-related outcomes, such as job satisfaction and work engagement (Baard, Deci, & Ryan, 2004).

In this study, SDT and flourishing at work and in life literatures are expanded to hypothesize a model in which satisfaction of basic psychological needs partially mediates the relations between work role fit, resources and supervisor relations on the one hand, and job satisfaction, work engagement and flourishing on the other hand. It is proposed that work role fit, resources and supervisor relations satisfy psychological needs, which in turn relate to positive individual and organisational outcomes. Limited information exists regarding the effects of work role fit, resources and supervisor relations via satisfaction of psychological needs such as autonomy, competence and relatedness (within SDT theory) on flourishing and its effect on job satisfaction and work engagement. This study will not only contribute to the literature by exploring the processes through which antecedents of well-being at work influence flourishing of IT professionals through job satisfaction and work engagement, but also to the SDT literature by investigating the mediating role of psychological need satisfaction between the antecedents of well-being at work and flourishing of IT professionals.

The aim of this study was to investigate the relationships between work role fit, supervisor relations, resources and psychological need satisfaction as the pathway towards flourishing of information technology professionals in South Africa.

Well-being as flourishing

Two perspectives from which optimal functioning can be studied are called hedonism and eudaimonia (Ryan, Huta, & Deci, 2008). Hedonism refers to concepts of maximising pleasure and minimising agony, encompassing living a shallow life characterised by self-indulgence and a possible exploitation of others (Vella-Brodrick, Park, & Peterson, 2009). Eudaimonia focuses on living well and leading a quality life (Ryan et al., 2008). According to Keyes and Annas (2009), when feeling good and functioning well, i.e. when hedonic and eudaimonic well-being are present in an individual's life, that individual will flourish. Keyes (2005) argues that feeling well and functioning well resulting in flourishing behaviour mean that positive mental health is present as opposed to languishing individuals who exhibit an absence of mental health. Flourishing individuals thrive at work, are happy, intrinsically motivated, successful, continuously learning and engaged (Bono, Davies, & Rasch, 2012) and are generally well-adapted, well-functioning individuals in life; whereas languishing

individuals experience emptiness, stagnation and live a shallow, despairing life that is devoid of meaning (Keyes, 2002).

The model of Keyes (2005) divides flourishing into emotional well-being, psychological well-being and social well-being. Individuals who are emotionally well exhibit positive affect (energetic, serene and good-spirited) and an overall happiness with life, whereas individuals who exhibit positive psychological functioning are self-accepting, act autonomously, have a purpose in life, can change and manage their personal environments, seek to maximise their own potential and maintain positive relations with others. The last dimension of Keyes' well-being includes social well-being which refers to individuals being socially accepting of diversity in people, who believe in the potential of others, find society meaningful, regard their own activities as meaningful to others and experience relatedness towards others (Keyes, 2007).

Flourishing at work and in life is essential as flourishing adults report the healthiest psychosocial functioning, the fewest health problems and the lowest absenteeism rates. Furthermore, flourishing individuals exhibit much more job satisfaction and work engagement than their languishing counterparts. According to Robbins, Judge, Odendaal, and Roodt (2009), job satisfaction relates to an individual's general perception towards the job; therefore more positive perceptions will be indicative of greater job satisfaction (emotional well-being). According to the Core Self-evaluation Model of Judge, Locke, and Durham (1997), there are four core self-evaluations that determine an employee's disposition towards job satisfaction, namely self-esteem (the value a person places on him/herself), self-efficacy (the belief in one's own competence), locus of control (a person accepts control for his/her own life) and neuroticism (experiencing constant negative emotional states). Higher levels of all three, except neuroticism (of which lower levels are desirable) lead to higher job satisfaction.

Work engagement refers to the attachment of an employee's 'self' to the work role, including physical, cognitive and emotional expression of the 'self' during role performance (Kahn, 1990). For individuals to function optimally, it must be possible for them to engage fully in their work (May, Gilson, & Harter, 2004). Complete engagement comprises cognitive, emotional and physical dimensions which are essential towards making work more meaningful (Kahn, 1990). The cognitive aspect deals with employee beliefs regarding the

organisation, including management and work conditions. The emotional aspect refers to employee feelings pertaining to the organisation and its leadership, while employees' physical efforts to achieve their roles are dealt with in the physical aspect. Engagement is therefore being physically and psychologically present when filling and performing a specific role in the organisation (Kahn, 1990).

Work role fit, trusting and supportive supervisor relations as well as the availability of emotional, physical and cognitive resources are, amongst others, all factors impacting on work engagement (psychological well-being) (May et al., 2004). An engaged employee will exhibit vigour, dedication and absorption in fulfilling the work role (Schaufeli, Salanova, Gonzales-Roma, & Bakker, 2002). Work engagement is indicative of the extent to which employees function well at work (Rothmann, in press) and predicts job satisfaction (Bakker, Demerouti, & Schaufeli, 2003).

Therefore, individuals who flourish will in all probability exhibit greater job satisfaction and work engagement (Bowling, Eschleman, & Wang, 2010; Harter, Schmidt, & Keyes, 2002) as a result of feeling well and functioning well, i.e. being emotionally, psychologically and socially well – dimensions for positive mental health as flourishing (Keyes, 2002). Positive feelings and positive functioning are beneficial to employer, employee and the organisation (Fredrickson, 2004; Keyes & Haidt, 2003; Seligman & Csikszentmihalyi, 2000). Investments in the well-being of employees lay the basis for positive employment relations (Marsden & Moriconi, 2011). Cameron, Dutton, and Quinn (2003) state that organisations that flourish create and maintain work environments that encourage and promote flourishing – a prerequisite for workplace success.

Work role fit, supervisor relations and resources

Satisfaction with work accounts for up to 25% of the variation in adult life satisfaction (Campbell, Converse, & Rodgers, 1976). The well-being of employees is advantageous to employers who spend exorbitant resources recruiting employees and endeavouring to maintain a competitive edge (Harter et al., 2002). The importance of appointing the right person for the job and thus ensuring optimal fit between the employee and the job has been emphasised by researchers (Kristof, 1996; May et al., 2004; Schneider, 1987). Hiring the

wrong employee entails direct and indirect costs which are seldom calculated, yet could cost the organisation dearly (Torrington, Hall, & Taylor, 2008).

Fit is a multidimensional concept (Kristof-Brown, Zimmerman, & Johnson, 2005) and although work role fit is particularly relevant for this study, all the other types of fit are also significant and will be explained briefly. The significance of all types of fit lies in the fact that misfit in general will be detrimental to employees' well-being (Edwards & Cooper, 1990). May et al. (2004) define work role fit as the ability of an individual to express his values, beliefs and principles as a result of a perceived fit between an individual's concept of the self and his work role. People choose work roles that afford them the opportunities to express their authentic self-concepts and this would result in greater work engagement activities. Experiences in the workplace affect the well-being of employees, i.e. their emotional, psychological and social well-being (Lyubomirsky, King, & Diener, 2005).

Person-environment (P-E) fit is the umbrella term defining the broader context within which work role fit operates towards securing positive employment relations. P-E fit has its origin in the interactionist theory of behaviour where people's interactions with things are derived from the meaning those things represent for them; and interpretation of these meanings come from social interaction (Chatman, 1989). P-E fit can be defined as the match between a person and a specific work environment where the one fulfils the needs of the other and/or when the person and environment share similarities (Kristof-Brown et al., 2005). Fit can be measured either subjectively (i.e. a match between person and environment as perceived by the person) or objectively (i.e. a match between the actual person and the actual environment – irrespective of the person's perceptions) (French, French, Caplan, & Harrison, 1982).

Person-Job (P-J) fit is the fit between the characteristics of a person and his/her fulfilment of responsibilities towards the employer in exchange for employment (Kristof, 1996). P-J fit can be divided into two dimensions, namely supplies-values (S-V) fit and demands-ability (D-A) fit. S-V fit is the match between environmental supplies and a person's goals, values and motives, and D-A fit indicates compatibility between environmental demands and personal skills and abilities (Edwards & Cooper, 1990). Subjective S-V or D-A misfit will elicit negative outcomes. S-V fit relates to job satisfaction with regard to the perception that one's job satisfies essential job values. However, when there is a lack of synergy between

environmental supplies and individual values, dissatisfaction with the job and other symptoms of negative well-being will result (Edwards & Cooper, 1990).

Thus, in order for a person to fit into the work role that would in turn enhance greater job satisfaction, work engagement and flourishing, the employee must be compatible with the work environment and employing organisation (psychological well-being) as well as other groups or team members (social well-being); the organisational environment must create opportunities for self-expression of values/beliefs, for pursuing goals and motives, for expanding employee skills and for exploiting capabilities. Therefore, selection and training are essential in ensuring suitable fit, a prerequisite for positive employment relations and flourishing.

Another important determinant of positive employment relations which impacts on employees' job satisfaction, engagement and flourishing, is supervisor relations (May et al., 2004; Rothmann & Rothmann, 2010). A supervisor that shows concern for employees' needs, is supportive and trustworthy, provides positive feedback and encourages open communication channels through which to voice concerns and to solve work-related problems, allows opportunities for expansion of skills and will foster a safe work environment which will elicit employee well-being (May et al., 2004; Deci & Ryan, 1987).

According to May et al. (2004), supervisor support will strengthen employee self-regulation and interest in work which in turn will strengthen engagement. Trust is a key concept in the supervisor-employee relationship. Employees' perceptions of managerial trustworthiness include the following behavioural categories: predictability, integrity, sharing and delegation of control, accurate and transparent communication, and showing concern (May et al., 2004). Trustworthy supervisor behaviours will most probably foster psychological safety and a dedication to work. According to Griffin, Patterson, and West (2001); and Durham, Knight, and Locke (1997), their studies have shown that supervisor support strongly determines job satisfaction and supervisor behaviours impact on affective reactions (i.e. job satisfaction – emotional well-being) of subordinates.

According to Dabos and Rousseau (2004), the affective reactions of individuals can directly or indirectly be influenced by the people with whom they interact in the work environment, such as supervisors. The social network literature refers to cohesion (relational proximity)

and structural equivalence (positional proximity) to explain the influence on individuals. A relationship between supervisor and subordinate is a direct (non-mediated) relationship of which the influence will occur through cohesion. Positive influence promotes agreement and co-operation. Influence via structural equivalence takes place when individuals are in the same relationships with the same people in a social system. Being exposed to similar information and social demands, individuals adopt similar affective reactions. Cohesion and structural equivalence underline the importance of the role of the supervisor in the work environment. Supervisors who are supportive and trustworthy will elicit positive affective behaviour from their subordinates (cohesion), whereas an unsupportive and untrustworthy supervisor will elicit negative affective reactions in one subordinate which via structural equivalence (workers in the same section have ties with the same supervisor) might elicit negative behaviours amongst the majority of the other co-workers.

The above theory links with results from the study by Kozlowski and Doherty (1989) who found that subordinates with high-quality supervisor relations experienced more positive climate perceptions, showed greater consensus and exhibited attitudes, perceptions and beliefs that were more closely aligned with those of their supervisors than did subordinates with low-quality relations. The well-being perspective argues that a worker experiencing positive emotional states and positive appraisals in his or her relationships within the workplace will perform better and exhibit a better quality of life. Meta-analyses show positive relationships between job satisfaction and satisfaction with one's supervisor and one's work (Harter et al., 2002).

