

**Electronic performance monitoring in a call
centre environment:**

**Psychological need satisfaction, work role fit,
absenteeism and work engagement.**

AMANDA ERASMUS

(MCom)

Dissertation submitted in partial fulfilment of the requirements for the degree Magister
Commercii in Human Resource Management in the Behavioural Sciences at the North-West
University, Vaal Triangle Campus

Supervisor: Dr Elrie Botha

Vanderbijlpark

August 2016

REMARKS

The reader is reminded of the following:

- The formatting guidelines specified by the postgraduate programme in Human Resource Management of the North-West University, Vaal Triangle Campus were followed in this dissertation. The references as well as the style of this dissertation are in line with the prescribed Publication Manual (6th edition) of the American Psychological Association (APA).
- The dissertation is submitted in the form of four chapters, which include an introductory chapter, two research articles, and a concluding chapter.

DECLARATION

I, *Amanda Erasmus*, hereby declare that **Electronic performance monitoring in a call centre environment: Psychological need satisfaction, work role fit, absenteeism and work engagement** is my own work and that the views and opinions expressed in this study are my own and those of relevant literature references as shown in the reference lists. All sources have been correctly cited, to the best of my knowledge.

I also declare that the contents of this research study will not be submitted for any other qualification at any other tertiary institution.

AMANDA ERASMUS

AUGUST 2016

ACKNOWLEDGEMENTS

Looking back at the past few years, I am filled with various emotions. It was such a life-changing experience which brought happiness but also many hours of stress and tears.

Obtaining my Master's degree in Human Resource Management was the realisation of a lifelong dream that would not have been possible without a number of patient and extremely supportive people in my life. I would therefore like to extend my appreciation and gratitude to the following people:

- Our God Almighty for giving me this opportunity, the mental capacity and stubbornness to complete my studies. He celebrated with me my happy moments and comforted me during the tearful times reassuring me that I am capable to complete this journey.
- The love of my life, my best friend and biggest supporter – my husband Lourens – words cannot describe the gratitude I feel for the incredible belief in me, endless words of motivation, support and encouragement I received from you and our two children, Lohan and Zandri. Thank you for your patience and understanding during this time.
- My belated father, Peet. Thank you for instilling in me the courage to always reach beyond the impossible. To my two mothers, Mariana and Patrys, my parents-in-law and all my sisters and brothers for your support and prayers.
- My supervisor, Dr Elrie Botha for her guidance, precise way of working as well as quick feedback which contributed a great deal to the success of this project.
- Prof. S Rothmann for his confidence in my abilities, his enduring support and encouragement. Your calm way of handling students and your constructive criticism contributed to my professional development. Prof. T Khumalo, Prof. M Stander, Ms. L van der Vaart, Ms. M Esterhuizen and all the Optentia and School of Behavioural Sciences personnel for providing valuable inputs during my research journey.
- Ms. F Salie for the opportunity to conduct the study in her business environment and to all the participants who contributed to this study, thank you very much for the time and effort that you had sacrificed to complete the research questionnaires.

TABLE OF CONTENTS

ACKNOWLEDGEMENTS	IV
List of Tables	VI
List of Figures	VI
SUMMARY	1
CHAPTER 1: INTRODUCTION AND BACKGROUND	2
1.1 Problem Statement	4
1.2 Research Objectives	9
1.3 Research Method	10
1.3.1 Literature study	10
1.3.2 Empirical study	10
1.3.2.1 Research design.....	11
1.3.2.2 Participants	11
1.3.2.3 Measuring instruments.....	12
1.3.2.4 Research procedures	13
1.3.2.5 Statistical analysis	14
1.4 Ethical Considerations	15
1.5 Chapter Layout	16
References.....	17
CHAPTER 2: RESEARCH ARTICLE	22
References.....	46
CHAPTER 3: RESEARCH ARTICLE	53
References.....	75
CHAPTER 4	82
CONCLUSION, LIMITATIONS AND RECOMMENDATIONS	82
4.1 Conclusion.....	82
4.2 Limitations of this research	86
4.3 Recommendations	87
4.3.1 Recommendations for practice.....	87
4.3.2 Recommendations for future research	88
References.....	90

List of Tables

Table 1: Characteristics of the participants (n=457)	31
Table 2: Fit statistics of initial competing measurement models	36
Table 3: Difference testing for changes in chi-square in initial competing measurement models	37
Table 4: Fit statistics of competing measurement models	38
Table 5: Difference testing for changes in chi-square in competing measurement models	38
Table 6: Descriptive statistics, reliability coefficients, and correlations	39
Table 7: Initial framework fit indices and standardised path coefficients	39
Table 8: Difference testing for changes in chi-square in competing structural models	40
Table 9: Indirect effects of electronic performance management on work engagement	42
Table 10: Characteristics of the participants (n=457).....	61
Table 11: Fit statistics of initial competing measurement models	66
Table 12: Difference testing for changes in chi-square in initial competing measurement models	67
Table 13: Fit statistics of competing measurement models	67
Table 14: Difference testing for changes in chi-square in competing measurement models	68
Table 15: Descriptive statistics, reliability coefficients, and correlations	68
Table 16: Initial framework fit indices and standardised path coefficients	69
Table 17: Difference testing for changes in chi-square in competing structural models	70
Table 18: Indirect effects on absenteeism.....	71

List of Figures

Figure 1.1 Proposed model for Study 1	8
Figure 1.2 Proposed model for Study 2	9
Figure 1.3 Structural model for EPM, PNS and work engagement.....	41
Figure 1.4 Structural model for PNS, work role fit and absenteeism.....	70

SUMMARY

Title: Electronic performance monitoring in a call centre environment: Psychological need satisfaction, work role fit, absenteeism and work engagement.

Keywords: Psychological need satisfaction; autonomy; competence; relatedness; electronic performance monitoring; work role fit; absenteeism; call centre environment; work engagement.

Government organisations differentiate themselves from other organisations by the unique services they render to the citizens of South Africa, and with the current political and economic instability in the country, everyone's attention is focused on them. They are not only responsible for the oversight and administration of specific functions but also need to set the example in respect of cost saving processes while performing these duties. Call centres were therefore introduced to reduce cost and improve customer service. Various studies done in the past proved that strict electronic performance monitoring in call centres creates a stressful, physically and psychologically unhealthy work environment for employees. This intrusive performance monitoring system might result in absenteeism; low levels of work role fit and work engagement. It may also have a negative impact on the psychological need satisfaction of employees.

Realising the importance of all the above-mentioned factors, the researcher set out to examine the relationships between them and also the mediating effect of psychological need satisfaction on the relationship between electronic performance monitoring and work engagement levels as well as the mediating effect of work role fit on the relationship between psychological need satisfaction and absenteeism. A cross-sectional design was used and the study population (N=690) included employees in a South African government organisation rendering an exclusive service mandated to them by South African law. To test the hypotheses, a quantitative survey research approach was followed. The results revealed that there was a definite correlation between electronic performance monitoring and work engagement levels in the call centre of this particular South African organisation with autonomy, a subscale of psychological need satisfaction, having a mediating effect in this relationship. The results also found that low work role fit levels influence the autonomy need and could therefore lead to increased absenteeism in the call centre of this particular South African organisation. Recommendations were made for application and future research.

CHAPTER 1: INTRODUCTION AND BACKGROUND

This study investigated the relationship between psychological need satisfaction, work role fit, work engagement and levels of absenteeism of employees in a call centre environment. This chapter comprises the problem statement and research objectives, followed by a discussion of the research methodology, both for data collection and analysis.

With the development of telecommunication and information technology, the call centre industry has grown rapidly. Thomas (2010) found that employees in the South African call centre sector increased from 50 000 in 2005 to 180 000 in 2010. Organisations make use of call centre facilities to increase productivity, extend and improve customer service facilities, reduce the cost of existing functions and generate new avenues of revenue (Holman, 2003). Unfortunately, despite all these benefits, call centre environments have been labelled as “electronic sweatshops” (Holman, 2003). Call centre work is often characterised by rapid technology, product and services changes, sensory overload, tremendous pressure and high workloads (Swart, 2006).

Previous studies found that stressful experiences at work have a definite effect on the emotional, psychological and social well-being of employees (Lyubomirsky, King, & Diener, 2005). The purpose of this study was to investigate the relationship between the electronic performance monitoring system and work engagement levels with psychological need satisfaction as a mediator in a call centre environment using Deci and Ryan’s self-determination theory (SDT) (1980, 1985, 1991), which is a general motivation and personality theory based on the assumption that human behaviour is motivated by three universal needs, namely autonomy, competence and relatedness (Deci & Ryan, 2000). The need for autonomy relates to an individual’s desire to act with a sense of freedom and choice and to feel psychologically free from external environmental control (Deci & Ryan, 2000). The need for competence refers to the individual’s desire to master the environment, control the outcomes and to feel efficient (Deci & Ryan, 2011). The need for relatedness refers to an individual’s urge to feel connected to others and to be a member of a group with significant emotional ties (Deci & Ryan, 2011). Deci and Ryan (2000, 2011) argue that in order to develop and function optimally, it is very important that each of these psychological needs is satisfied. Various studies have confirmed that there is a positive relationship between the need for autonomy, competence and relatedness and employees’ work-related well-being in terms of job satisfaction, work engagement levels, job performance, organisational

commitment, absenteeism levels and general well-being (Greguras & Diefendorff, 2009, 2010; Lynch, Plant, & Ryan, 2005; Van den Broeck, Vansteenkiste, De Witte, Soenens, & Lens, 2010; Vansteenkiste et al., 2007).

The overall perception in literature is that call centre work is boring, demanding, monotonous and quite often stressful. The lack of method control, intensity of performance monitoring and emotional dissonance has a negative impact on employees' well-being and could lead to stress, burnout, anxiety, absenteeism and performance problems (Holman, 2003).