In line with two major approaches, namely engagement as an extension of the self (Kahn, 1990) and work activities as reference for engagement (Bakker, Schaufeli, Leiter, & Taris, 2008), the availability of job resources in answer to job demands promote work engagement. Kahn (1990) states that people use their physical, emotional and cognitive resources when they engage at work. The Job Demands-Resources (JD-R) model (Bakker & Demerouti, 2007) proposes that when demands in the workplace (work overload, emotional demands and work-home interference) match or slightly exceed the availability of resources (job autonomy, feedback, social support and learning opportunities), individuals experience positive emotions such as energy, joy, pleasure and work engagement (Harter et al., 2002; Schaufeli, Bakker, & Van Rhenen, 2009). When job demands increase and job resources decrease, burnout (the antithesis of engagement) occurs. Bakker et al. (2003) provide

evidence that burnout mediates the relationship between job demands and ill-health. When job resources increase, work engagement increases as well (Schaufeli et al., 2009).

Positive emotions broaden an individual's scope of attention and thought-action collections, enlarging the individual's personal resources (Fredrickson, 1998). Studies by Staw, Sutton, and Pellod (1994) indicate that positive emotions enable employees to become better socially integrated with supervisors and co-workers, expanding their resource pools. According to the Conservation of Resources (COR) theory (Hobfoll, 1989, 1998; Hobfoll & Wells, 1998), resource gain increases the individual's resource tank, assuming that individuals strive to obtain, retain and protect resources which they value. Examples of resources include social support, job enhancement opportunities, and being psychologically well (Wright & Hobfoll, 2004). Personal resources include personal characteristics and skills. Subjective well-being is threatened when resources are threatened, lost or invested without a possibility of return (Hobfoll & Wells, 1998). COR theory suggests that in order to obtain, retain and protect resources, other resources are utilised. The same resource can be used to preserve itself. For example, if a person's self-esteem is threatened, he or she may turn to social support (social well-being) in order to boost his or her self-esteem (psychological well-being). People with a richer pool of resources are more likely to invest or risk their resources (Wright & Hobfoll, 2004). Resources emerge in caravans – they are grouped or linked systems along the lifespan of an employee and do not stand in isolation of one another (Hobfoll, 1988; 1998). Evidence strongly suggests that resources have a major influence on individual and organisational outcomes (Hobfoll, Johnson, Ennis, & Jackson, 2003; Judge, Van Vianen, & De Pater, 2004), such as job satisfaction and work engagement.

Evidence from literature supports the importance of work role fit, supervisor relations and availability of resources towards well-being. If an employee fits in the work role (via selection and training), is not overworked (i.e. has enough resources) and has the trust and support of his supervisor, the employee will flourish. On the basis of this literature support, the following hypotheses are proposed.

Hypothesis 1: Work role fit positively relates to flourishing

Hypothesis 2: Positive supervisor relations positively relate to flourishing

Hypothesis 3: Availability of resources positively relates to flourishing

Self-determination theory: The role of psychological need satisfaction

Humans will only be motivated and exhibit well-being in organisations in as far as their basic psychological needs are satisfied (Deci & Ryan, 2000). Self-determination theory (Deci & Ryan, 1985; Ryan & Deci, 2000) utilises psychological need satisfaction to predict motivation at work. Human behaviour is motivated by the following innate needs, namely autonomy, competence and relatedness. Work environments fostering satisfaction of these needs facilitate work engagement and psychological well-being (Deci & Ryan, 2000).

Autonomy relates to individuals' perceptions that they direct and determine their own behaviour. Competence refers to feeling efficient and directing outcomes. Relatedness means showing concern for others, desiring acceptance and social integration, being content with the social world. Satisfying all three these needs is important for optimal functioning and well-being (Deci & Ryan, 2000). Psychological need satisfaction will always result in positive outcomes (including intrinsic motivation and well-being), because it does not make sense that the satisfaction of a need will render unfavourable outcomes (Deci & Ryan, 2008).

The self-concordance model supplies a context by which motivation relates to well-being. Individuals' motivation and regulation of behaviour are directed by their psychological needs and the reason why individuals pursue certain goals. Motivation, according to the self-determination theory, can be differentiated into autonomous (self-concordant) and controlled motivation. According to the self-concordance model the degree to which goals are autonomous will determine individuals' effort in achieving their goals. Goals that are achieved relate to psychological need satisfaction for autonomy, competence and relatedness which in turn elicit positive outcomes such as job satisfaction, work engagement and well-being (Greguras & Diefendorff, 2010).

Greguras and Diefendorff (2010) postulate that different types of fit satisfy psychological needs differently. Work role fit is defined as perceived fit between an individual's concept of the self and his work role. Individuals perceiving a fit between their self-concepts and their work roles will experience enough autonomy which will strengthen their work engagement. Individuals will pursue work roles that allow their true selves to be expressed (May et al., 2004). Autonomy (self-determination) and competence are dimensions that reflect proactive

orientation to the work role, whereas work role fit as a sub-dimension of fit which includes person environment fit, addresses the relatedness need of social well-being.

Autonomy support relies on supervisor understanding and acknowledgement of employees' perceptions, supplying information, providing opportunities and encouraging self-initiation. Baard, Deci, and Ryan (2004) state that employees who perceived their supervisors as being more autonomy supportive, exhibited greater job satisfaction and better well-being. Competence and relatedness are necessary for motivation, whether being autonomous or controlled motivation, and are implicit in autonomy support (Deci & Ryan, 2000). Deci and Ryan predict that a work environment characterised by managerial autonomy support will elicit overall need satisfaction (i.e. of all three needs) and result in greater work engagement and psychological well-being. A supportive and trustworthy supervisor will also engender feelings of relatedness amongst subordinates by creating a work environment that will promote cohesion (relational proximity) (Dabos & Rousseau, 2004).

Because satisfaction of all three needs is essential towards well-being, universal needs satisfaction is hypothesised to relate positively to motivation and well-being. Thus, psychological need satisfaction can be regarded as an important mediator between managerial autonomy support (by implication competence and relatedness as well) and work engagement and well-being. Demir and Özdemir (2010) are in support of the mediating role of needs satisfaction in explaining well-being. Van den Broeck, Vansteenkiste, De Witte, and Lens (2008) in their study also defend the mediating function of psychological need satisfaction and various other relationships and well-being.

The availability of resources affects employee motivation through fostering employee growth, providing learning and developmental opportunities, and facilitating goal achievement (Schaufeli et al., 2009). Job resources satisfy psychological needs by increasing job competence through providing proper feedback which cultivates learning. Autonomy needs are satisfied by the freedom to make decisions and social support satisfies the relatedness need. Schaufeli et al. (2009) argue that the effort-recovery approach might be utilised to explain the motivational role of job resources. Employees that receive ample resources will exert more effort in their work tasks in order to successfully attain work goals. Supportive colleagues and performance feedback are essential in achieving work goals. Therefore, the availability of job resources will foster work engagement through a

motivational process that satisfies basic needs for autonomy, competence and relatedness. On the basis of this literature support, the following hypotheses are proposed.

Hypothesis 4a: Work role fit is positively related to satisfaction of the psychological needs for autonomy, competence and relatedness

Hypothesis 4b: Positive supervisor relations are positively related to satisfaction of the psychological needs for autonomy, competence and relatedness

Hypothesis 4c: Availability of resources is positively related to satisfaction of the psychological needs for autonomy, competence and relatedness

Hypothesis 5: Satisfaction of psychological needs for autonomy, competence and relatedness mediates the relationship between antecedents of well-being at work, job satisfaction, work engagement and flourishing

METHOD

Research design

This study followed a non-random field survey design utilising questionnaires to gather data regarding positive relations, work role fit, personal resources, their relation to self-determination theory and the effect on flourishing in life and at work.

Participants

The sample includes 205 individuals working as information technology professionals in organisations providing specialised software services. Table 1 shows that 69.3% of the sample comprised males, while 30.7% were females. The ages of the participants varied from 25 years to 65 years. A majority of 67.3% of the participants spoke Afrikaans and the majority of the participants (84.9%) were white. More than 90% of the participants were employed on a permanent basis. A total of 66.8% worked more than 41 hours per week. Only 2.4% reported that they played internet games at work. A total of 72.2% of the participants worked fewer than 10 years at the same company.

Table 1

Characteristics of the Participants (N=205)

Item	Category	Frequency	Percentage
Gender	Male	142	69.3
	Female	63	30.7
Race	White	174	84.9
	African	23	11.2
	Coloured	3	1.5
	Indian	4	2.0
	Other	1	.5
Age	25 years	55	26.8
	35 years	74	36.1
	45 years	53	25.9
	55 years	21	10.2
	65 years	2	1.0
Tenure	1 year	48	23.4
	2 years	25	12.2
	3 years	27	13.2
	4 years	23	11.2
	5-9 years	25	12.2
	10+ years	57	27.8
Marital status	Single/widow/widower	65	31.7
	Married	123	60.0
	Divorced	12	5.9
	Remarried	5	2.4
Home language	Afrikaans	138	67.3
	English	45	22.0
	Other	22	10.7
Basis employed	Permanent	187	91.2
	Long term contract	11	5.4
	Hourly contract	4	2.0
	Other	3	1.5
Work hours per week	Up to 10	1	.5
	21 – 30	1	.5
	31 – 40	66	32.2
	41 – 50	113	55.1
	51 or more	24	11.7
Overtime hours per week	5	133	64.9
	10	55	26.8
	15	7	3.4
	20	10	4.9

Measuring instruments

In this study, the following measuring instruments were used: the Work Role Fit Scale (WRFS), Work-related Basic Need Satisfaction Scale (WBNSS), Mental Health Continuum Short Form (MHC-SF), Job Satisfaction Scale (JSS) and Work Engagement Scale (WES).

The *Work Role Fit Scale* (WRFS; May et al., 2004) was used to measure work role fit by averaging four items (e.g., “My job ‘fits’ how I see myself”), which measure individuals’ perceived fit with their jobs and self-concept. For all items, a five-point agreement-disagreement Likert scale varying from 1 (*never*) to 5 (*always*) was used. The reliability of the WRFS was confirmed by a study done by Olivier and Rothmann (2007) in a petrochemical company ($\alpha = 0.90$).

The *Work-related Basic Need Satisfaction Scale* (WBNSS; Van den Broeck, Vansteenkiste, De Witte, Soenens, & Lens, 2010) was used to measure psychological need satisfaction. The WBNSS measures the satisfaction of three psychological needs, namely autonomy (5 items; e.g., “I feel like I can pretty much be myself at work”), competence (5 items; e.g., “I feel competent at work”) and relatedness (5 items, e.g., “People at work care about me”). The items were evaluated on a 5-point scale varying from 1 (*totally disagree*) to 5 (*totally agree*). Cronbach’s alpha coefficients of 0.86, 0.88 and 0.86 confirm the reliability for autonomy, competence and relatedness satisfaction, respectively.

The *Mental Health Continuum Short Form* (MHC-SF; Keyes, 2009) was used to measure flourishing. The MHC-SF consists of 14 items measuring three dimensions, namely emotional well-being (three items, e.g., “During the past month, how often did you feel happy?”), social well-being (five items, e.g., “During the past month, how often did you feel that you had something important to contribute to society?”) and psychological well-being (six items, e.g., “During the past month, how often did you feel that you liked most parts of your personality?”). Response options ranged from 1 (*never*) to 6 (*every day*). Studies by Keyes (2009) and Keyes et al. (2008) confirmed the three factor structure of the short form of the MHC – in the USA and South Africa. The alpha coefficients of the three scales were higher than 0.80.

The *Job Satisfaction Scale* (JSS; Rothmann, 2010) was used to measure job satisfaction. Three items measured how satisfied individuals felt with their jobs (e.g., “I feel fairly satisfied with my present job”; and “I find real enjoyment in my work”). Response options ranged from 1 (*totally disagree*) to 5 (*totally agree*). The Cronbach alpha coefficient for the JSS was 0.84.