Previous studies found that absence behaviour is often a reaction to job stress, where stress is conceived as a sign of failure to cope with job demands. Absenteeism may therefore be used as a coping mechanism to deal with low organisational commitment, job dissatisfaction and job strain (Bakker, Demerouti, de Boer, & Schaufeli, 2001). Work engagement on the other hand, refers to a positive work-related state of well-being, where engaged employees are enthusiastic about their work, have high energy levels and identify strongly with the task (Bakker, Schaufeli, Leiter, & Taris, 2008). Engaged employees are more aware of the organisation's vision and will be team players to improve performance within their roles for the benefit of the organisation (Devi, 2009).

The constant monitoring and surveillance of employees via electronic performance monitoring systems in the call centre environment is seen as a very prominent and invasive practice. Unfortunately, excessive long-term monitoring can have a negative effect on call centre employees (Visser & Rothmann, 2008). According to Harter, Schmidt and Keyes (2002) employees' physical and emotional well-being is very important to employers who spend enormous amounts of money on recruiting and training employees to maintain a competitive advantage. It is therefore imperative to ensure that the right person for the job is appointed in order to ensure an optimal fit (May, Gilson, & Harter, 2004). Work role fit can be defined as an individual's perceived fit between his work role in the organisation and his/her self-concept (May et al., 2004).

1.1 Problem Statement

One of the responses to improve efficiency and customer service delivery in our ever-changing world was to create call centres (Zapf, Isic, Bechtoldt, & Blau, 2003). Bodin and Dawson (1999) describe the call centres as an environment where calls are placed or received in high volumes for the purpose of customer service, technical support, and other specialised business activities. Call centres are growing at an unstoppable pace and have become an integral part of most companies (Gilson & Khandelwal, 2005). With this rapid increase in call centres came the need and significant challenge to attract and retain suitable and emotionally equipped employees (Mahesh & Kasturi, 2006). As mentioned by Banks and Roodt (2011), call centres are highly measured environments. The development in telephone-based and computer technologies have allowed call centre managers to track the amount of calls that call centre agents take within any given time, the duration of the calls, the speed with which these calls are answered, the number of abandoned calls and the time the call centre agents spend off the phone (Banks & Roodt, 2011).

According to Holman (2005), four characteristics differentiate a call centre from other organisational divisions. These characteristic features are unique human resource management styles; unique call centre technologies; specialised job and work designs, with the most important characteristic being the extensive electronic performance monitoring systems. Although other divisions sometimes also entail interaction with customers, call centre agents are faced with several unique job demands. One of these demands is the use of technology to determine the volume and pace of work in the call centre environment (Houlihan, 2001).

These technology driven systems cause extensive monitoring of the two-way interaction between employees and clients, which often results in call centre agents experiencing low levels of perceived job control (Varca, 2001). The electronic performance display boards are generally visible to all call centre agents and offer constant reminders of the importance of the information they display. This information sometimes makes agents feel as if they are working on an assembly line and therefore creates pressure to focus on call duration so that they are available to take the next call (Banks & Roodt, 2011). The speed with which calls are processed is critically important for the organisation to reduce cost and increase service delivery (Callaghan & Thompson, 2002). Call centre agents have little control over the way

they can interact with customers, and it is not uncommon for these agents to be forced to express emotions they do not feel, such as happiness and cheerfulness, or suppress emotions they in fact do feel, such as frustration and anger, even when in some instances they have to face brutal abuse and hostility from customers (Grandey, Dickter, & Sin, 2004).

The negativity or positivity of individuals' experiences at work can be understood through Deci and Ryan's self-determination theory (SDT) and was used in this study to investigate the mediating effect that psychological need satisfaction has on the relationship between the electronic performance management system and work engagement levels of employees in the call centre environment (Deci & Ryan, 1985; Ryan, Huta, & Deci 2008). According to Deci and Ryan (2011), self-determination theory (SDT) is based on three basic psychological needs, namely autonomy, competence and relatedness. The need for autonomy refers to individuals' independence to make their own choices and decisions in order to retain meaning and interest in what they are doing. The need for competence refers to those individuals with the propensity to influence and explore the environment, to engage in challenging tasks and to test and extend their skills. Relatedness refers to an individual's ability to experience a sense of belonging and unity with others and to be able to maintain close relationships with others (Deci & Ryan, 2000).

Individuals spend more than a third of their lives at work and for them to function optimally, they must be able to engage fully in their work (May et al., 2004). Bakker, Demerouti and Schaufeli (2003) define work engagement as a fulfilling, positive, work-related state of mind that is characterised by dedication, vigour and absorption. Dedication refers to being strongly involved in your work and experiencing a sense of importance, inspiration and pride. Vigour is characterised by high levels of mental resilience and high levels of energy whilst working. Absorption means being fully concentrated on and happy in your work environment (Simons & Buitendach, 2013). Engaged employees view themselves as capable of handling stressful job demands successfully which in turn contributes towards higher levels of productivity and profitability, less absenteeism and retention (De Waal & Pienaar, 2013).

The research for this paper was done in a South African government organisation with call centres in three provinces (Gauteng, Kwa-Zulu Natal and Cape Province). All the call centre agents are stationed in an open plan environment, grouped in teams with compartmentalised seats to afford them some privacy. They are constantly monitored by an electronic performance monitoring system, which predicts call peaks; and proactively manages call

patterns, automated call distribution (ACD), recording and playback of calls, qualitative and quantitative performance targets and team scoreboards. Team scoreboards is the term that is used in this organisation to describe the flashing electronic leader boards, which give real time feedback on service levels, the number of calls being handled, the amount of calls waiting in the queue and the number of agents on personal time. It is thus evident that the electronic performance monitoring systems in call centres limit the opportunities for call centre agents to create “personal space” for themselves. One of the most common methods of coping with the emotional strains of the job is temporarily withdraw from work through absenteeism (Schalk & Van Rijckevorsel, 2007).

Absenteeism is regarded as one of the greatest strategic risks for companies. It disrupts operations, puts unnecessary pressure on co-workers and is often very costly for the organisation (Beira, 2008). Recent figures released by Statistics South Africa, revealed that absenteeism costs the economy more than R12 billion annually (Hamduly, 2014). According to Van der Merwe and Miller (1976), absenteeism can be defined as an unplanned, disruptive incident, and can be seen as non-attendance when an employee is scheduled to work. Van Wyk (2008) asserts that many organisations utilise call centres as a means to improve customer service and reduce costs, but argues that working in a call centre is an unsatisfying, stressful, physically and psychologically unhealthy occupation for an employee.

Call centres have become multi-channelled communication centres and are preferred by most companies to establish interaction with customers. Call centres have moved from employing a relatively small number of employees to being a significant part of the global economy (Banks & Roodt, 2011). Call centres are highly monitored environments and the focus on monitoring performance has led to various investigations into the effect that this practice has on the psychological well-being of call centre agents and managers (Banks & Roodt, 2011; Holman 2003; Simons & Buitendach, 2013; Visser & Rothmann, 2009). The South African business environment currently demands much more from its employees than before. Employees are expected to take a proactive approach, develop a sense of responsibility, show initiative and be committed to high performance standards (Bakker et al., 2008). According to Spector (1997), good call centre agents are becoming increasingly hard to find because of the high demands placed on them in the call centre environment. Barnes (2001) thus emphasises that the selection of suitable staff or staff whose personality types meet particular job requirements, can most likely reduce stress. Various studies have been done on the relationship between the individual and his/her role in the organisation (work role fit), it was

found that individuals will seek out work roles which allow them to be creative, self-expressive and goal-orientated (Khan, 1990; Kreitner & Kinicki, 2007; Kristof, 1996; Olivier & Rothman, 2007). May et al. (2004) define work role fit as the individual's ability to express his beliefs, principles and values as a result of a perceived fit between the individual's concept of his work role and his self, which in return affect the psychological well-being of the individual.

Research done on call centres has focused mainly on macro issues, such as employee training, development strategies and organisational structure (Callaghan & Thompson, 2001, 2002; Houlihan, 2000; Sawyer, Srinivas & Wang, 2009). Research was also done on micro issues, such as burnout, stress, organisational commitment, and turnover intention in call centres (Houlihan, 2000; Knights & McCabe, 1998; Sawyer et al., 2009; Taylor & Bain, 2001; Visser & Rothmann, 2008). However, an area of research that has not received much attention is the relationship between the macro element – being electronic performance systems – and the micro elements – being psychological need satisfaction, work role fit, absenteeism and work engagement in a call centre environment.

This study therefore aimed to investigate the relationship between electronic performance management and work engagement levels in a call centre environment with psychological need satisfaction as a mediator in this relationship. It also investigated the relationship between psychological need satisfaction, work role fit and absenteeism levels of the employees in a call centre environment.

At an organisational level, the value that this study can add is to determine the level of work role fit during the recruitment process and to grow and strengthen call centre agents emotionally through short training sessions, both in the training room and electronically in order to try and minimise absenteeism levels. By examining the relationship between electronic performance monitoring and psychological need satisfaction, the organisation can establish possible ways to enhance work engagement levels.

Based on the above-mentioned discussion, the research questions were summarised as follows:

- a) What is the relationship between the electronic performance management system and work engagement levels of call centre employees?

- b) Will psychological need satisfaction (autonomy, relatedness and competence) have a mediating effect on the relationship between electronic performance monitoring and work engagement levels of employees in a call centre environment?
- c) Is there a relationship between psychological need satisfaction (autonomy, relatedness and competence) and work role fit in a call centre environment?
- d) Is there a relationship between psychological need satisfaction and absenteeism levels of employees in a call centre environment?
- e) Will work role fit have a mediating effect on the relationship between psychological need satisfaction (autonomy, relatedness and competence) and absenteeism levels of employees in a call centre environment?

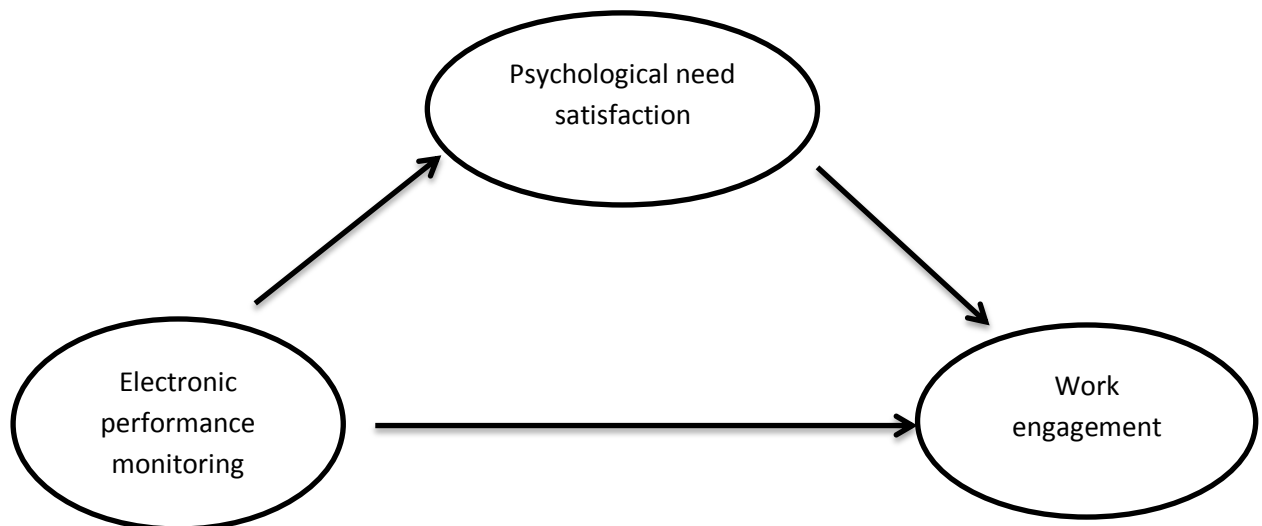


Figure 1.1 Proposed model for Study 1

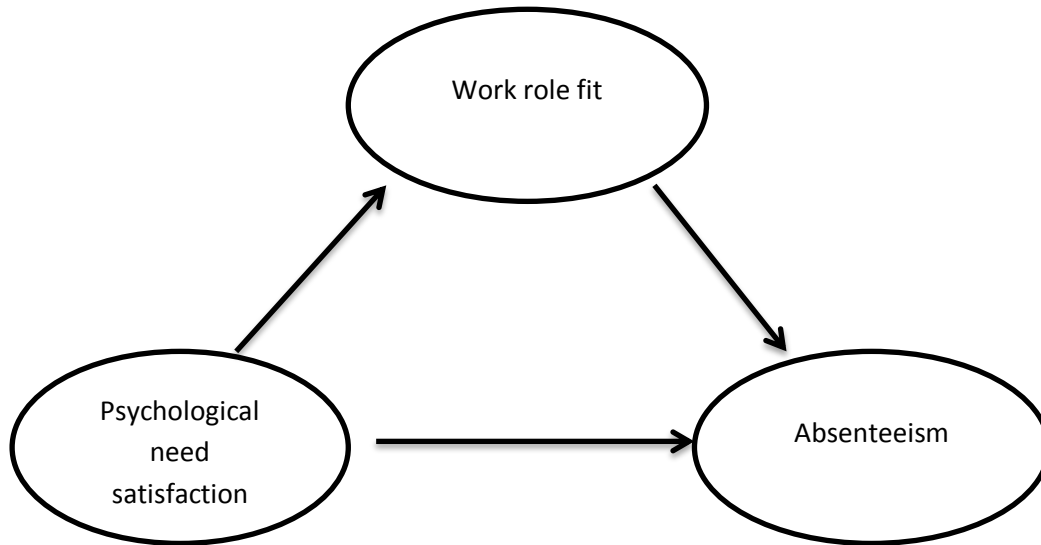


Figure 1.2 Proposed model for Study 2

1.2 Research Objectives

The aim of this study was to investigate whether psychological need satisfaction (autonomy, relatedness and competence) has a mediating effect on the relationship between electronic performance monitoring and work engagement levels in a call centre environment. It further investigated the relationship between psychological need satisfaction (autonomy, relatedness and competence), work role fit and absenteeism levels. More specifically, this study had four aims.

- Firstly, the study aimed to examine the relationship between electronic performance monitoring and work engagement levels of employees in a call centre environment.
- Secondly, the study investigated the mediating effects of psychological need satisfaction on the relationship between electronic performance monitoring and work engagement levels of employees in a call centre environment.
- Thirdly, the study investigated the relationship between the psychological need satisfaction and work role fit as well as the relationship between psychological need satisfaction and absenteeism levels in the call centre.

- Fourthly, the study aimed to examine the mediating effect of work role fit on the relationship between psychological need satisfaction and absenteeism levels in a call centre environment.

1.3 Research Method

The research consisted of a literature review and an empirical study.

1.3.1 Literature study

The review of literature provides the theoretical background, the findings of previous studies and how they relate to the research as well as the incorporation of the research into the existing body of knowledge (Kumar, 2011).

The researcher conducted a literature study in order to conceptualise the variables and the relationships between the variables (electronic performance monitoring, psychological need satisfaction, work role fit, absenteeism and work engagement in a call centre environment) from the literature.

1.3.2 Empirical study

The aims of the empirical study were to determine:

- The relationship between electronic performance monitoring and work engagement levels with psychological need satisfaction (autonomy, relatedness and competence) as the mediator in this relationship.
- The relationship between psychological need satisfaction, work role fit and absenteeism levels of employees in a call centre environment.

1.3.2.1 Research design

A research design is a detailed outline of how an investigation will take place. The research design included the method of data collection, what instruments were used and the intended means for analysing the data collected (Muijs, 2010). The function of a research design is to ensure that the evidence obtained enables us to answer the initial question as unambiguously as possible (Thomas, 2003). This study followed a quantitative survey design. The focus was on a cross-sectional, correlational and non-experimental design. A survey research design was used to examine the potential relationship between two or more variables at a specific point and time (Kerlinger & Lee, 2000). In this study, a quantitative empirical study was conducted in which the relationship between the independent variable (electronic performance monitoring) and dependent variables (psychological need satisfaction, work role fit, absenteeism and work engagement) was investigated. Questionnaires were distributed to a sample of the population and the information obtained from the survey can be generalised to the whole population if a representative sample is involved (Shaughnessy & Zechmeister, 1997). The purpose of quantitative research is mostly explanatory – it explains or describes a phenomenon (Coetzee & Schreuder, 2010).

1.3.2.2 Participants

The study was undertaken within the four call centres of a South African government organisation. There are 626 call centre agents working in these inbound call centres and they are managed by 64 operational managers. Agents are required to have basic computer literacy, be fluent in English and have some experience in using the Internet to assist with web-based products. All participants had at least a matric/grade 12 certificate. The call centre agents receive calls from government clients and are required to provide these clients with a variety of answers on different product-related questions.

1.3.2.3 Measuring instruments

The *Performance monitoring measures* (Holman, Chissick, & Totterdell, 2002) were used to assess the content, purpose and intensity of electronic performance monitoring. The content of performance monitoring was measured using five items that pertained directly to those aspects of the content of monitoring that is performance-related. These performance-related aspects covered the frequency of call monitoring, clarity of performance criteria, the usefulness and frequency of the feedback and the constructiveness of the feedback, and were referred to as the “performance-related content of monitoring” (Holman et al., 2002). To measure the purpose of performance monitoring, a three-item scale – referred to as the scale of “beneficial-purpose of monitoring” – was used. The three items that were used in this scale focused on the level of customer service, identification of strengths, discipline or development, poor performance and weaknesses (Holman et al., 2002). Lastly, the intensity of performance monitoring was measured using a five-item scale referred to as “performance monitoring awareness/intensity” (Holman et al., 2002). Electronic performance monitoring includes the remote and automatic collection of quantitative data, and permits the continuous monitoring of performance (Holman, Wall, Clegg, Sparrow, & Howard, 2002). Internal consistency of the subscales was tested using Cronbach’s alpha coefficient and found a reliability of 0.93 (Holman, 2002).

The *work-related basic need satisfaction scale* (W-BNS), (Van den Broeck et al. 2010) was used to measure psychological need satisfaction. The W-BNS measures the satisfaction of three psychological needs, namely autonomy (six items; e.g., “I feel that I can be myself at my job”), competence (six items; e.g., “I feel competent in my job”) and relatedness (six items, e.g., “At work, I feel part of a group”). The items were evaluated on a five-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) 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 ($\alpha = 0.90$).

Absenteeism data was obtained from the human resource absenteeism records at the Human Resources department of the Call Centre. Absenteeism ratings were converted to a four-point scale, with 1 representing 0-1 days, 2 representing 2-10 days, 3 representing 11-20 days and 4 representing >20 days absences. An additional question, pertaining to the frequency of absenteeism during the last three months before the questionnaire was completed, was included in the biographical questionnaire. This information was compared with the absenteeism records received from the Human Resources department to ensure the reliability of data.

The *Utrecht work engagement scale (UWES)* (Schaufeli, Salanova, Gonzalez-Roma, & Bakker, 2002) was used to measure the levels of engagement of the participants. The UWES is a self-report questionnaire and has 17 items that are scored on a seven-point frequency scale ranging from 0 (never) to 6 (always). The UWES is divided into three subscales, namely vigour (six items), dedication (five items), and absorption (six items). The UWES includes statements such as “*I find my work full of meaning and purpose*” (dedication); “*I am bursting with energy in my work*” (vigour); and “*I am immersed in my work*” (absorption). The UWES has been found to have acceptable reliability coefficients that have been reported both in South Africa and internationally (Simons & Buitendach, 2013). Storm and Rothmann (2003) obtained alpha coefficients reliability and internal consistency for the three subscales of between 0.78 and 0.89 in a South African context.