The *Work Engagement Scale* (WES; Rothmann, 2010) was used to measure work engagement. The WES consists of three scales which are summed to assess work engagement, namely cognitive engagement (3 items; e.g., “I get so into my job that I lose track of time”), emotional engagement (3 items; e.g., “I am passionate about my job”) and physical engagement (3 items; e.g., “I feel a lot of energy when I am performing my job”). A 7-point frequency scale varying from 1 (*almost never or never*) to 7 (*always or almost always*) was used for all items. Evidence for the construct validity of the WES was reported by Rothmann (2010) and the following alpha coefficients for the three scales of the WES were found: physical engagement = 0.80; emotional engagement = 0.82; and cognitive engagement = 0.78.

Research procedure

The researcher administered a survey questionnaire to the participants electronically. The questionnaire was accompanied by a cover letter explaining the purpose and emphasising the confidentiality of the research project. Managers from various information technology organisations were contacted to introduce the research topic to them and to obtain permission from them to involve their employees in the project. Respondents were assured that their participation was anonymous and voluntary and that they could withdraw at any stage. From May 2011 until July 2011 questionnaires were made available online. The raw data was captured and converted to an SPSS dataset.

Statistical analysis

Descriptive statistics were utilised to explore the data. Internal consistencies of the measuring instruments were assessed by means of Cronbach alpha coefficients which reveal relevant information regarding the amount of variance in a scale (Clark & Watson, 1995). Pearson product-moment correlation coefficients specified the relationships between variables, with

the level of statistical significance set at $p \leq 0.05$. The practical significance of the findings was decided by means of effect sizes (Steyn, 1999). A cut-off point of 0.30 (medium effect, Cohen, 1988) was set for the practical significance of correlation coefficients.

The amount of variance in the dependent variable predicted by the independent variables was determined by conducting hierarchical multiple regression analyses. The value of R^2 was used to determine the amount of the total variance of the dependent variable which is explained by the independent variables. A significant regression between the dependent and independent variables was indicated by the F -test (Tabachnick & Fidell, 2001).

RESULTS

Descriptive statistics, alpha coefficients and correlations

Table 2 reports the descriptive statistics, alpha coefficients and correlations of the WRFS, WBNSS, MHC-SF, JSS and WES. Table 2 shows alpha coefficients ranging from 0.79 to 0.95, thus being higher than 0.70 for all of the scales which indicate acceptable internal consistency (Nunnally & Bernstein, 1994).

Table 2 shows that work role fit is practically significantly and positively related to supervisor relations and relatedness satisfaction (all medium effects) and negatively to resources (medium effect). Work role fit is also practically significantly and positively related to autonomy satisfaction, job satisfaction, engagement (all large effects) and emotional, psychological and social well-being (all medium effects). Resources are practically significantly and negatively related to work role fit, supervisor relations, relatedness and competence satisfaction (all medium effects) and autonomy satisfaction (large effect). Table 2 shows that resources are practically significantly and negatively related to job satisfaction (large effect), engagement, emotional, psychological and social well-being (all medium effects).

Table 2

Descriptive Statistics, Alpha Coefficients and Pearson Correlations of the Scales (N=205)

Variable	Mean	SD	α	1	2	3	4	5	6	7	8	9	10
1. Work Role Fit	3.92	1.36	0.92	-	-	-	-	-	-	-	-	-	-
2. Resources	2.32	1.00	0.79	-0.42 ^{**+}	-	-	-	-	-	-	-	-	-
3. Supervisor Relations	4.21	1.24	0.95	0.43 ^{**+}	-0.30 ^{**+}	-	-	-	-	-	-	-	-
4. SDT: Autonomy	3.49	0.66	0.79	0.59 ^{**++}	-0.57 ^{**++}	0.55 ^{**++}	-	-	-	-	-	-	-
5. SDT: Competence	3.98	0.54	0.79	0.27 ^{**}	-0.47 ^{**+}	0.18 ^{**}	0.43 ^{**+}	-	-	-	-	-	-
6. SDT: Relatedness	3.60	0.69	0.81	0.45 ^{**+}	-0.39 ^{**+}	0.48 ^{**+}	0.67 ^{**++}	0.27 ^{**}	-	-	-	-	-
7. Job Satisfaction	3.64	0.76	0.84	0.64 ^{**++}	-0.55 ^{**++}	0.47 ^{**+}	0.70 ^{**++}	0.38 ^{**+}	0.49 ^{**+}	-	-	-	-
8. Work Engagement	5.06	1.01	0.92	0.63 ^{**++}	-0.45 ^{**+}	0.39 ^{**+}	0.54 ^{**++}	0.36 ^{**+}	0.39 ^{**+}	0.60 ^{**++}	-	-	-
9. MHC: Emotional	3.49	0.93	0.87	0.46 ^{**+}	-0.41 ^{**+}	0.33 ^{**+}	0.41 ^{**+}	0.26 ^{**}	0.37 ^{**+}	0.42 ^{**+}	0.42 ^{**+}	-	-
10. MHC: Psychological	3.44	0.90	0.86	0.49 ^{**+}	-0.41 ^{**+}	0.42 ^{**+}	0.52 ^{**++}	0.40 ^{**+}	0.50 ^{**++}	0.43 ^{**+}	0.55 ^{**++}	0.68 ^{**++}	-
11. MHC: Social	2.48	1.09	0.82	0.38 ^{**+}	-0.32 ^{**+}	0.35 ^{**+}	0.50 ^{**++}	0.25 ^{**}	0.39 ^{**+}	0.28 ^{**}	0.46 ^{**+}	0.51 ^{**++}	0.64 ^{**++}

* $p < 0.05$

** $p < 0.01$

+ Practically significant, medium effect ($r > 0.30$)

++ Practically significant, large effect ($r > 0.50$)

Supervisor relations are practically significantly related to autonomy satisfaction (large effect), and to relatedness satisfaction (medium effect). Table 2 shows that supervisor relations are practically significantly related to job satisfaction, work engagement, emotional, psychological and social well-being (all medium effects).

Job satisfaction and work engagement are practically significantly related to the satisfaction of psychological needs for autonomy (large effect), competence and relatedness (both medium effects). Emotional well-being is practically significantly related to autonomy and relatedness satisfaction. Psychological well-being is practically significantly related to competence satisfaction (medium effect), and autonomy and relatedness satisfaction (both large effects). Social well-being is practically significantly related to autonomy satisfaction (large effect) and relatedness satisfaction (medium effect). Table 2 shows that job satisfaction is practically significantly and positively related to work engagement (large effect), emotional and psychological well-being (both medium effects) and social well-being. Work engagement is practically significantly related to emotional and social well-being (medium effects) and psychological well-being (large effect).

Hierarchical regression analyses

Hierarchical regression analyses were performed. In step 1, the contributions of work role fit, resources and supervisor relations to job satisfaction, work engagement and emotional, psychological and social well-being were assessed. In step 2, the contributions of work role fit, resources, supervisor relations and psychological need satisfaction to job satisfaction, work engagement and emotional, psychological and social well-being were assessed (see Table 3).

Table 3

Hierarchical Multiple Regression Analyses of Antecedents, Psychological Needs, Organisational Outcomes and Flourishing

Variable	Job Satisfaction		Work Engagement		Emotional Well-being		Psychological Well-being		Social Well-being	
	Step 1	Step 2	Step 1	Step 2	Step 1	Step 2	Step 1	Step 2	Step 1	Step 2
Work Role Fit	0.42*	0.32*	0.49*	0.44*	0.31*	0.29*	0.30*	0.22*	0.22*	0.11
Resources	-0.32*	-0.18*	-0.21*	-0.12	-0.25*	-0.22*	-0.23*	-0.08	-0.17*	-0.02
Supervisor	0.20*	0.09	0.12*	0.08	0.12	0.09	0.22*	0.13*	0.20*	0.08
SDT Autonomy	-	0.34*	-	0.12	-	-0.03	-	0.04	-	0.31*
SDT Competence	-	0.04	-	0.13*	-	0.05	-	0.19*	-	0.05
SDT Relatedness	-	-0.01	-	-0.00	-	0.12	-	0.22*	-	0.08
R^2	0.54	0.60	0.45	0.47	0.29	0.30	0.33	0.40	0.21	0.27
F	78.77*	48.70*	54.06*	29.07*	26.67*	13.80*	32.92*	22.30*	17.86*	12.48*
Df	3/201	6/198	3/201	6/198	3/201	6/198	3/201	6/198	3/201	6/198
ΔR^2	0.54*	0.06*	0.45*	0.02*	0.29*	0.01	0.33*	0.07*	0.21*	0.06
ΔF	78.77*	9.11*	54.06*	2.71*	26.67*	1.00	32.92*	8.17*	17.86*	5.81*
Df	-	3/198	-	3/198	3/201	6/198	3/201	6/198	3/201	6/198

 $p < 0.05$

Table 3 shows that work role fit, resources and supervisor relations predicted 54% of the variance in the job satisfaction of IT professionals ($F = 78.77, p < 0.01$). The regression coefficients of work role fit ($\beta = 0.42, p < 0.01$), resources ($\beta = -0.32, p < 0.01$) and supervisor relations ($\beta = 0.20, p < 0.01$) were statistically significant. Entering psychological needs as independent variables in step 2, resulted in a statistically significant improvement in R^2 ($\Delta F = 9.11, p < 0.01, \Delta R^2 = 0.06$), explaining another 6% of the variance in job satisfaction. The regression coefficients of three variables were statistically significant, namely work role fit ($\beta = 0.32, p < 0.01$), resources ($\beta = -0.18, p < 0.01$) and autonomy ($\beta = 0.34, p < 0.01$).

Work role fit, resources and supervisor relations predicted 45% of the variance in work engagement ($F = 54.06, p < 0.01$). The regression coefficients of work role fit ($\beta = 0.49, p < 0.01$), resources ($\beta = -0.21, p < 0.01$) and supervisor relations ($\beta = 0.12, p < 0.01$) were statistically significant. When psychological needs were entered as independent variables in step 2, it resulted in a statistically significant improvement in R^2 ($\Delta F = 2.71, p < 0.01, \Delta R^2 = 0.02$). The regression coefficients of work role fit ($\beta = 0.44, p < 0.01$) and competence ($\beta = 0.13, p < 0.01$) were statistically significant.

Table 3 shows that work role fit, resources and supervisor relations predicted 29% of the variance in emotional well-being of IT professionals ($F = 26.67, p < 0.01$). The regression coefficients of work role fit ($\beta = 0.31, p < 0.01$) and resources ($\beta = -0.25, p < 0.01$) were statistically significant. Entering psychological needs as independent variables in step 2, did not result in a statistically significant improvement in R^2 ($\Delta F = 1.00, p < 0.01, \Delta R^2 = 0.01$), explaining only 1% more of the variance in emotional well-being. The regression coefficients of two variables were statistically significant, namely work role fit ($\beta = 0.29, p < 0.01$) and resources ($\beta = -0.22, p < 0.01$).

Table 3 shows that work role fit, resources and supervisor relations predicted 33% of the variance in the psychological well-being of IT professionals ($F = 32.92, p < 0.01$). The regression coefficients of work role fit ($\beta = 0.30, p < 0.01$), resources ($\beta = -0.23, p < 0.01$) and supervisor relations ($\beta = 0.22, p < 0.01$) were all statistically significant. Entering psychological needs as independent variables in step 2, resulted in a statistically significant improvement in R^2 ($\Delta F = 8.17, p < 0.01, \Delta R^2 = 0.07$), explaining an additional 7% of the variance in psychological well-being. The regression coefficients of four variables were

statistically significant, namely work role fit ($\beta = 0.22, p < 0.01$), supervisor relations ($\beta = 0.13, p < 0.01$), competence ($\beta = 0.19, p < 0.01$) and relatedness ($\beta = 0.22, p < 0.01$).