The questionnaire also included an invitation to participate in the study and biographical questions. The biographical component requested information, such as gender, age, marital status, number of children, race and home language.

1.3.2.4 Research procedures

The researcher, with written permission from the Group Executive, requested the selected call centre agents to voluntarily participate in the research by completing the English questionnaires. In order to accurately analyse the data, each team of participants received a coded questionnaire related to their respective operational manager. The questionnaires were

hand delivered to each participant in all four call centres and a covering letter, which explained the purpose of the study and emphasised the confidentiality of the research project, accompanied the questionnaires. The covering letter explained that the data collected would be used for research purposes only.

The participants were requested to return the completed questionnaires to a designated sealed box that was made available in each office before the research commenced. The researcher collected the questionnaires from the sealed box and captured the data in an Excel sheet, after which it was prepared for analysis using the Mplus software program.

1.3.2.5 Statistical analysis

Latent variable modelling using Mplus 7.4 (Muthén & Muthén, 2012) was done to investigate the current research. Latent variable modelling, also known as structural equation modelling (SEM), follows a two-step model building approach (Kline, 2011). The first step was to test the factorial validity of the measurement model and to develop it according to acceptable fit indicators. The second step was to evaluate the structural model by adding the regression relationships in line with the hypotheses. The best fitting measurement model (indicating correlational relationships) was used as the basis for the structural model. Mediation, or potential interaction effects, was also evaluated. The validation of the models was done by obtaining estimates of the parameters of the models and by determining whether the model themselves provide good fit to the data (Byrne, 2012). It is important to note that all models were tested with a maximum likelihood robust (MLR) estimator, which takes skewness and kurtosis of the data into account.

To assess the model fit in both steps the following indices were used: root means square error of approximation (RMSEA), chi-square (X^2), degrees of freedom (df), the standardised root mean square residual (SRMR), and incremental fit indices, including the comparative fit index (CFI), and the Tucker-Lewis index (TLI). CFI and TLI values higher than .90 are considered acceptable. RMSEA values lower than .08 indicates acceptable fit between the model and the data (Hair, Black, Babin, & Andersen, 2010). Both the Bayes information criteria (BIC) and the Akaike information criteria (AIC) were used to compare the measurement models. Values lower than 0.08 and 0.05 are accepted as indication of good fit

between the model and the data for the RMSEA and SRMR indicators, respectively (Hu & Bentler, 1999). Chi-square values could not be used to directly compare models due to the use of the MLR-estimator and, therefore, the Satorra-Bentler chi-square difference test was performed (Satorra & Bentler, 2010). The reliabilities of the scales were calculated by means of Raykov's (ρ) reliability coefficient because the assumption of tau equivalence (required for alpha coefficients) is violated when latent variable scores are calculated (Raykov, 2009). The 0.70 cut-off value was used as a guideline for reliability (Wang & Wang, 2012).

1.4 Ethical Considerations

A brief description of the purpose and procedure of the research was given to each participant. Participants were informed of the expected duration of the questionnaire.

The participants' co-operation was respectfully requested and the significance of their participation carefully explained. If a prospective participant refused, it was accepted and respected. The research was conducted in such a manner that data could not be linked to a specific participant. However, each coded questionnaire was linked to a specific operational manager in order to accurately analyse the data. All data and information obtained was treated as confidential and only used for research purposes. All participants were treated equally; no participant was discriminated against on the grounds of race, gender, or disability. The research was planned and executed in a manner, which as far as possible fostered beneficence and excluded harm or exploitation of participants. Participants were allowed to withdraw from or terminate participation in the research at any stage without fear of prejudice. The identity, affiliation and qualifications of the researcher were made known. All research data was kept safe by the researcher and the participants will have access to the research findings if they so wish. All efforts were made to remain neutral and unbiased through the bracketing of the researcher's own views and experiences. The research was done honestly and with integrity. No evidence was manipulated.

1.5 Chapter Layout

Chapter 1: Introduction and overview of the aims of the research study.

Chapter 2: The mediating effect of psychological need satisfaction on the relationship between electronic performance monitoring and work engagement levels.

Chapter 3: The relationship between psychological need satisfaction, work role fit and absenteeism levels of employees in a call centre environment.

Chapter 4: Conclusions, limitations and recommendations.

References

- Bakker, A. B., Demerouti, E., de Boer, E., & Schaufeli, W. B. (2001). Job demands and job resources as predictors of absence duration and frequency. *Journal of Vocational Behaviour, 62*, 341-356.
- 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 Organisational Psychology, 12*(4), 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*(3), 187-200.
- Banks, D., & Roodt, P. (2011). The efficiency and quality dilemma: What drives South African call centre management performance indicators? *SA Journal of Human Resource Management 9*(1), 1-17.
- Barnes, P. (2001). People problems in call centres. *Management Service, 45*(7), 30-31.
- Beira, B. (2008). Debunking absenteeism. *Journal, HR Highway, 2*(29).
- Bodin, M., & Dawson, K. (1999). *The call centre dictionary* (2nd ed.). New York, NY: Telecom Books.
- Byrne, B. M. (2012). *Structural equation modelling with Mplus: Basic concepts, applications, and programming*. New York, NY: Routledge.
- Callaghan, G., & Thompson, P. (2001). Edwards revisited: technical control and call centres. *Economic and Industrial democracy, 22*, 13-37.
- Callaghan, G., & Thompson, P. (2002). We recruit attitude: the selection and shaping of routine call centre labour. *Journal of Management Studies, 39*, 233-254.
- Coetzee, M., & Schreuder, D. (2010). *Personnel Psychology: an applied perspective*. Cape Town: Oxford University.
- 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 behaviour*. 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. (2011). Levels of analysis, regnant causes of behaviour and well-being: The role of psychological needs. *Psychological Inquiry*, 22, 17-22.
- Devi, V. R. (2009). Employment engagement is a two way street. *Human Resource Management International Digest*, 17, 3-4.
- De Waal, J. J., & Pienaar, J. (2013). Towards understanding causality between work engagement and psychological capital. *SA Journal of Industrial Psychology*, 39(2), 1-10.
- Grandey, A. A., Dickter, D. N., & Sin, H. P. (2004). The customer is not always right: customer aggression and emotion regulation of service employees. *Journal of Organisational Behaviour*, 25, 397-418.
- Greguras, G. J., & Diefendorff, J. M. (2009). Different fits satisfy different needs: Linking person-environment fit to employee commitment and performance using self-determination theory. *Journal of applied psychology*, 94, 465-477.
- 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.
- Gilson, K. A., & Khandelwal, D. K. (2005). Getting more from call centres. *The McKinsey Quarterly*, November 22, 1-8.
- Hair, J., Black, W. C., Babin, B. J., & Anderson, R. E. (2010). *Multivariate data analysis* (7th ed.). New Jersey: Pearson Education International.
- Hamdulay, A. (2014). A virtuous circle of health: stress management-wellness. *HR future* 11(Nov 2012), 37.
- 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.
- Holman, D. (2002). Employee well-being in call centres. In *Call Centres and Human Resource Management* (pp. 223-244). Palgrave Macmillan UK
- Holman, D. (2003). Phoning in sick? An overview of employee stress in call centres. *Leadership and organisational development journal*, 24(3), 123-130.
- Holman, D. (2005). *The essentials of the new workplace. A guide to the human impact of modern working practices*. London: John Wiley and Sons.

- Holman, D., Chissick, C., & Totterdell, P. (2002). The effects of performance monitoring on emotional labour and wellbeing in call centres. *Motivation and emotion*, 26, 57-81.
- Holman, D., Wall, T. D., Clegg, C. W., Sparrow, P., & Howard, A. (2002). *The new workplace. A guide to the human impact of modern working practices*. West Sussex: John Wiley and Sons.
- Houlihan, M. (2000). Eyes wide shut? Querying the depth of call centre learning. *Journal of European Industrial Training*, 24(2), 228-240.
- Houlihan, M. (2001). Managing to manage? Stories from the call centre floor. *Journal of European Industrial Training*, 25(2), 208-220.
- Hu, L. T., & Bentler, P. M. (1999). Cut off criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural equation modelling: a multidisciplinary journal*, 6(1), 1-55.
- Kahn, M. A. (1990). Psychological conditions of personal engagement and disengagement at work. *The Academy of Management Journal*, 33, 692-724.
- Kerlinger, F. N., & Lee, H. B. (2000). *Foundations of behavioural research* (4th ed.). New York, NY: Harcourt college.
- Kline, R. B. (2011). *Convergence of structural equation modelling and multilevel modelling*. London: Sage.
- Knights, D., & McCabe, D. (1998). What happens when the phone goes wild? Staff stress and spaces for escape in a BPR telephone banking work regime. *Journal of Management Studies*, 32(2), 163-194.
- Kreitner, R., & Kinicki, A. (2007). *Organisational behaviour* (7th ed.). New York: McGraw-Hill Publishers.
- Kristof, A. L. (1996). Person-organisation fit: An integrative review of its conceptualizations, measurement, and implications. *Personnel Psychology*, 49, 1-50.
- Kumar, R. (2011). *Research Methodology. A step-by-step guide for beginners*. London: Sage.
- Lynch, M., Plant, R., & Ryan, R. (2005). Psychological needs and threat to safety: Implications for staff and patients in a psychiatric hospital for youth. *Professional Research and Practice*, 36, 415-425.
- Lyubomirsky, S., King, L., & Diener, E. (2005). The benefits of frequent positive affect: Does happiness lead to success? *Psychological Bulletin*, 131, 803-855.
- Mahesh, V. S., & Kasturi, A. (2006). Improving call centre agent performance. *International Journal of Service Industry Management*, 17(2), 136-157.

- May, S. 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.
- Muijs, D. (2010). *Doing quantitative research in education with SPSS. Introduction to quantitative research*. London: Sage.
- Muthén, L. K., & Muthén, B. O. (2012). *Mplus users 'guide* (6th ed.). Los Angeles, CA: Muthén & Muthén.
- Olivier, A. L., & Rothmann, S. (2007). Antecedents of work engagement in a multinational oil company. *SA Journal of Industrial Psychology*, 33(3), 49-56.
- Raykov, T. (2009). Evaluation of scale reliability for unidimensional measures using latent variable modeling. *Measurement and Evaluation in Counseling and Development*, 42(3), 223-232.
- 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.
- Satorra, A., & Bentler, P. M. (2010). Ensuring positiveness of the scaled difference chi-square test statistic. *Psychometrika*, 75, 243-248.
- Sawyer, O. O., Srinivas, S., & Wang, S. (2009). Call centre employee personality factors and service performance. *Journal of Service Marketing*, 23, (5), 301-307.
- Schalk, R., & van Rijckevorsel, A. (2007). Factors influencing absenteeism and intention to leave in a call centre. *Work and employment*, 22, 260-274.
- Schaufeli, W. B., Salanova, M., Gonzalez-Roma, V., & Bakker, A. (2002). The measurement of engagement and burnout: A confirmative analytic approach. *Journal of Happiness Studies*, 3, 71-92.
- Shaughnessy, J. J., & Zechmeister, E. B. (1997). *Research methods in psychology* (4th ed.). New York, NY: McGraw-Hill.
- Simons, J. C., & Buitendach, J. H. (2013). Psychological capital, work engagement and organisational commitment amongst call centre employees in South Africa. *SA Journal of Industrial Psychology*, 39(2), 1-12.
- Spector, P. E. (1997). *Job satisfaction: Application, assessment, causes, and consequences* (Vol. 3). Sage publications.
- Storm, K., & Rothmann, S. (2003). A psychometric analysis of the Utrecht Work Engagement Scale in the South African Police Service. *SA Journal of Industrial Psychology*, 29(4), 62-70.

- Swart, J. (2006). *The relationship between job characteristics, work wellness and work-related flow of call centre agents in an insurance company*. Mini-dissertation. Industrial Psychology Honours. North-West University, Potchefstroom, South Africa.
- Taylor, P., & Bain, P. (2001). Trade unions, workers' rights and the frontier of control in UK call centres. *Economic and Industrial Democracy*, 22(1), 29-66.
- Thomas, R. M. (2003). *Blending qualitative & quantitative research methods in theses and dissertations*. London: Sage.
- Thomas, S. (2010). SA gets the call. *Financial Mail*. Retrieved January 25, 2011, from <http://www.callingthecape.org>.
- 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 der Merwe, R., & Miller, S. (1976). *Measuring absence and labour turnover*. Johannesburg: McGraw-Hill.
- Vansteenkiste, M., Neyrinck, B., Niemiec, C., Soenens, B. D., Witte, H., & Van den Broeck, A. (2007). Examining the relations among extrinsic versus intrinsic work value orientations, basic need satisfaction, and job experience: A Self-determination theory approach. *Journal of Occupational and Organizational Psychology*, 80, 251-277.
- Van Wyk, A. (2008). *Work wellness, absenteeism and productivity in a call centre in the insurance industry*. Mini-dissertation. Industrial Psychology Masters. North-West University, Potchefstroom, South Africa.
- Varca, P. E., (2001). Service representative, job control, and white-collar blues. *Journal of Service Marketing*, 15, (4), 257-269.
- Visser, W. A., & Rothmann, S. (2008). Exploring antecedents and consequences of burnout in a call centre. *SA Journal of Industrial Psychology*, 34(2), 79-87.
- Visser, W. A., & Rothmann, S. (2009). The development of a hassle-based diagnostic scale for predicting burnout in call centres: original research. *SA Journal of Human Resource Management*, 7(1), 1-8.
- Wang, J., & Wang, X. (2012). *Structural equation modelling: Applications using Mplus*. Chichester, UK: Wiley.
- Zapf, D., Isic, M., Bechtoldt, M., & Blau, P. (2003). What is typical for call centre jobs? Job characteristics and service interactions in different call centres. *European Journal of Work and Organisational Psychology*, 12, 311-340.

CHAPTER 2: RESEARCH ARTICLE

RESEARCH ARTICLE 1

Work Engagement in a South African Government Call Centre: Electronic Performance Monitoring and Psychological Need Satisfaction

ABSTRACT

Orientation: Call centres have become the most preferred way of communication for most people in South Africa when dealing with their questions, complaints and queries related to services rendered by government organisations. Previous studies have shown that the call centre environment, being a highly monitored environment, could sometimes result in disengaged employees.

Research purpose: This study explored the relationship between the electronic performance monitoring system (EPM) and levels of work engagement as well as the mediating effect that psychological need satisfaction (PNS) has on this relationship.

Motivation for the study: Government organisations are often the only service provider of its kind in a country and customers therefore do not have an alternative but to make use of their services via call centres. The study was therefore motivated by the need to determine the effect of electronic performance monitoring on work engagement levels of call centre agents in this unique work environment and additionally, to determine whether psychological need satisfaction (PNS) had a mediating effect on this relationship.

Research design, approach and method: The researcher used a cross-sectional survey design and the sample comprised of call centre employees in a government organisation.

Main findings: SPSS 23 and Mplus 7.4 were used to investigate the current research. The main findings indicated that there was a definite correlation between electronic performance monitoring and work engagement levels in these South African call centres with autonomy, a subscale of psychological need satisfaction, mediating the relationship between electronic performance monitoring and work engagement levels.

Practical / managerial implications: By involving employees in the performance monitoring process, management will ensure that the employees have a better understanding of the reasoning behind performance monitoring, which will lead to a feeling of control/ autonomy, which according to this study, will contribute to higher engagement levels.

Contribution / value-add: Electronic performance monitoring in the workplace is one of the most controversial issues faced by employers and employees, and often give rise to stress and frustration. Very limited research has been done to investigate the effects of EPM on employee work engagement levels in South African government organisations, which provide for a unique work environment. The current paper remedies some of these research shortfalls.

Key terms: Psychological need satisfaction; autonomy; competence; relatedness; electronic performance monitoring; call centre environment; work engagement.

INTRODUCTION

South Africa's unstable economic and political climates are forcing government organisations to pay more attention to antecedents that could promote better service delivery and customer satisfaction. One of the ways to improve these two desired outcomes was for the organisation to introduce an inbound call centre, which mainly responds to incoming calls from clients with service requests, complaints and questions (Janse van Rensburg, Boonzaier, & Boonzaier, 2013). In South Africa, call centres are used with increasing frequency by government departments to facilitate and co-ordinate communication between stakeholders during service delivery projects (Bond-Barnard, Steyn, & Fabris-Rotelli, 2013). The first South African call centres appeared in the middle 1970s and have grown at an unstoppable pace due to reduced telecommunication costs and improved computer technology (Benner, Lewis, & Omar, 2007). Unfortunately, as concluded by Richardson and Howcroft (2006), call centres are faced with several contradicting strategies. Although there has been a shift in focus from a cost reduction strategy to better customer service strategies, more emphasis has been placed on employees' performance and not on the quality of the interactions between customers and agents.

This South African government organisation's call centres consist of a range of agents, dealing with standard queries using prescribed scripts, to highly skilled consultants who mainly deal with sophisticated problems and their daily performance is measured by means of an electronic performance monitoring system (EPM). With the increase in the development of new computer software systems came the rapid development of new EPM systems, which systematically collect, store, analyse and display information on the employee's work performance (Rafnsdóttir & Gudmundsdottir, 2011). According to Jeske

and Santuzzi (2015), the main aim of EPM is to increase the employee's productivity and improve client service. Therefore organisations often believe that EPM provides accurate, impartial and consistent performance data which can be used to protect the organisation against resource abuse, potential liability and ensure a high level of employee performance, pace and accuracy (Rafnsdóttir & Gudmundsdottir, 2011).

One of the characteristics of EPM is that employers have the flexibility to do continuous random monitoring (Chen & Ross, 2007; Wells, Moorman, & Werner, 2007) during different intervals in an intrusive manner without the employees' knowledge or consent (Stanton, 2000). EPM mostly focuses on employees' productivity and performance behaviours (Ball & Margulis, 2011; Ellway, 2013; Lyon, 2001) but also indirectly influences the extent to which employees are able to control and organise their work input and output (Bradley, Erickson, Stephenson, & Williams, 2000). Experiencing a sense of control, involvement, pride, enthusiasm, inspiration and importance, produces a work-related state of mind that is characterised by dedication – found in Bakker, Demerouti, and Schaufeli's (2003) definition of work engagement. Steger, Littman-Ovadia, Miller, Menger, and Rothmann (2013) defined engagement as the cognitive, physical and emotional energy employees put into their daily work. This state of mind helps employees to endure difficult working conditions and allows them to fully submerge into their work activities. Previous studies confirmed that work engagement was positively linked to business unit performance (Harter, Schmidt, & Hayes, 2002) psychological empowerment (Reynders, 2005) and client satisfaction (Salanova, Agut, & Peiro, 2005).