Work role fit, resources and supervisor relations predicted 21% of the variance in the social well-being of IT professionals ($F = 17.86, p < 0.01$). The regression coefficients of work role fit ($\beta = 0.22, p < 0.01$), resources ($\beta = -0.17, p < 0.01$) and supervisor relations ($\beta = 0.20, p < 0.01$) were all statistically significant. Entering psychological needs as independent variables in step 2, resulted in a statistically significant improvement in R^2 ($\Delta F = 5.81, p < 0.01, \Delta R^2 = 0.06$), explaining an additional 6% of the variance in social well-being. The regression coefficient of one variable was statistically significant, namely autonomy ($\beta = 0.31, p < 0.01$).

Not shown in Table 3, are the results of multiple regression analyses with work role fit, supervisor relations and resources as independent variables and autonomy, competence and relatedness satisfaction as dependent variables. The results showed that work role fit, resources and supervisor relations predicted 55% of the variance in the autonomy satisfaction of IT professionals ($F_{3, 201} = 82.45, p < 0.01$). The regression coefficients of work role fit ($\beta = 0.31, p < 0.01$), resources ($\beta = -0.35, p < 0.01$) and supervisor relations ($\beta = 0.31, p < 0.01$) were statistically significant. Work role fit, resources and supervisor relations predicted 23% of the variance in the competence satisfaction of IT professionals ($F_{3, 201} = 19.75, p < 0.01$). The regression coefficient of resources ($\beta = -0.43; p < 0.01$) was statistically significant. Lastly, work role fit, resources and supervisor relations predicted 33% of the variance in the relatedness satisfaction of IT professionals ($F_{3, 201} = 33.22, p < 0.01$). The regression coefficients of work role fit ($\beta = 0.22, p < 0.01$), resources ($\beta = -0.21, p < 0.01$) and supervisor relations ($\beta = 0.32, p < 0.01$) were statistically significant.

Mediation effects

To test whether psychological need satisfaction functioned as a mediator between work role fit, supervisor relations, resources and individual and organisational outcomes and subjective well-being, mediation analyses were conducted using the analytical approach of Hayes and Preacher (in press), who recommended percentile confidence intervals (CIs) as obtained through bootstrapping to measure indirect effects. Lower CIs (LCIs) and upper CIs (UCIs) are reported. The results are reported in Tables 4 and 5.

Table 4

Indirect Effects of Independent Variables on Job Satisfaction and Work Engagement via Psychological Need Satisfaction

Variable	Job Satisfaction				Work Engagement			
	EFF	SE	LLCI	ULCI	EFF	SE	LLCI	ULCI
AUTONOMY								
Omnibus	0.21	0.06	0.12	0.34	-	-	-	-
Work Role Fit	0.06	0.02	0.02	0.11	-	-	-	-
Supervisor	0.06	0.02	0.03	0.11	-	-	-	-
Resources	-0.09	0.03	-0.15	-0.05	-	-	-	-
COMPETENCE								
Omnibus	-	-	-	-	0.05	0.03	0.01	0.13
Work Role Fit	-	-	-	-	0.01	0.01	-0.01	0.04
Supervisor	-	-	-	-	0.00	0.01	-0.02	0.02
Resources	-	-	-	-	-0.06	0.03	-0.12	-0.01

Regarding the indirect effects on job satisfaction, the 95% CIs of the omnibus indirect effect for autonomy (and the indirect effects of work role fit, supervisor relations and lack of resources) did not include zeros. The 95% confidence intervals for the omnibus indirect effects (and indirect effects for all the independent variables) for competence (effect = 0.01, SE = 0.02) and relatedness (effect = 0.00, SE = 0.03) on job satisfaction included zeros. Therefore, work role fit, the availability of physical, cognitive and emotional resources and supervisor relations had indirect effects on job satisfaction via the satisfaction of individuals' autonomy needs.

Regarding the indirect effects on job satisfaction, the 95% CIs of the omnibus indirect effect for competence (and the indirect effect of work role fit, supervisor relations and lack of resources) did not include zeros. The 95% confidence intervals for the omnibus indirect effects (and indirect effects for all the independent variables) for autonomy (effect = 0.10, SE = 0.08) and relatedness (effect = 0.00, SE = 0.04) included zeros. Therefore, the availability of physical, cognitive and emotional resources had indirect effects on work engagement via the satisfaction of individuals' competence needs.

The indirect effects of the independent variables on dimensions of flourishing are reported in Table 5. The 95% confidence intervals for the omnibus indirect effects (and indirect effects for all the independent variables) for autonomy (effect = -0.03, SE = 0.09), competence

(effect = 0.02, SE = 0.03), and relatedness (effect = 0.05, SE = 0.04) on emotional well-being included zeros. Furthermore, the 95% confidence intervals for the omnibus indirect effect (and indirect effects for all the independent variables) for autonomy (effect = 0.03, SE = 0.08) on psychological well-being included zeros.

Table 5
Indirect Effects of Independent Variables on Flourishing via Psychological Need Satisfaction

Variable	Psychological Well-being				Social Well-being			
	EFF	SE	LLCI	ULCI	EFF	SE	LCI	ULC
AUTONOMY	-	-	-	-				
Omnibus	-	-	-	-	0.28	0.10	0.09	0.47
Work Role Fit	-	-	-	-	0.08	0.03	0.02	0.14
Supervisor	-	-	-	-	0.08	0.04	0.02	0.16
Resources	-	-	-	-	-0.11	0.05	-0.21	-0.03
COMPETENCE								
Omnibus	0.07	0.03	0.02	0.14	-	-	-	-
Work Role Fit	-	-	-	-	-	-	-	-
Supervisor	-	-	-	-	-	-	-	-
Resources	-0.08	0.01	-0.14	-0.02	-	-	-	-
RELATEDNESS								
Omnibus	0.09	0.04	0.03	0.19	-	-	-	-
Work Role Fit	0.03	0.02	0.01	0.07	-	-	-	-
Supervisor	0.05	0.03	0.02	0.11	-	-	-	-
Resources	-0.04	0.02	-0.09	-0.01	-	-	-	-

Regarding the indirect effects on psychological well-being, the 95% CIs of the omnibus indirect effect for competence (and the indirect effect of lack of resources) did not include zeros. The 95% CIs of the omnibus indirect effect for relatedness (and the indirect effects of work role fit, supervisor relations, and lack of resources) did not include zeros. Furthermore, work role fit, the availability of physical, cognitive and emotional resources and supervisor relations had indirect effects on psychological well-being via the satisfaction of individuals' relatedness needs.

Concerning the indirect effects on social well-being, the 95% CIs of the omnibus indirect effect for autonomy (and the indirect effects of work role fit, supervisor relations and lack of resources) did not include zeros. The 95% confidence intervals for the omnibus indirect effect (and indirect effects for all the independent variables) for competence (effect = 0.02, SE = 0.04) and relatedness (effect = 0.04, SE = 0.06) on social well-being included zeros.

Therefore, work role fit, the availability of physical, cognitive and emotional resources and supervisor relations had indirect effects on social well-being via the satisfaction of individuals' autonomy needs.

Table 6

Results of Hypotheses Testing

HYPOTHESIS	ACCEPTED / REJECTED
1	Accepted
2	Accepted
3	Accepted
4a	Partially accepted
4b	Partially accepted
4c	Accepted
5	Accepted

DISCUSSION

The aim of this study was to investigate the relationship between antecedents of well-being at work and satisfaction of psychological needs on organisational outcomes such as job satisfaction, work engagement and flourishing. Work role fit, the availability of cognitive, emotional and physical resources and supervisor relations had moderate to strong effects on psychological need satisfaction and flourishing of IT professionals. The results showed that work role fit, resources and supervisor relations impacted job satisfaction, work engagement and flourishing (i.e. emotional, psychological and social well-being) of IT professionals directly and indirectly through autonomy, competence and relatedness satisfaction.

Work role fit, the availability of cognitive, emotional and physical resources and supervisor relations explained relatively large percentages of the variance in job satisfaction and work engagement (which are regarded as dimensions of flourishing at work, Rothmann, in press). These dimensions were also moderately to strongly related to emotional, psychological and social well-being (i.e. flourishing in life, Keyes & Annas, 2008), although supervisor relations did not contribute significantly to emotional well-being. Of the three dimensions of flourishing, work role fit, supervisor relations and resources had the strongest effect on psychological well-being (33% of the variance explained), with emotional well-being slightly

lower (29% of the variance explained) and social well-being the lowest (21% of the variance explained).

Antecedents of well-being at work are important in SDT and flourishing, as favourable organisational outcomes are directly related to work role fit, being able to utilise one's cognitive, emotional and physical resources and maintaining good supervisor relations. Fredrickson (1998) argues that positive organisational outcomes such as job satisfaction and work engagement are related to positive workplace attitudes such as joy, contentment, caring and interest – the initial three indicative of employee emotions in the workplace. Job satisfaction can be related to contentment, whereas engagement relates to emotional and cognitive activity (Harter et al., 2002).

These aforementioned employee emotions link to SDT in the following way: joy, interest and caring satisfy the relatedness need. A trusting supervisor who pays attention to the way in which employees are managed and who is responsive to the uniqueness of every individual, will contribute towards experiences which lead to higher frequencies of joy, interest and caring, and a bonding of individuals to one another, their work and the organisation. Work role fit will satisfy the needs for autonomy, competence and relatedness as there will be synergy between the individual self and the job to be performed; and between the environment (including co-workers) and performance (Harter et al., 2002). Being in possession of the necessary personal resources to do the job, i.e. cognitive, emotional and physical resources, will satisfy the competence need which will lead to greater work engagement and psychological well-being (Kahn, 1990; May et al., 2004).

Therefore, concerning the predictors of psychological need satisfaction, the results showed that work role fit and the availability of cognitive, emotional and physical resources, and supervisor relations contributed strongly to autonomy satisfaction. Work role fit, the availability of cognitive, emotional and physical resources also contributed to relatedness satisfaction, although supervisor relations were the strongest predictor. These results support evidence for the effect of socio-contextual factors on psychological need satisfaction (Baard, Deci, & Ryan 2004; Greguras & Diefendorff, 2010).

Job satisfaction was best explained by work role fit, resources and autonomy satisfaction. Van Prooijen (2009) states that when autonomy is infringed, employees wish to ascertain

whether or not their supervisors are caring enough to respect their autonomy by dissecting every action of the supervisor in order to determine their intention. Eckloff and Van Quaquebeke (2007) found that psychological need satisfaction evoked positive feelings towards the job – autonomy being the strongest predictor of job satisfaction. Work role fit, resources and supervisor relations impacted job satisfaction indirectly via autonomy satisfaction. Indeed, SDT predicts that the socio-contextual environment could affect the autonomy satisfaction of individuals which in turn results in improved well-being (Deci & Ryan, 2008).

Work engagement was strongly associated with work role fit and competence satisfaction (47% of the variance explained). It was also evident that the availability of cognitive, emotional and physical resources was the only significant predictor of competence satisfaction (Kahn, 1990). Analyses of the indirect effects showed that the availability of resources impacted work engagement indirectly via competence satisfaction. Therefore, if employees are able to express their values, beliefs and principles as a result of a perceived fit between their self-concepts and their work roles (May et al., 2004), and they experience competence satisfaction (because they do have sufficient cognitive, emotional and physical resources), they will tend to be engaged in their work (Deci & Ryan, 2008).

Regarding flourishing in life, the results showed that work role fit and the availability of resources contributed strongly to emotional well-being. Psychological need satisfaction did not predict emotional well-being in the regression analyses. However, the Pearson correlations showed that emotional well-being was related to satisfaction of the three psychological needs. Strong correlations between work role fit, availability of resources and emotional well-being probably suppressed the relations between psychological need satisfaction and emotional well-being in the regression equation. In addition, psychological need satisfaction is expected to play a more important role in eudaimonic well-being (e.g., psychological and social well-being) compared with emotional well-being (Ryan et al., 2008).

Psychological well-being was best predicted by work role fit, supervisor relations, and competence and relatedness satisfaction. The availability of resources impacted psychological well-being indirectly via competence satisfaction. Furthermore, work role fit, supervisor relations and the availability of resources impacted psychological well-being via relatedness

satisfaction. Work role fit, the availability of resources and supervisor relations explained 21% of the variance in social well-being. These factors impacted social well-being indirectly via autonomy satisfaction. Therefore, when employees feel that they fit into their work roles, feel that they have the personal resources and experience supportive supervisor relations, their needs for autonomy are also more satisfied, resulting in their feeling that their lives and the outputs of their activities are useful to society, experiencing a sense of belonging to a community and deriving support and comfort from the community; believing that people, groups and society have potential and can grow positively; and holding a positive attitude towards others (Keyes, 2007). It seems that autonomy satisfaction is an important pathway to social well-being.

Positive work relations enable individuals and organisations to grow, learn and flourish; whereas negative relations can be poisonous, dysfunctional, agonizing and depleting (Ragins & Dutton, 2007). Employment relationships can be steered in the right direction by ensuring that the right person is appointed in the job (i.e. suitable work role fit), that employees possess the necessary personal resources to do their jobs (Kahn, 1990) and that the supervisor-subordinate relationship is supportive and trusting (May et al., 2004). These factors contribute to psychological need satisfaction, job satisfaction, work engagement and flourishing.

The study had various limitations. First, the cross-sectional nature of the data limited the interpretation of the findings of the study. Second, the sample size was relatively small in comparison with the number of variables used and presented relatively homogeneous gender and cultural groups. Third, causality of relationships could not be proven as the findings of the study were based on correlational data. Longitudinal studies could provide more insight into the antecedents impacting on well-being at work and subsequent positive outcomes and flourishing. Fourth, this research relied on self-report instruments to measure target variables.

RECOMMENDATIONS

Based on the findings of this study, it is recommended that the following aspects are addressed to support the flourishing of IT professionals. Firstly, interventions should be made to ensure work role fit of employees in the organisation, together with learning and advancement opportunities, provision of ample resources and autonomy in their jobs.

Secondly, interventions should be implemented to create an organisational supportive climate conducive to quality and trusting supervisor-subordinate relations and clear communication channels that would contribute towards greater job satisfaction and work engagement. Management can support autonomy by adopting the perspective of employees, encouraging initiation and volition and by being responsive to employee initiatives and questions (Deci & Ryan, 2008).

To extend the research, future research may examine the antecedents of well-being at work and the impact via psychological need satisfaction on organisational outcomes and flourishing in a longitudinal design. Future studies should include larger sample sizes and should be more representative in terms of gender and cultural diversity in South Africa, especially in, but not limited to the information technology industry. Experimental studies regarding work role fit, availability of resources, positive relations, psychological need satisfaction and flourishing in work and life are necessary to deduce causality of relationships. Objective measures of job satisfaction, work engagement and flourishing could be used in future studies. Future studies should explore the relationship between antecedents of well-being at work, basic psychological need satisfaction and flourishing and the impact thereof on individual and organisational outcomes in other industries.

REFERENCES

- Baard, P. P., Deci, E. L., & Ryan, R. M. (2004). Intrinsic need satisfaction: A motivational basis of performance and well-being in two work settings. *Journal of Applied Social Psychology, 34*, 2045–2068.
- Bakker, A. B., & Demerouti, E. (2007). The job demands-resources model: State of the art. *Journal of Managerial Psychology, 22*, 309–328.
- Bakker, A. B., Demerouti, E., & Schaufeli, W. B. (2003). Dual processes at work in a call centre: An application of the job-demands resources model. *European Journal of Work and Organizational Psychology, 12*, 393–417.
- Bakker, A. B., Schaufeli, W. B., Leiter, M. P., & Taris, T. W. (2008). Work engagement: An emerging concept in occupational health psychology. *Work and Stress, 22*, 187–200.
- Bono, J. E., Davies, S. E., & Rasch, R. L. (2012). Some traits associated with flourishing at work. In K. Cameron & G. M. Spreitzer (Eds.), *The Oxford handbook of positive organizational scholarship* (pp. 125–137). New York, NY: Oxford University Press.
- Bowling, N. A., Eschleman, K. J., & Wang, Q. (2010). A meta-analytic examination of the relationship between job satisfaction and subjective well-being. *Journal of Occupational and Organizational Psychology, 83*, 915–934.
- Cameron, K. S., Dutton, J., & Quinn, R. (2003). Foundations of positive organizational scholarship. In K. S. Cameron, J. E. Dutton & R. E. Quinn (Eds.), *Positive organizational scholarship* (pp. 1–10). San Francisco, CA: Berrett-Koehler.
- Campbell, A., Converse, P. E., & Rodgers, W. L. (1976). *The quality of American life: Perceptions, evaluations, and satisfactions*. New York, NY: Russell Sage.
- Chatman, J. A. (1989). Improving interactional organizational research: A model of person-organization fit. *Academy of Management Journal, 14*, 333–349.
- Clark, L. A., & Watson, D. (1995). Construct validity: Basic issues in objective scale development. *Psychological Assessment, 7*, 309–319.
- Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (Rev.ed.). Orlando, FL: Academic Press.
- Dabos, G. E., & Rousseau, D. M. (2004). *Social interaction patterns shaping employee psychological contracts*. Paper presented at the 64th Annual Meeting of the Academy of Management, Organizational Behavior Division, New Orleans, LA.
- Deci, E. L., & Ryan, R. M. (1985). *Intrinsic motivation and self-determination in human behavior*. New York, NY: Plenum.

- Deci, E. L., & Ryan, R. M. (2000). The “what” and “why” of goal pursuits: Human needs and the self-determination of behaviour. *Psychological Inquiry, 11*, 319–338.
- 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.
- Demir, M., & Özdemir, M. (2010). Friendship, need satisfaction and happiness. *Journal of Happiness Studies, 11*, 243–259.
- Durham, C. C., Knight, D., & Locke, E. A. (1997). Effects of leader role, team-set goal difficulty, efficacy, and tactics on team effectiveness. *Organizational Behavior and Human Decision Processes, 72*, 203–231.
- Eckloff, T., & Van Quaquebeke, N. (2007, May). *Respectful leadership: How satisfying subordinates’ needs for self-determination will lead to identification, respect and satisfaction*. Poster presented at the 13th European Congress of Work and Organizational Psychology, Stockholm, Sweden.
- Edmondson, A. (2004). Psychological safety and learning behaviour in work teams. *Administrative Science Quarterly, 44*, 350–383.
- Edwards, J. R., & Cooper, C. L. (1990). The person-environment fit approach to stress: Recurring problems and some suggested solutions. *Journal of Organizational Behavior, 11*, 293–307.
- Fredrickson, B. L. (1998). What good are positive emotions? *Review of General Psychology, 2*, 300–319.
- Fredrickson, B. L. (2004). The broaden-and-build theory of positive emotions. *Philosophical Transaction: Biological Sciences, 359*, 1367–1377.
- French, J. R., French, P., Caplan, R. D., & Harrison, R. V. (1982). *The mechanisms of job stress and strain*. London, United Kingdom: Wiley.
- Greguras, G. J., & Diefendorff, J. M. (2010). Why does proactive personality predict employee life satisfaction and work behaviors? A field investigation of the mediating role of the self-concordance model. *Personnel Psychology, 63*, 539–560.
- Griffin, M. A., Patterson, M. G., & West, M. A. (2001). Job satisfaction and team work: The role of supervisor support. *Journal of Organizational Behavior, 22*, 537–550.
- Harter, J. K., Schmidt, F. L., & Keyes, C. L. M. (2002). Well-being in the workplace and its relationship to business outcomes: A review of the Gallup Studies. In C. L. M. Keyes & J. Haidt (Eds.). *Flourishing: The positive person and the good life* (pp. 205–224). Washington, DC: American Psychological Association.

- Hayes, A. F., & Preacher, K. J. (in press). Indirect and direct effects of a multi-categorical agent in statistical mediation analysis. Manuscript submitted for publication.
- Hobfoll, S. E. (1989). Conservation of resources: A new attempt at conceptualizing stress. *American Psychologist, 44*, 513–524.
- Hobfoll, S. E. (1998). *Stress, culture, and community: The psychology and philosophy of stress*. New York, NY: Plenum Press.
- Hobfoll, S. E., Johnson, R. J., Ennis, N., & Jackson, A. P. (2003). Resource loss, resource gain, and emotional outcomes among inner city women. *Journal of Personality and Social Psychology, 84*, 632–643.
- Hobfoll, S. E., & Wells, J. D. (1998). Conservation of resources, stress, and aging: Why do some slide and some spring? In J. Lomranz (Ed.), *Handbook of aging and mental health: An integrative approach* (p. 121-134). New York, NY: Plenum Press.
- Judge, T. A., Locke, E. A., & Durham, C. C. (1997). The dispositional causes of job satisfaction: A core evaluations approach. *Research in Organizational Behavior, 19*, 151–188.
- Judge, T. A., Van Vianen, A. E. M., & De Pater, I. (2004). Emotional stability, core self-evaluations, and job outcomes: A review of the evidence and an agenda for future research. *Human Performance, 17*, 325–346.
- Kahn, W. A. (1990). Psychological conditions of personal engagement and disengagement at work. *Academy of Management Journal, 33*, 692–724.
- Keyes, C. L. M. (2002). The mental health continuum: From languishing to flourishing in life. *Journal of Health and Social Behavior, 43*, 207–222.
- Keyes, C. L. M. (2005). Mental illness and/or mental health? Investing axioms of the complete state model of health. *Journal of Consulting and Clinical Psychology, 73*, 539–548.
- Keyes, C. L. M. (2007). Promoting and protecting mental health as flourishing. *American Psychologist, 62*, 95–108.
- Keyes, C. L. M. (2009). *Brief description of the Mental Health Continuum Short Form (MHC-SF)*. Available: <http://www.sociology.emory.edu/ckeyes/>. [On-line, retrieved 14 December 2010].
- Keyes, C. L. M., & Annas, J. (2009). Feeling good and functioning well: Distinctive concepts in ancient philosophy and contemporary science. *Journal of Positive Psychology, 4*, 197–201.

- Keyes, C. L. M., & Haidt, J. (2003). *Flourishing: Positive psychology and the life well-lived*. Washington, DC: American Psychological Association.
- Keyes, C. L. M., Wissing, M., Potgieter, J. P., Temane, M., Kruger, A., & Van Rooy, S. (2008). Evaluation of the Mental Health Continuum Short Form (MHC-SF) in Setswana speaking South Africans. *Clinical Psychology and Psychotherapy*, *15*, 181–192.
- Kozlowski, S. W., & Doherty, M. L. (1989). Integration of climate and leadership: Examination of a neglected issue. *Journal of Applied Psychology*, *74*, 546–553.
- Kristof, A. L. (1996). Person-organization fit: An integrative review of its conceptualizations, measurement, and implications. *Personnel Psychology*, *49*, 1–49.
- Kristof-Brown, A. L., Zimmerman, R. D., & Johnson, E. C. (2005). Consequences of individuals' fit at work. A meta-analysis of person-job, person-organization, person-group, and person-supervisor fit. *Personnel Psychology*, *58*, 281–342.
- Leyden, J. (2003). *IT worker burnout gets critical*. Retrieved October 15, 2011, from http://www.theregister.co.uk/2003/03/24/it_worker_burnout_gets_critical.
- Lowry, G., Turner, R., & Fisher, J. (2006). The contribution of employment satisfaction factors to recruiting, retaining and career development of information systems and technology professionals. *The Review of Business Information Systems*, *10*, 137–150.
- Lyubomirsky, S., King, L., & Diener, E. (2005). The benefits of frequent positive affect: Does happiness lead to success? *Psychological Bulletin*, *131*, 803–855.
- Marsden, D., & Moriconi, S. (2011). The impact of employee well-being policies and sickness absence on workplace performance. In D. Lewin, B. E., Kaufman & P. J. Gollan (Eds.). *Advances in industrial and labor relations, Volume 18* (pp. 115–152). London, United Kingdom: Emerald Group Publishing.
- 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.
- Messersmith, J. (2007). Managing work-life conflict among information technology workers. *Human Resource Management*, *46*, 429–451.
- Nunnally, J. C., & Bernstein, I. H. (1994). *Psychometric theory* (3rd ed.). New York, NY: McGraw-Hill.
- Olivier, A. L., & Rothmann, S. (2007). Antecedents of work engagement in a multinational oil company. *South African Journal of Industrial Psychology*, *33*, 49–56.