In this government organisation, EPM restricts employees' interactions with others by setting limitations on how they are allowed to interact with clients and colleagues. There are restrictions with regard to how they are able to move around their workstations and on the information they can access. This can result in a feeling of increased workplace isolation (Mulki, Locander, Marshall, Harris, & Hensel, 2008) and limited social interaction (Amick & Smith, 1992). One of the aims of this study was to determine the mediating effect of psychological need satisfaction (PNS) on the relationship between EPM and work engagement levels and whether the aforementioned isolation relates directly to one of the PNS concepts namely belongingness (relatedness). According to Van den Broeck, Vansteenkiste, De Witte, Soenens, and Lens (2010), basic psychological needs can be closely associated with the self-determination theory (SDT) and are determined by autonomy (a desire to act freely in accordance with your own interest and values); competence (having a

sense of effectiveness) and relatedness, which implies that a person needs to interact, care and connect with other people in his/her work environment (Deci & Vansteenkiste, 2004). Results of a study done by Silman (2014), confirmed that there was a significant and positive association between PNS and work engagement variables.

The purpose of this study is to examine the relationship between EPM in a South African government organisation and employee work engagement levels with psychological need satisfaction being a mediator in this relationship. This information can be used by management to make informed decisions about the purpose, content and intensity of their EPM system compared with the expected effects on employee engagement and PNS levels.

LITERATURE REVIEW

Call centre environments

With the development of telecommunication and information technology, the call centre industry has grown rapidly and has become an integral part of most companies (Gilson & Khandelwal, 2005). Call centres have moved from employing a relatively small number of employees to being a significant part of the global economy. The 1500 operational South African call centres currently employ between 150 000 and 175 000 people (Banks & Roodt, 2011). Organisations make use of call centre facilities to increase productivity, extend and improve customer service facilities, reduce the cost of existing functions and generate new avenues of revenue (Holman, 2003). The current business environment demands much more from employees than before. Employees are expected to take a proactive approach, be emotionally equipped to deal with difficult customers, develop a sense of responsibility, show initiative and be committed to high performance standards (Bakker, Schaufeli, Leiter, & Taris, 2008; Mahesh & Kasturi, 2006).

Bodin and Dawson (1999) describe the call centre as an environment where calls are placed or received in high volumes for the purpose of customer service, technical support, and other specialised business activities. Call centre agents have little control over the way they can interact with customers, and it is not uncommon for these agents to be forced to express emotions they do not feel, such as happiness and cheerfulness, or to suppress emotions they

in fact do feel, such as frustration and anger, even when in some instances they have to face brutal abuse and hostility from customers (Grandey, Dickter, & Sin, 2004). Call centre work is often characterised by rapid technology, product and services changes, sensory overload, tremendous pressure and high workloads (Swart, 2006).

The call centre environment and the measurement of performance opened up an interesting and broad research field which focused on macro issues, such as employee training, development strategies, organisational structure (Callaghan & Thompson, 2001, 2002; Houlihan, 2000; Sawyer, Srinivas, & Wang, 2009), employee well-being (Castanheira & Chambel, 2010; Deery, Iverson, & Walsh, 2002; Holman, 2002; Wood, Holman, & Stride, 2006) and control (Taylor & Bain, 2001; Mahesh & Kasturi, 2006). Research was also done on micro issues, such as burnout, stress, organisational commitment, and turnover intention in call centres (Houlihan, 2000; Knights & McCabe, 1998; Sawyer et al., 2009; Taylor & Bain, 2001; Visser & Rothmann, 2008).

Electronic performance management (EPM)

According to Holman (2005), four characteristics differentiate a call centre from other organisational divisions. These characteristic features are unique human resource management styles; unique call centre technologies; specialised job and work designs, with the most important characteristic being the extensive electronic performance monitoring systems. As mentioned by Banks and Roodt (2011), call centres are highly measured environments. The development in telephone-based and computer technologies have allowed call centre managers to track the amount of calls that call centre agents take within any given time, the duration of the calls, the speed with which these calls are answered, the number of abandoned calls and the time the call centre agents spend off the phone. EPM is also used by managers to measure employees' job performance-related behaviour and is therefore a very important management tool used to collect performance data (Jeske & Santuzzi, 2015).

Although other divisions sometimes also entail interaction with customers, call centre agents are faced with several unique job demands. One of these demands is the use of technology to determine the volume and pace of work in the call centre environment (Houlihan, 2001). The constant monitoring and surveillance of employees via EPM systems in the call centre environment is seen as a very prominent and invasive call centre practice and unfortunately

excessive long-term monitoring can have a very negative effect on call centre employees (Visser & Rothmann, 2008).

The electronic performance display boards are generally visible to all call centre agents and offer constant reminders of the importance of the information they display. This information can sometimes make agents feel as if they are working on an assembly line and therefore create pressure to focus on call duration so that they are available to take the next call (Banks & Roodt, 2011). The speed with which calls are processed is critically important for the organisation to reduce cost and increase service delivery (Callaghan & Thompson, 2002). This lack of method control, intensity of performance monitoring and emotional dissonance have a negative impact on employees well-being and could lead to stress, burnout, anxiety, absenteeism and performance problems (Holman, 2003). It also results in call centre agents experiencing low levels of perceived job control (Varca, 2001).

The focus on monitoring performance in call centres has led to various investigations into the effect that this practice has on the psychological well-being of call centre agents and managers (Banks & Roodt, 2011; Holman, 2003; Simons & Buitendach, 2013; Visser & Rothmann, 2009).

Work engagement

Individuals spend more than a third of their lives at work and for them to function optimally, it must be possible for them to engage fully in their work (May, Gilson, & Harter, 2004). Work engagement has been identified as one of the most important indicators of organisational success (Malinowski & Lim, 2015) and was positively related to employee commitment, business success, and productivity (Attridge, 2009; Simpson, 2009). On an individual level, work engagement can also be linked to constructs, such as job satisfaction and job performance (Markos & Sridevi, 2010; Ram & Prabhakar, 2011). Bakker et al., (2003) define work engagement as a fulfilling, positive, work-related state of mind that is characterised by dedication, vigour and absorption. Dedication refers to being strongly involved in your work and experiencing a sense of importance, inspiration and pride. Vigour is characterised by high levels of mental resilience and high levels of energy whilst working and absorption is being fully concentrated on and happy in your work environment (Bakker et al., 2003). Engaged employees view themselves as capable of handling stressful job demands

successfully which in return contributes towards higher levels of productivity and profitability, less absenteeism and retention (De Waal & Pienaar, 2013).

Organisational competitiveness is closely linked to the psychological connection between an employee and the employer and high levels of work engagement can therefore be regarded as an important indicator of better performance (Bakker, Albrecht & Leiter, 2011). According to Van Rensburg, Boonzaier and Boonzaier (2013) it has become increasingly difficult for call centre managers to find ways to keep employees engaged and it is a constant struggle to build a sense of ownership that contributes to better client service and occupational health. Research done by Huckerby (2002) found that only 17% of employees are completely engaged in their organisations, 63% showed signs of non-engagement and 20% were totally disengaged.

The following hypothesis is formulated regarding the relationship between electronic performance monitoring in call centres and employee work engagement levels:

Hypothesis 1: Electronic performance monitoring in call centres predicts low levels of work engagement.

Psychological need satisfaction

The negativity or positivity of individuals' experiences at work can be understood through Deci and Ryan's self-determination theory (SDT) (Deci & Ryan, 1985; Ryan, Huta & Deci, 2008). Deci and Ryan's self-determination theory (SDT) (1980, 1985, 1991, 2011) is a general motivation and personality theory based on the assumption that human behaviour is motivated by three universal needs, namely autonomy, competence and relatedness (Deci & Ryan, 2000). The need for autonomy relates to an individual's desire to act with a sense of freedom and choice and to feel psychologically free from external environmental control (Deci & Ryan, 2000). The need for competence refers to the individual's desire to master the environment, control the outcomes and to feel efficient (Deci & Ryan, 2011). The need for relatedness refers to an individual's urge to feel connected to others and to be a member of a group with significant emotional ties (Deci & Ryan, 2011). Deci and Ryan (2000, 2011) argue that in order to develop and function optimally, it is very important that each of these psychological needs is satisfied. Various studies have confirmed that there is a positive relationship between the need for autonomy, competence and relatedness and employees'

work-related well-being in terms of job satisfaction, work engagement levels, job performance, organisational commitment, absenteeism levels and general well-being (Lynch, Plant, & Ryan, 2005; Vansteenkiste et al., 2007; Van den Broeck et al., 2010; Greguras & Diefendorff, 2009, 2010).

Van Wyk (2008) asserts that many organisations utilise call centres as a means to improve customer service and reduce costs, but argues that working in a call centre is an unsatisfying, stressful, physically and psychologically unhealthy occupation for an employee. Previous studies also found that stressful experiences at work have a definite effect on the emotional, psychological and social well-being of employees (Lyubomirsky, King, & Diener, 2005). Research done by Sheldon and Gunz (2009) and Sheldon, Abad, and Hinsch (2011) highlights basic psychological need satisfaction as an important motivational instrument, which explains how human development can be influenced by the social environment surrounding them.

Relying on the above theory, this study proposes that psychological need satisfaction has a mediating effect on the relationship between electronic performance monitoring and work engagement levels of employees working in the call centre.

Hypothesis 2: Psychological need satisfaction will have a mediating effect on the relationship between electronic performance monitoring and work engagement.

RESEARCH DESIGN

Research Approach

A cross-sectional survey design was used in this study to examine the potential relationships between two or more variables at a specific point and time (Creswell, 2013). To test the hypotheses, a quantitative research approach was followed which permitted the inclusion of a large representative sample and a relatively structured collection process (Creswell, 2013; Struwig & Stead, 2001). The purpose of this kind of research is mostly explanatory and descriptive research – it explains or describes a phenomenon (Creswell, 2013).

Research Method

Research participants

Participants in this study were chosen by means of a convenience sampling, which entails selecting participants based on their availability (Struwig & Stead, 2001). The research participants were call centre employees from a South African government organisation situated in Gauteng, KwaZulu-Natal and Cape Town. The organisation consisted of 690 employees holding various positions, such as managers, consultants and agents. Of the total number of questionnaires distributed, 457 (66%) were returned. The participant characteristics covered in this study include gender, age, ethnic group, educational level and occupational status.