- Ragins, B. R., & Dutton, J. E. (2007). Positive relationships at work: An introduction and invitation. In J. E. Dutton & B. R. Ragins (Eds.). *Exploring positive relationships at work: Building a theoretical and research foundation*. Mahwah, NJ: Lawrence Erlbaum Associates.
- Robbins, S. P., Judge, T. A., Odendaal, A., & Roodt, G. (2009). *Organisational behaviour: Global and South African perspectives*. Cape Town, South Africa: Pearson Education.
- Roodt, J., & Paterson, A. (2008). *ICT skills in the labour market: an occupational-level analysis focusing on computer professionals and associate professionals, 1996-2005: Scarce and critical skills research project for the Department of Labour in South Africa*. http://www.labour.gov.za/downloads/documents/researchdocuments/ICT%20skills_DoL_Report.pdf
- Rothmann, S. (2010). *The reliability and validity of measuring instruments of happiness in the Southern African context*. Vanderbijlpark, South Africa: North-West University.
- Rothmann, S. (in press). Flourishing at work: A Southern African perspective. In M.P. Wissing (Ed.), *Cross-cultural advancements in positive psychology*. New York, NY: Springer-Verlag.
- 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., Huta, V., & Deci, E. L. (2008). Living well: A self-determination theory perspective on eudaimonia. *Journal of Happiness Studies*, *9*, 139–170.
- Schaufeli, W. B., & Bakker, A. B. (2004). Job demands, job resources and their relationships with burnout and engagement: A multi-sample study. *Journal of Organizational Behavior*, *25*, 293–315.
- Schaufeli, W. B., Salanova, M., Gonzales-Roma, V., & Bakker, A. (2002). The measurement of engagement and burnout: A confirmative analytic approach. *Journal of Happiness Studies*, *3*, 71–92.
- Schneider, B. (1987). The people make the place. *Personnel Psychology*, *40*, 437–454.
- Seligman, M. E. P., & Csikszentmihalyi, M. (2000). Positive psychology: An introduction. *American Psychologist*, *55*, 5–14.
- Sheldon, K. M., Abad, N., Ferguson, Y., Gunz, A., Houser-Marko, L., Nichols, C. P., & Lyubomirsky, S. (2010). Persistent pursuit of need-satisfying goals leads to increased happiness: A 6-month experimental longitudinal study. *Motivation and Emotion*, *34*, 39–48.
- SPSS 19.0 [computer software] (2010). Chicago, IL: SPSS Incorporated.

- Staw, B. M., Sutton, R. I., & Pellod, L. H. (1994). Employee positive emotion and favourable outcomes at the workplace. *Organizational Science*, 5, 51–71.
- Steyn, H. S. (1999). *Praktiese betekenisvolheid: Die gebruik van effekgroottes* [Practical significance: The use of effect sizes]. Wetenskaplike bydraes – Reeks B: Natuurwetenskappe Nr. 117. Potchefstroom: PU vir CHO.
- Tabachnick, B. G., & Fidell, L. S. (2001). *Using multivariate statistics* (4th ed.). Boston, MA: Allyn & Bacon.
- Torrington, D., Hall, L., & Taylor, S. (2008). *Human resource management* (7th ed.). Harlow, FT: Pearson Education.
- Turner, R., & Lowry, G. (2000). Motivating and recruiting intending IS professionals: A study of what attracts IS students to prospective employment. *South African Computer Journal*, 24, 132–137.
- Van den Broeck, A., Vansteenkiste, M., De Witte, H., & Lens, W. (2008). Explaining the relationships between job characteristics, burnout engagement: The role of basic psychological need satisfaction. *Work & Stress*, 22, 277–294.
- Van den Broeck, A., Vansteenkiste, M., De Witte, H., Soenens, B., & Lens, W. (2010). Capturing autonomy, relatedness and competence at work: Construction and validation of the Work-related Basic Need Satisfaction Scale. *Journal of Occupational and Organizational Psychology*, 83, 981–1002.
- Van Prooijen, J. (2009). Procedural justice as autonomy regulation. *Journal of Personality and Social Psychology*, 96, 1166–1180.
- Vella-Brodrick, D., Park, N., & Peterson, C. (2009). Three ways to be happy: Pleasure, engagement, and meaning: Findings from Australian and US samples. *Social Indicators Research*, 90, 156–179.
- Wright, T. A., & Hobfoll, S. E. (2004). Commitment, psychological well-being and job performance: An examination of conservation of resources (COR) theory and job burnout. *Journal of Business and Management*, 9, 389–406.

CHAPTER 5

CONCLUSIONS, LIMITATIONS AND RECOMMENDATIONS

The purpose of this chapter is to draw conclusions from the three articles which comprise this study. Conclusions are drawn in accordance with the research objectives. Furthermore, limitations of this study are discussed and recommendations are made for the organisation. Finally, research opportunities emanating from this study, are presented.

5.1 CONCLUSIONS

Next, the conclusions of the research are drawn.

Flourishing of IT professionals at work

The first objective of this study was to investigate what flourishing in work and life entails, while the second objective investigated the relationships between flourishing and individual and organisational outcomes of information technology professionals in South Africa.

Keyes (2005) developed the concept of flourishing to include emotional, psychological and social well-being in life, but flourishing can also occur in a work and organisational context (Rothmann, in press). With Keyes' conceptualisation of flourishing as foundation, emotional well-being (i.e. feeling well) is indicated by job satisfaction and a positive affect at work. Psychological well-being (positive psychological functioning) refers to work engagement, meaning and purpose in work, autonomy, environmental mastery, relatedness and positive relations (Rothmann, in press). Job satisfaction and work engagement had direct and indirect effects on other organisational outcomes and flourishing.

In this study, the results showed that 58.5% of the IT professionals were neither languishing nor flourishing, while 3.9% were languishing. According to Keyes and Annas (2009), employees who are neither flourishing nor languishing represent an important target for positive mental health promotion. Such employees are not functioning optimally (in terms of emotional, psychological and social well-being) and they might even languish if positive

mental health is not promoted. The 3.9% of IT professionals who were languishing also represent an important focus for immediate intervention.

Flourishing, i.e. the presence of mental health (Keyes, 2007) of IT professionals had a strong direct positive effect on job satisfaction, predicting 27% of the variance. This is in line with findings of Connolly and Wisvesvaran (2000) and Pierce and Gardner (2004) that employees who were psychologically and socially well, exhibited more job satisfaction. The relation between job satisfaction and positive affect (emotional well-being) was also reported by Lyubomirsky, King, and Diener (2005) and the strong effect of an individual's level of subjective well-being on job satisfaction according to the part-whole theory is evident in the study by Bowling, Eschleman, and Wong (2010).

In this study, flourishing had a strong direct effect on organisational commitment as was evident from the structural model, but more strongly via its relationship with job satisfaction (an indirect effect). Flourishing employees experience higher levels of job satisfaction, enhancing their commitment to the organisation. Therefore, job satisfaction seems to play an important role in individual and organisational outcomes of IT professionals.

Besides its effect on organisational commitment via job satisfaction, flourishing also indirectly impacted turnover intention through its effect on job satisfaction and organisational commitment. Satisfied IT professionals showed more organisational commitment, whereas those employees who were less committed to the organisation showed a higher level of turnover intention. Job satisfaction also impacted turnover intention directly and strongly (Harrison & Hubbard, 1998).

In line with the spillover and expansionist theories, the findings of this study show that IT professionals with lower job satisfaction tend to engage in counterproductive behaviour such as internet abuse and playing games (Woon & Pee, 2004). On the other hand, the broaden-and-build theory (Fredrickson, 1998) and Lyubomirsky, Sheldon, and Schkade (2004) propose that individuals who feel well are more likely to function psychologically and socially well, which means meeting the criteria for positive mental health as flourishing. Thus, it was found that flourishing had a direct effect on job satisfaction, organisational commitment with job satisfaction partially mediating, on counterproductive behaviour with job satisfaction fully mediating the relationship, on turnover intention and on organisational

citizenship behaviour (OCB) with organisational commitment partially mediating the relationship.

Flourishing was found to positively relate to turnover intention which could be ascribed to employees' employability or to the fact that the culture of their organisations did not allow them to flourish. Job satisfaction did not have a direct effect on organisational citizenship behaviour, but it had a small effect on OCB via organisational commitment. Therefore, employees who were satisfied with their jobs, showed higher levels of organisational commitment which impacted on their willingness to be helpful towards others in the organisation and generally do more than the job requires (Schnake, Cochran, & Dumler, 1995). An accumulation of emotional, psychological and social well-being (Keyes, 2007) seems to have a moderate effect on organisational citizenship behaviour.

The findings in this study emphasise the important relationship between flourishing and individual and organisational outcomes. Therefore, flourishing employees in the IT industry seem to be to the benefit of the individual's and organisation's well-being (Sparks, Faragher, & Cooper, 2001). It can be concluded that flourishing strongly impacts job satisfaction, while job satisfaction impacts organisational commitment and turnover intention.

Psychological contract breach and violation, psychological need satisfaction and flourishing

Objectives 3, 4 and 6 of this study will be addressed collectively, namely to determine the effects of psychological contract breach and violation on psychological need satisfaction, the mediating role of psychological need satisfaction and the effects thereof on the flourishing of employees and organisational outcomes, such as job satisfaction, work engagement and turnover intention.

The results provided support for a model in which PC breach and violation had both direct and indirect effects via satisfaction of psychological needs for autonomy, competence and relatedness as mediators on job satisfaction, work engagement, turnover intention and flourishing (emotional, psychological and social well-being) of IT employees. The two outcomes on which PC breach had the strongest effects were job satisfaction (a negative effect explaining 30% of the variance) and turnover intention (a positive effect explaining 25% of the variance). Work engagement and flourishing in life of IT professionals were

moderately negatively impacted by PC breach, namely 14% and 16% of the respective variance explained. PC fulfilment (a positive experience) affects flourishing levels positively as flourishing is affected by the type and/or activities in which individuals engage.

PC violation had an important effect on feeling well and functioning well, as well as turnover intention of IT professionals. The results provided support for the direct impact of balanced PC breach on job satisfaction, work engagement and flourishing when controlling for PC violation, whereas turnover intention was not significantly affected. When there was perceived violation of IT professionals' contracts, their job satisfaction, work engagement and flourishing decreased significantly, while their turnover intention increased.

Balanced PC fulfilment, on the other hand, positively predicted job satisfaction, work engagement and flourishing and negatively predicted turnover intention of IT professionals; whereas relational and transactional PC fulfilment impacted job satisfaction and turnover intention positively and negatively respectively. PC breach of all contract types predicted turnover intention (Haq et al., 2011; Robinson & Rousseau, 1994). When PC violation was entered as a predictor of turnover intention in the regression equation, the regression coefficients of PC breach were not statistically significant. Turnover intention of IT professionals and perceived PC breach and violation go hand in hand.

PC fulfilment and non-violation were related to satisfaction of the psychological needs for autonomy, competence and relatedness. An organisation that provides fulfilment of expectations satisfies its employees' psychological needs partially because employees feel that the organisation is not violating the PC and because the organisation creates a psychological need fulfilling environment (Deci & Ryan, 2008). Balanced and relational PC fulfilment impacted autonomy and relatedness satisfaction directly and indirectly via non-violation of the PC, whereas balanced PC fulfilment also impacted competence satisfaction indirectly via non-violation of the PC.

Job satisfaction, work engagement, turnover intention and flourishing of IT professionals were impacted indirectly by PC breach and violation via psychological need satisfaction. Satisfaction of the autonomy need was important in limiting turnover intention, whereas when controlling for psychological needs, PC violation directly affected job satisfaction and turnover intention.

The relation between PC breach and violation of the balanced contract and job satisfaction and turnover intention was mediated by the autonomy need. This supports the finding in the study of Galletta, Portoghese, and Battistelli (2011). The relation between the balanced PC and PC violation and work engagement was mediated by autonomy and competence need satisfaction. Therefore, psychological need satisfaction which follows balanced PC fulfilment and non-violation contributes to IT professionals' flourishing.

Autonomy supportive work environments facilitate more job satisfaction (Eckloff & Van Quaquebeke, 2007) and work engagement, lower turnover intention as well as competence and relatedness support (Baard, Deci, & Ryan, 2004) which enhance flourishing (i.e. emotional, psychological and social well-being (Deci & Ryan, 2008; Keyes, 2005).

PC breach and violation had both direct and indirect effects via satisfaction of psychological needs for autonomy, competence and relatedness as mediators on job satisfaction, work engagement, turnover intention and flourishing (i.e. emotional, psychological and social well-being) of IT employees. PC fulfilment forms the foundation for positive employment relations via the mediating effect of psychological need satisfaction for autonomy, competence and relatedness which ensures feeling and functioning well through job satisfaction, work engagement, low turnover intention and flourishing.

Autonomy need satisfaction mediated the relation between balanced PC breach and violation on job satisfaction and turnover intention; autonomy and competence needs mediated the relation between balanced PC and PC violation on work engagement; autonomy, competence and relatedness need satisfaction which follow fulfilment of the balanced PC as well as non-violation of the PC, also contributed towards flourishing of IT professionals.

Psychological need satisfaction had a further mediating role in this study when the needs for autonomy mediated the role between work role fit, resources and supervisor relations and job satisfaction; and the competence need mediated the relationship between availability of resources and work engagement. Work role fit, the availability of resources and supervisor relations impacted job satisfaction and social well-being indirectly through autonomy satisfaction. The availability of resources impacted work engagement and psychological well-being indirectly via competence satisfaction. Furthermore, work role fit, the availability of resources and supervisor relations impacted psychological well-being indirectly through

relatedness. Satisfaction of the three basic psychological needs for autonomy, competence and relatedness is essential to ensure feeling and functioning well, characterised by job satisfaction, work engagement and flourishing as well as low turnover intention.

The mediating role of psychological need satisfaction in this study is supported by the findings from studies by Demir and Özdemir (2009) and Van den Broeck et al. (2010).

Socio-contextual factors, psychological need satisfaction and flourishing

The fifth objective of this study was to determine the effects of antecedents of well-being at work, namely work role fit, supervisor relations and availability of resources on the satisfaction of psychological needs, organisational outcomes and flourishing.

Work relationships determine employees' quality at work as well as the overall quality of their lives - their emotional, psychological and social well-being, therefore positive employment relationships are fundamental (Ragins & Dutton, 2007). Work role fit, trusting supervisor relations and availability of resources (antecedents of well-being at work) were positively associated with job satisfaction, work engagement and flourishing, and with psychological need satisfaction in this study. These findings confirm the findings of May, Gilson, and Harter (2004).

Antecedents of well-being at work showed direct and indirect effects on the flourishing of IT professionals in this study, with a slightly stronger effect on job satisfaction (explaining 54% of the variance) than on work engagement (explaining 45% of the variance). The antecedents exhibited the strongest effect on the psychological well-being dimension of flourishing (explaining 33% of the variance). Availability of resources in their jobs is more likely to enhance IT employees' psychological freedom (competence), interpersonal belongingness (relatedness) and effectiveness (competence), all of which are essential towards feeling well (job satisfaction) and functioning well (work engagement). COR and JD-R theories support the finding that job resources strongly impact employee work engagement. Organisations that neglect their responsibilities towards creating a work environment conducive towards providing sufficient resources will increase negative outcomes at work including job dissatisfaction and work disengagement (Hobfoll, 1998; Schaufeli & Bakker, 2004). An

employee who has cognitive, emotional and physical energy resources will feel well (job satisfaction) and function well (engagement) (Kahn, 1990).

Self-determination theory postulates that basic psychological need satisfaction for autonomy, competence and relatedness predicts job satisfaction (Deci & Ryan, 2000). Autonomy proves to be the strongest predictor of job satisfaction in evoking positive affect towards the job (Eckloff & Van Quaquebeke, 2007) and work engagement which is in line with results in this study. Autonomy supportive work environments are important and the absence thereof sensitizes employees more towards procedural justice (Van Prooijen, 2009).

In this study autonomy need satisfaction predicted social well-being of IT employees indirectly. Work role fit, supervisor relations and availability of resources indirectly impact social well-being which satisfies the need for autonomy and enhances the social well-being of IT professionals. One would rather expect need satisfaction for relatedness to predict social well-being, although Christman (1998) and Nussbaum (2000) argue that individuals who are accepting and caring of, and show commitment to others are evident of autonomy need satisfaction because individuals shape their lives in co-operation and reciprocity with others. Changing the contexts in which people interact with others fosters their individual autonomy.

The well-being perspective is important in a business context as employer and employee focus on satisfying basic human needs in the workplace that enable individuals to attain fulfilment and growth, simultaneously enhancing organisational opportunities for success. Organisations that have satisfied, committed and engaged employees will stand a much better chance of retaining their employees and increasing their productive and profitable edge. Workplace well-being and performance complement each other and are dependent towards ensuring a financially and psychologically healthy work environment (Harter, Schmidt, & Keyes, 2002).

5.1.1 Integration and contribution of this study

This study contributes towards labour relations management and the employment relationship in a broader sense in the following manner:

Two major role players in an employment relationship are the employer on the one hand and the employee on the other. The employment relationship is influenced by external factors such as the socio-political environment, the labour market, economy and technology, while internal factors influencing the employment relationship include psychological contract fulfilment versus psychological contract violation, psychological need satisfaction, work role fit, the availability of resources, and supervisor relationships. According to various theories such as the social exchange theory, the spillover theory, expansionist theory, broaden-and-build theory, part-whole theory etc., and in view of the fact that the average adult spends as much as a third of his waking life in work, all of these internal dynamics influence the subjective well-being of individuals in their work and in life.

A relationship between employer and employee where the psychological contract is fulfilled, will set the stage for creating opportunities for self-determination, i.e. satisfying an employee's basic psychological needs for autonomy, competence and relatedness, and will enhance his/her well-being. Positive emotions emanating from basic needs that are met in the workplace direct the employee's attention, perceptions and achievements toward the well-being of the organisation. Other factors contributing toward positive employment relations and subsequent well-being are work environments where individuals fit into their respective work roles, organisations providing ample resources that enable employees to achieve their maximum potential, and trustworthy supervisors. Individuals, who experience subjective well-being will flourish, whilst those who are not subjectively well, will languish. Flourishing employees experience greater job satisfaction and work engagement and organisational outcomes typical of flourishing behaviour are greater organisational commitment, organisational citizenship behaviour, less counterproductive behaviour, less turnover intent and actual turnover, increased productivity and optimal functioning. Subjective well-being of employees is in the best interest of communities, organisations and the employment relationship, work being a ubiquitous and influential part of the well-being of individuals and communities.

In an employment relationship characterised by PC violation, where employees are not afforded the opportunity to self-determination as their psychological needs for autonomy, competence and relatedness are not satisfied, where the employee does not fit into his/her work role, where there is a lack of resources (either personal or organisational), and where there is a lack of depth and trust in the relationship between supervisor and employee, the

total employment relationship will suffer as a result thereof. A dysfunctional employment relationship is characterised by job dissatisfaction and work disengagement, including a lack of commitment and co-operation, higher absenteeism and turnover, a lack of citizenship behaviour, counterproductive behaviour such as internet abuse, and less productive behaviour in general. Negative employment relations hinder well-being.

It is important to note that although this study investigated PC fulfilment and violation from an employee perspective only, the role of the employer in an employment relationship should by no means be negated. Positive employment relations where trust, respect, loyalty and fairness are reciprocal are fundamental to the well-being of both the individual and the organisation. Flourishing from the well-being perspective is quite relevant to business and in their pursuit of honouring reciprocity in all domains in the workplace; employer and employee will expand the opportunities for individual and organisational success.

5.2 LIMITATIONS

First, the interpretation of the findings of the study is limited by the cross-sectional design utilised in this study which allows identification of relationships between variables at one point only. Causal relationships between independent variables and outcomes could not be studied and could be categorized as symptoms rather than antecedents. Findings of this study were based on correlation data, which makes it impossible to prove causality of relationships.

Second, the sample size was a relatively small homogeneous sample regarding gender and culture compared to the number of variables used. The homogeneous nature limits the generalization of the findings to other occupational groups. However, despite the relatively small sample size representative of a distinctive, scarce group of IT professionals, significant relationships were observed between the study variables.

Third, the present study relied on self-report instruments to measure target variables. As both independent and dependent variables are based upon one source of information, namely the participants, self-reported data might be contaminated by common method variance (Spector & Jex, 1991).

Fourth, some of the observed relations might have been inflated as they were measured from the same source, e.g., psychological contract fulfilment and job satisfaction which both indicate contentment/satisfaction, measured from an employee perspective.

5.3 RECOMMENDATIONS

5.3.1 Recommendations to solve the research problems

Based on the results of this study, it is recommended that various aspects should be addressed to promote flourishing of employees as flourishing is positively associated with individual and organisational outcomes. Well-being in the workplace assists employees to do what is naturally beneficial to them through behaviours that increase the frequency of positive emotions. Behaviours that increase the frequency of positive emotions clarify expectations, help with the understanding and utilisation of resources aligned to organisational goals, promote individual fulfilment in work, foster social relatedness cultivating a sense of caring, facilitate ownership for the altruistic and economic impact of the organisation, and pursue the company mission through continuous learning (Harter et al., 2002).

Therefore, it is necessary to understand the nature and etiology of the strengths and competencies of flourishing people to promote their mental health (Keyes, 2002). Interventions should be implemented to promote flourishing of IT professionals. Not only emotional well-being, but also psychological and social well-being should be the focus of interventions. Cognitive-behavioural processes, interpersonal attachment, coping and meaning-making of individuals should be addressed to promote their flourishing (Keyes, 2005). To achieve outcomes that would be to the advantage of both employer and employee, the following should receive attention.

Firstly, interventions should be made to create work environments that will be conducive towards enhancing job satisfaction, greater work engagement, organisational commitment, organisational citizenship behaviour and curbing turnover intention. A first step towards achieving positive individual and organisational outcomes will be the negotiation and establishment of a fair psychological contract in which mutual obligations and contributions are set out (Rousseau, 1995). This is an exchange agreement between employer and employee in which the employee must be allowed just as much input as the employer and

must be negotiated in line with organisational strategies, structures and processes setting the terms of agreement pertaining to what employers want from their employees and what they are able to offer them (Herriot & Pemberton, 1995). Unexpected deviations from the limits of acceptance and tolerance of the PC, i.e. contract breach and/or violation, can have drastic negative consequences both for the individual and organisation (Schalk & Roe, 2007).