The characteristics of the participants are presented in Table 1 below:

Table 1: *Characteristics of the participants (n=457)*

Item	Category	Frequency	Percentage
Area	KwaZulu-Natal	93	20.4
	Doringkloof	87	19.0
	Alberton	143	31.3
	Belville	134	29.3
Gender	Male	141	30.9
	Female	316	69.1
Age	19-30 years	171	37.4
	31-40 years	200	43.8
	41-50 years	73	16.0
	50+ years	13	2.8
Race	African	308	67.4
	Coloured	90	19.7
	Indian	21	4.6
	White	32	7.0
	Other	6	1.3
Educational level	Higher certificate (Grade 12)	262	57.3
	Diploma	135	29.5
	Degree	24	5.3
	Postgraduate degree	10	2.2
	Technical qualification	26	5.7
Occupational status	Manager	8	1.8

	Agent	430	94.1
	Consultant	12	2.6
	Other	7	1.5
Absenteeism	0-1 day	41	8.9
	2-10 days	333	72.9
	11-20 days	67	14.7
	20+ days	16	3.5

The sample was composed of the four call centres in a government organisation with 31.3% participants in Alberton (Gauteng), 29.3% in Bellville (Cape Town), 20.4% in Durban (KwaZulu-Natal) and 19% participants in Doringkloof (Gauteng). Almost half of the sample was aged between 31 and 40 years (43.8%), with more females (69.1%) than males (30.9%). The majority of the participants were African (67.4%), with 19.7% Coloured, 4.6% Indian and 7.0% White.

Most of the participants had an educational level of Grade 12 (57.3%), with diplomas (29.5%), degrees (5.3%), technical qualifications (5.7%), and postgraduate degrees (2.2%) making up the other 43.7%. Most of the respondents were employed as agents (94.1%), with 1.8% managers and 2.6% consultants. 72.9% of the participants indicated that they had had an absenteeism rate of between 2 and 10 days in the three months before the questionnaire was completed.

Measuring Instruments

To achieve the objectives of this study the following measuring instruments were used:

Biographical questionnaire. In order to determine the demographics of the research participants, a biographical questionnaire was used to evaluate different variables in certain groups. The questionnaire focused on characteristics, such as gender, age, ethnic group, educational level, occupational status and absenteeism.

Performance monitoring measures (Holman, Chissick, & Totterdell, 2002). This scale was used to measure the content, purpose and intensity of electronic performance monitoring. Content was measured using five items. These five items are directly linked to those aspects that involve the content of monitoring that is performance-related. These performance-related aspects covered the frequency of call monitoring, clarity of performance criteria, the usefulness and frequency of the feedback and the constructiveness of the feedback, and was

referred to as the “performance-related content of monitoring” (Holman et al., 2002). The purpose of performance monitoring was measured using three items, and was referred to as the measurement of “beneficial-purpose of monitoring”. These three items focused mainly on the level of customer service, identification of strengths, discipline or development, poor performance and weaknesses (Holman et al., 2002). The perceived levels of intensity relating to performance monitoring were measured using five items referred to as “performance monitoring awareness/intensity” and included statements such as “electronic performance monitoring at work is too intense” (Holman, et al., 2002). Cronbach’s alpha coefficients were used to determine the internal consistency of the subscales and reliability was found of 0.93 (Holman, 2002).

Work-related basic need satisfaction scale (W-BNS); (Van den Broeck et al., 2010). This scale was used to measure psychological need satisfaction and contains eighteen items. The items were evaluated on a five-point scale varying from 1 (*totally disagree*) to 5 (*totally agree*). The W-BNS measures three subdimensions of psychological needs satisfaction, namely autonomy which relates to the individual’s ability to make decisions independently at work (six items; e.g., “I feel that I can be myself at my job”), competence that relates to the individual feeling competent at work (six items; e.g., “I feel competent in my job”), and relatedness which relates to the individual’s need to build relationships at work (six items, e.g., “At work, I feel part of a group”). This scale was found to be reliable, with Cronbach’s alpha coefficients of .85 and .86 (Van den Broeck et al., 2010).

Utrecht Work Engagement Scale (UWES) (Schaufeli, Salanova, Gonzalez-Roma, & Bakker, 2002). This scale was used to measure the levels of engagement of the participants. The UWES is a self-report questionnaire and has seventeen items that are scored on a seven-point Likert scale ranging from 0 (*never*) to 6 (*always*). The UWES is divided into three subscales, namely vigour (six items), dedication (five items), and absorption (six items). The UWES includes statements such as “I find my work full of meaning and purpose” (dedication); “I am bursting with energy in my work” (vigour); and “I am immersed in my work” (absorption). It was found that the UWES has acceptable reliability coefficients that have been reported both in South Africa and internationally (Simons & Buitendach, 2013). Storm and Rothmann (2003) found alpha coefficients for reliability and internal consistency between 0.78 and 0.89 for the three subscales in a South African context.

Research procedure

The entire call centre business unit ($N = 690$) in a government organisation was approached by means of a convenience sample. Permission was obtained from the organisation's research committee and the Group Executive of this division. Participation in this study was done on a voluntary basis and employees confirmed their informed consent and willingness to participate through a signed return slip. The researcher distributed hard copy questionnaires to all participants. All questionnaires were completed anonymously and collected by the researcher after completion. Information was treated with absolute confidentiality as per ethical guidelines.

Statistical analysis

Statistical analysis was performed using SPSS 23 (IBM Corporation, 2015) and Mplus 7.4 (Múthen & Múthen, 1998-2016) software programs and an estimation of descriptive statistics was done to describe the data. The suggestion by Ellis and Steyn (2003) that effect sizes be used to determine practical significance of the correlations was used and cut-off points of 0.50 for a large effect and 0.30 for a medium effect were applied. To test the reliability of the scales, the reliability coefficients (ρ) as recommended by Raykov (2009) were used, as they were found to be more appropriate when doing latent variable modelling. For statistical significance, the confidence interval levels were set at a value of 95% ($p < 0.05$).

The Mplus 7.4 software program was used to perform structural equation modelling (SEM), which allows for the simultaneous analysis of multiple relationships between observed and/or latent variables (Múthen & Múthen, 1998-2016). According to Gefen, Straub, and Boudreau (2000) these relationships can be modelled pictorially in order to get a clearer concept of the theory being studied. Structural equation modelling was found by Byrne (2010) to be more appropriate when using a larger sample size and to estimate indirect effects, as was the case in this study.

In order to take skewness and kurtosis of the data distribution into account, the maximum likelihood robust (MLR) estimator was used. However, due to the use of the MLR estimator the chi-squares of the competing models could not be compared directly (Múthen & Múthen, 1998-2016; Satorra & Bentler, 2010). To overcome this problem, the Satorra-Bentler chi-square difference test was performed, which made it possible to calculate the significance in

the chi-square changes between the compared models (Satorra & Bentler, 2010). The measurement model that showed the best fit was used as basis for the structural model (Iacobucci, 2009). Two competing structural models were tested against the original, and the Satorra-Bentler chi-square difference test was once again performed to confirm which hypothesised structural model showed the better fit (Satorra & Bentler, 2010).

In order to assess the model fit in the measurement and structural models, goodness-of-fit indices, namely the chi-square (χ^2), and its associated degrees of freedom (*df*), the standardised root mean square residual (SRMR), the comparative fit index (CFI), the Tucker-Lewis index (TLI), and the root mean square error of approximation (RMSEA) (Hu & Bentler, 1999) were evaluated. A non-significant chi-square statistic is considered to indicate good fit with the sample data (Iacobucci, 2010). Values higher than 0.95 for CFI and TLI are considered preferable (Iacobucci, 2010); but values higher than .90 are commonly accepted in practice (Wang & Wang, 2012). Values lower than 0.08 and 0.05 are accepted as indication of good fit between the model and the data for the RMSEA and SRMR indicators, respectively (Hu & Bentler, 1999). To compare alternative models two other fit statistics, namely the Akaike information criteria (AIC) and the Bayes information criteria (BIC), were used. The lower the value, the better the model (Hair, Black, Babin, & Anderson, 2010), as the AIC and BIC values serve as an index for model parsimony (Kline, 2011).

Lastly, the procedure for estimating indirect effects in the hypothesised model, as suggested by Preacher and Hayes (2008), was used. Bootstrapping, with bias-corrected confidence intervals, was used to generate more accurate estimations of possible indirect effects than standard methods (Preacher & Hayes, 2008). The bias-corrected confidence intervals were set at 95% for all indirect effects.

Ethical considerations

In this study, each participant received a cover letter attached to the questionnaire containing a brief description of the purpose and procedure of the research process. The participants' cooperation was respectfully requested in the consent form and by signing the consent form, the participants agreed to voluntarily participate in the study. The research was conducted in such a manner that data could not be linked to a specific participant. All data and information obtained was treated as confidential and only used for research purposes. Participants were assured that they could withdraw from or terminate participation in the research at any stage

without fear of prejudice. The identity, affiliation and qualifications of the researcher were made known and the research was done honestly and with integrity. No evidence was manipulated.

RESULTS

Testing the measurement models

The Mplus 7.4 software program was used to analyse a total of 27 different permutations of possible factor structures in order to ascertain the best fitting measurement model between electronic performance monitoring (EMP) with its three composites (purpose, intensity, content), psychological need satisfaction (PNS) with its three composites (autonomy, competence, relatedness) and work engagement (WE) with its three composites (absorption, dedication, vigour) (Holman et al., 2002; Van den Broeck et al., 2010). At this stage, no items were removed and no error correlations were included. Only five of the 27 models gave useable results:

1. Model 1: Consisted of a second order latent variable (EMP) with its three first order latent variables (purpose, intensity, and content), and two other first order latent variables, PNS and WE.
2. Model 2: Consisted of seven first order latent variables, namely purpose, intensity, content, autonomy, competence, relatedness, and WE.
3. Model 3: Consisted of five first order latent variables: purpose, intensity, content, PNS, and WE.
4. Model 4: Consisted of five first order latent variables, which were EMP, autonomy, competence, relatedness, and WE.
5. Model 5: Consisted of three first order latent variables: EMP, PNS, and WE.