Secondly, in order to ensure the best possible work role fit, interventions should be made to develop excellent human resource recruitment and selection policies, because appointing the wrong person in a job can hold dire financial and psychological consequences for the organisation as well as the individual. Jobs should be designed to minimize the emotional, cognitive and physical burdens experienced by employees (May et al., 2004). Employees should be assisted to develop new skills and employers should treat employees fairly, act consistently, employ open communication, allow employees to partake in decisions and show genuine concern for employees (Oldham & Cummings, 1996). Employers must provide enough resources, because if the job demands outweigh the availability of resources, employees will exhibit negative individual and organisational outcomes such as job dissatisfaction, low organisational commitment, work disengagement and increased turnover intention which will detrimentally affect the well-being of employees and will seriously disadvantage organisational success.

Thirdly, a core dimension of employee engagement and a basic human need is a sense of belonging to something beyond oneself (Baumeister & Leary, 1995). According to Harter et al. (2002), an employee who is able to visualise his/her work in relation to the mission of the organisation in a work environment in which employees are afforded opportunities to discuss their progress and aspirations, will experience positive emotions that will create intellectual resources at work. These positive emotions will depend on the satisfaction of their basic psychological needs for autonomy, competence and relatedness. It is important for organisations to create cultures that positively impact employees' need satisfaction, such as autonomy supportive management styles, feedback about employee competence through reward structures or performance systems and satisfying relatedness needs by means of organisationally sponsored events such as retreats, for example (Greguras & Diefendorff, 2010). Great managers acknowledge the connection between the individual's needs and the needs of the organisation (Harter et al., 2002).

Finally, intervention should be implemented to ensure good and trusting relationships between supervisors and employees which are characterised by transparent policies, information and participation in decision-making, open communication and offering employees developmental and advancement opportunities (Rothmann & Rothmann, 2010), which in turn will promote motivation and well-being (Deci & Ryan, 2011).

5.3.2 Recommendations for future research

More research is needed regarding the conceptualization and measurement of psychological contract fulfilment, breach and violation thereof, antecedents of well-being at work and the mediating effects of psychological need satisfaction on flourishing and individual and organisational outcomes, not only in the information technology industry in South Africa, but in other industries in South Africa and internationally as well. All the concepts investigated in this study contribute towards positive employment relations which act as basis integrating human resource management functions and practices of organisations, and labour related functions. All these functions should be studied and applied in an integrated manner within organisations as they all have relevance to managing people within an employment context. Organisational success is dependent on the successful integration of employment relations management with business strategy. Therefore, future research in labour relations should guard against ‘fragmentation’, bearing in mind that at the same rate at which labour relations functions are changing in South Africa, organisations’ people objectives should also be redressed (Nel, Kirsten, Swanepoel, Erasmus, & Poisat, 2012). People form the nucleus of organisational success and doing research on labour relations functions only, ignoring the formal and informal dynamics in getting people as productive and flourishing as possible, will be short-sighted.

More holistic and integrated models on flourishing and individual and organisational outcomes in the IT industry, but not limited to this industry only, are needed in South Africa. The present study endeavoured to create a balanced view on various antecedents of flourishing and their effects via psychological need satisfaction on flourishing. Future studies on flourishing in work context should be undertaken to examine these constructs and their outcomes on flourishing, as flourishing is an important directive for productivity and optimal functioning. In terms of future research, the development of causal models of flourishing for all professions in South Africa and internationally will make a valuable contribution not only

to positive psychology, positive labour relations management and ultimately positive employment relations, but to further enhance our understanding of flourishing.

Finally, it is recommended that future studies should use longitudinal studies where possible, the reasons being that longitudinal studies are not only useful to validate causal relationships between individual and organisational outcomes such as job satisfaction, organisational commitment, work engagement and flourishing, but they also offer insight into the possibility of other variable outcomes in the study of flourishing.

REFERENCES

- Baard, P. P., Deci, E. L., & Ryan, R. M. (2004). Intrinsic need satisfaction: A motivational basis of performance and well-being in two work settings. *Journal of Applied Social Psychology, 34*, 2045–2068.
- Baumeister, R. F., & Leary, M. R. (1995). The need to belong: Desire for interpersonal attachments as a fundamental human motivation. *Psychological Bulletin, 117*, 497-529.
- Bowling, N. A., Eschleman, K. J., & Wang, Q. (2010). A meta-analytic examination of the relationship between job satisfaction and subjective well-being. *Journal of Occupational and Organizational Psychology, 83*, 915–934.
- Christman, J. (1998) Autonomy, independence, and poverty-related welfare policies, *Public Affairs Quarterly, 12*, 383–405.
- Connolly, J. J., & Viswesvaran, C. (2000). The role of affectivity in job satisfaction: A meta-analysis. *Personality and Individual Differences, 29*, 265–281.
- Deci, E. L., & Ryan, R. M. (2000). The “what” and “why” of goal pursuits: Human needs and the self-determination of behaviour. *Psychological Inquiry, 11*, 319–338.
- Deci, E. L., & Ryan, R. M. (2008). Self-determination theory: A macro-theory of human motivation, development health. *Canadian Psychology, 49*(3), 182–185.
- Deci, E. L., & Ryan, R. M. (2011). Levels of analysis, regnant causes of behaviour and well-being: The role of psychological needs. *Psychological Inquiry, 22*, 17–22.
- Demir, M., & Özdemir, M. (2010). Friendship, need satisfaction and happiness. *Journal of Happiness Studies, 11*, 243–259.
- Eckloff, T., & Van Quaquebeke, N. (2007, May). *Respectful leadership: How satisfying subordinates' needs for self-determination will lead to identification, respect and satisfaction*. Poster presented at the 13th European Congress of Work and Organizational Psychology, Stockholm, Sweden.
- Fredrickson, B. L. (1998). What good are positive emotions? *Review of General Psychology, 2*, 300–319.
- Galletta, M., Portoghese, I., & Battistelli, A. (2011). Intrinsic motivation, job autonomy and turnover intention in the Italian Healthcare: The mediating role of affective commitment. *Journal of Management Research, 3*, 1–19.
- Greguras, G. J., & Diefendorff, J. M. (2010). Why does proactive personality predict employee life satisfaction and work behaviors? A field investigation of the mediating role of the self-concordance model. *Personnel Psychology, 63*, 539–560.

- Haq, I. U., Jam, F. A., Azeem, M. U., Ali, M. A., & Fatima, T. (2011). Psychological contract and job outcomes: Mediating role of affective commitment. *African Journal of Business Management*, *5*, 7972–7979.
- Harrison, J. K., & Hubbard, R. (1998). Antecedents to organisational commitment among Mexican employees of a U.S. firm in Mexico. *The Journal of Social Psychology*, *138*, 609–623.
- Harter, J. K., Schmidt, F. L., & Keyes, C. L. M. (2002). Well-being in the workplace and its relationship to business outcomes: A review of the Gallup Studies. In C. L. M. Keyes & J. Haidt (Eds.), *Flourishing: The positive person and the good life* (pp. 205–224). Washington, DC: American Psychological Association.
- Herriot, P., & Pemberton, C. (1995). *New deals: The revolution in managerial careers*. New York, NY: Wiley.
- Hobfoll, S. E. (1998). *Stress, culture, and community: The psychology and philosophy of stress*. New York, NY: Plenum Press.
- Kahn, W. A. (1990). Psychological conditions of personal engagement and disengagement at work. *Academy of Management Journal*, *33*, 692–724.
- Keyes, C. L. M. (2002). The mental health continuum: From languishing to flourishing in life. *Journal of Health and Social Behavior*, *43*, 207–222.
- Keyes, C. L. M. (2005). Mental illness and/or mental health? Investing axioms of the complete state model of health. *Journal of Consulting and Clinical Psychology*, *73*, 539–548.
- Keyes, C. L. M. (2007). Promoting and protecting mental health as flourishing. *American Psychologist*, *62*, 95–108.
- Keyes, C. L. M., & Annas, J. (2009). Feeling good and functioning well: Distinctive concepts in ancient philosophy and contemporary science. *Journal of Positive Psychology*, *4*, 197–201.
- Lyubomirsky, S., King, L., & Diener, E. (2005). The benefits of frequent positive affect: Does happiness lead to success? *Psychological Bulletin*, *131*, 803–855.
- Lyubomirsky, S., Sheldon, K. M., & Schkade, D. (2005). Pursuing happiness: The architecture of sustainable change. *Review of General Psychology*, *9*, 111–131.
- 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.

- Nel, P. S., Kirsten, M., Swanepoel, B. J., Erasmus, B. J., & Poisat, P. (2012). *South African employment relations theory and practice* (7th ed.). Pretoria, South Africa: Van Schaik Publishers.
- Nussbaum, M. (2000) *Women and human development*. Cambridge, United Kingdom: Cambridge University Press.
- Oldham, G. R., & Cummings, A. (1996). Employee creativity: Personal and contextual factors at work. *Academy of Management Journal*, 38, 607–634.
- Pierce, J. L., & Gardner, D. G. (2004). Self-esteem within the work and organizational context: A review of the organizational-based self-esteem literature. *Journal of Management*, 30, 591–622.
- Ragins, B. R., & Dutton, J. E. (2007). Positive relationships at work: An introduction and invitation. In J. E. Dutton & B. R. Ragins (Eds.), *Exploring positive relationships at work: Building a theoretical and research foundation*. Mahwah, NJ: Lawrence Erlbaum Associates.
- Robinson, S. L., & Rousseau, D. M. (1994). Violating the psychological contract: Not the exception but the norm. *Journal of Organizational Behavior*, 15, 245–259.
- Rothmann, S. (in press). Flourishing at work: A Southern African perspective. In M.P. Wissing (Ed.), *Cross-cultural advancements in positive psychology*. New York, NY: Springer-Verlag.
- Rothmann, S., & Rothmann, S. Jr. (2010). Factors associated with employee engagement in South Africa. *SA Journal of Industrial Psychology*, 36(2), 1–12.
- Rousseau, D. M. (1995). *Psychological contracts in organizations: Understanding written and unwritten agreements*. Thousand Oaks, CA: Sage Publications.
- Schalk, R., & Roe, R. E. (2007). Towards a dynamic model of the psychological contract. *Journal for the Theory of Social Behaviour*, 37, 167–182.
- Schaufeli, W. B., & Bakker, A. B. (2004). Job demands, job resources and their relationships with burnout and engagement: A multi-sample study. *Journal of Organizational Behavior*, 25, 293–315.
- Schnake, M., Cochran, D., & Dumler, M. (1995). Encouraging organizational citizenship: The effects on job satisfaction, perceived equity and leadership. *Journal of Managerial Issues*, 7, 209–221.
- Sparks, K., Faragher, B., & Cooper, C. L. (2001). Well-being and occupational health in the 21st century workplace. *Journal of Occupational and Organizational Psychology*, 74, 489–509.

- Spector, P. E., & Jex, S. M. (1991). Relations of job characteristics from multiple data sources with employee affect, absence, turnover intentions, and health. *Journal of Applied Psychology, 76*, 46–53.
- Van den Broeck, A., Vansteenkiste, M., De Witte, H., Soenens, B., & Lens, W. (2010). Capturing autonomy, relatedness and competence at work: Construction and validation of the Work-related Basic Need Satisfaction Scale. *Journal of Occupational and Organizational Psychology, 83*, 981–1002.
- Van Prooijen, J. (2009). Procedural justice as autonomy regulation. *Journal of Personality and Social Psychology, 96*, 1166–1180.
- Woon, I. M. Y., & Pee, L. G. (2004, December). *Behavioral factors affecting internet abuse in the workplace: An empirical investigation*. Proceedings of the Third Annual Workshop on HCI Research in MIS, Washington.