Table 2: *Fit statistics of initial competing measurement models*

Model	χ^2	<i>df</i>	AIC	BIC	CFI	TLI	RMSEA	SRMR
Model 1	1914.49	1059	70130.85	70811.42	0.89	0.89	0.04	0.06
Model 2	2450.03	1074	70720.59	71339.30	0.83	0.82	0.05	0.07

Model 3	2446.60	1070	70725.29	71359.49	0.83	0.82	0.05	0.07
Model 4	2365.04	1070	70624.00	71259.20	0.84	0.83	0.05	0.08
Model 5	2880.69	1077	71209.13	71815.46	0.77	0.76	0.06	0.09

χ^2 = chi-square; df = degrees of freedom; AIC = Akaike information criteria; BIC = Bayesian information criteria; TLI = Tucker-Lewis index; CFI = comparative fit index; RMSEA = root mean square error of approximation; SRMR = standardised root mean square residual

According to Table 2, Model 1 presented the best statistical fit compared with the other competing models. The chi-square (χ^2) values could not be directly compared as a direct indicator of a better fit due to the use of the MLR estimator; therefore, the Satorra-Bentler chi-square difference test was done to determine the significance of the change in chi-square. These results are presented in Table 3 (Satorra & Bentler, 2010).

Table 3: Difference testing for changes in chi-square in initial competing measurement models

Model	$\Delta\chi^2$	Δdf	p -value
Model 2	392.35	15	0.00**
Model 3	355.52	11	0.00**
Model 4	365.30	11	0.00**
Model 5	683.27	18	0.00**

** $p < 0.01$

Referring to the significant p -values of Model 2 to Model 5 in Table 3 it is evident that Model 1 fitted the data significantly better.

Post-hoc analysis of the measurement model

The proposed measurement model, Model 1, was further developed in order to find the best fit according to the cut-off values suggested for the fit indices. In order to improve the model fit, certain items were either removed or allowance was made to correlate error variances, because they were problematic in terms of low factor loadings, cross-loadings, and/or high modification indices (Iacobucci, 2009).

After development, Model 1 was compared with three other possible models: Model 2 consisted of three first order latent variables: EMP, PNS, and WE. Model 3 consisted of the second order latent variable EMP with its three first order latent variables, purpose, intensity, and content, the second order latent variable PNS with its three first order latent variables, autonomy, competence, and relatedness, and the three separate first order latent variables absorption, dedication, and vigour. Model 4 consisted of the first order latent variables of all three measures, namely purpose, intensity, content, autonomy, competence, relatedness,

absorption, dedication, and vigour. As shown in Table 4, Model 1 seemed to indicate the best fit, with Models 3 and 4 producing unreliable statistical fit.

Table 4: *Fit statistics of competing measurement models*

Model	χ^2	<i>df</i>	AIC	BIC	CFI	TLI	RMSEA	SRMR
Model 1	984.03	676	56469.17	57059.00	0.95	0.95	0.03	0.05
Model 2	1806.35	694	57384.85	57900.43	0.82	0.81	0.06	0.08
Model 3	Non-positive definite latent variable covariance matrix - Unreliable fit statistics							
Model 4	Non-positive definite latent variable covariance matrix - Unreliable fit statistics							

χ^2 = chi-square; *df* = degrees of freedom; AIC = Akaike information criteria; BIC = Bayesian information criteria; TLI = Tucker-Lewis index; CFI = comparative fit index; RMSEA = root mean square error of approximation; SRMR = standardised root mean square residual

Model 1 had the following fit statistics: $\chi^2 = 984.03$; *df* = 676; CFI = 0.95; TLI = 0.95; RMSEA = 0.03; SRMR = 0.05; AIC = 56469.17; and BIC = 57059.00. Due to the use of the MLR estimator the chi-square (χ^2) values could not be directly compared as a direct indicator of a better fit and therefore the Satorra-Bentler chi-square difference test was done to determine the significance of the change in chi-square, The results of the comparison are presented in Table 5 (Satorra & Bentler, 2010). Models 3 and 4 could not be used for comparison due to their unreliable fit statistics.

Table 5: *Difference testing for changes in chi-square in competing measurement models*

Model	$\Delta\chi^2$	Δdf	<i>p</i> -value
Model 2	658.81	18	0.00**

** *p* < 0.01

It is evident from Table 5 that Model 1 fitted the data significantly better because Model 2 was shown to have significantly worse fit. Therefore, Model 1 was used as the basis for constructing the structural model.

Testing the structural model

The descriptive statistics, reliability coefficients, and correlations between the different variables are reported in Table 6. Measures are considered reliable with ρ ranging from 0.59 to 0.93, which according to Raykov (2009) indicates acceptable internal consistency. Even

though a cut-off of 0.70 is recommended, anything above 0.50 is still acceptable (Raykov, 2009).

Table 6: *Descriptive statistics, reliability coefficients, and correlations*

Variable	M	SD	ρ	1	2	3	4	5	6
1 EPM -- Purpose (1-5)	3.44	0.79	0.64	-					
2 EPM -- Intensity (1-5)	3.89	1.06	0.89	-0.32†**	-				
3 EPM -- Content (1-5)	2.80	1.05	0.70	0.44†**	-0.45†**	-			
4 Autonomy (1-5)	3.01	0.83	0.59	0.60‡**	-0.58‡**	0.76‡**	-		
5 Competence (1-5)	4.06	0.86	0.75	0.22**	-0.22**	0.29**	0.44†**	-	
6 Relatedness (1-5)	2.92	0.56	0.74	-0.18**	0.19**	-0.38†**	-0.38†**	-0.34†**	-
7 Work engagement (1-7)	3.87	1.38	0.93	0.42†**	-0.50‡**	0.57‡**	0.87‡**	0.30†**	-0.34†**

* $p < 0.05$ – statistically significant

** $p < 0.01$ – statistically significant

† $r > 0.30$ – practically significant (medium effect)

‡ $r > 0.50$ – practically significant (large effect)

A regression pathway analysis was done between the constructs in the structural model. Model 1 (which was the proposed model) estimated all the indirect and direct pathways at the same time. Model 2 (only direct pathways) estimated pathways from EPM – Purpose, EPM – Intensity, EPM – Content; autonomy, competence, and relatedness directly to WE. The paths from EPM – Purpose, EPM – Intensity and EPM – Content to autonomy, competence, and relatedness were constrained to zero.

Model 3 (only indirect pathways) estimated pathways from EPM – Purpose, EPM – Intensity, and EPM – Content via PNS – Autonomy, PNS – Competence, and PNS – Relatedness to WE, with the pathways from EPM – Purpose, EPM – Intensity and EPM – Content directly to WE constrained to zero.

Table 7: *Initial framework fit indices and standardised path coefficients*

Measures		Direct and indirect pathways (Model 1)	Direct pathways (Model 2)	Indirect pathways (Model 3)
Fit indices	χ^2	984.03	1183.86	990.48
	df	676	685	679
	AIC	56469.17	56679.85	56470.65

	BIC	57059.00	57232.29	57048.11
	CFI	0.95	0.92	0.95
	TLI	0.95	0.92	0.95
	RMSEA	0.03	0.04	0.03
	SRMR	0.05	0.10	0.05
Direct effects on work engagement	EPM – Purpose	-0.17	0.07	-
	EPM – Intensity	0.02	-0.21**	-
	EPM – Content	-0.27	0.15*	-
	Autonomy	1.23**	0.74**	0.85**
	Competence	-0.13	-0.09	-0.07
	Relatedness	-0.05	-0.04	-0.05
Direct effects on autonomy	EPM – Purpose	0.28**	-	0.24**
	EPM – Intensity	-0.26**	-	-0.30**
	EPM – Content	0.52**	-	0.46**
Direct effects on competence	EPM – Purpose	0.10	-	0.11
	EPM – Intensity	-0.10	-	-0.10
	EPM – Content	0.20*	-	0.20*
Direct effects on relatedness	EPM – Purpose	-0.02	-	-0.02
	EPM – Intensity	0.02	-	0.02
	EPM – Content	-0.36**	-	-0.36**

* $p < 0.05$

** $p < 0.01$

According to Table 7, the estimated regression coefficients of Model 3 were significant from PNS – Autonomy to WE ($\beta = 0.85^{**}$, $p < 0.01$); EPM – Purpose to PNS – Autonomy ($\beta = 0.24^{**}$, $p < 0.01$); EPM – Intensity to PNS – Autonomy ($\beta = -0.30^{**}$, $p < 0.01$); EPM – Content to PNS – Autonomy ($\beta = 0.46^{**}$, $p < 0.01$); EPM – Content to PNS – Competence ($\beta = 0.20^{**}$, $p < 0.01$) and EPM – Content to PNS – Relatedness ($\beta = -0.36^{**}$, $p < 0.01$).

In Table 8, difference testing for the significance in changes in chi-square for the competing structural models is presented.

Table 8: *Difference testing for changes in chi-square in competing structural models*

Model	$\Delta\chi^2$	Δdf	p -value
Model 2	191.60	9	0.00**
Model 3	6.45	3	0.09

** $p < 0.01$

The p-value results in Table 8 indicated that Model 2 was significantly inferior to Model 1 but that there was a very small, but significant, difference between Model 1 and 3. It was decided to use Model 3 as the final structural model.

Figure 1 indicates the standardised path coefficients that were estimated by using Mplus 7 (Muthén & Muthén, 1998-2016).

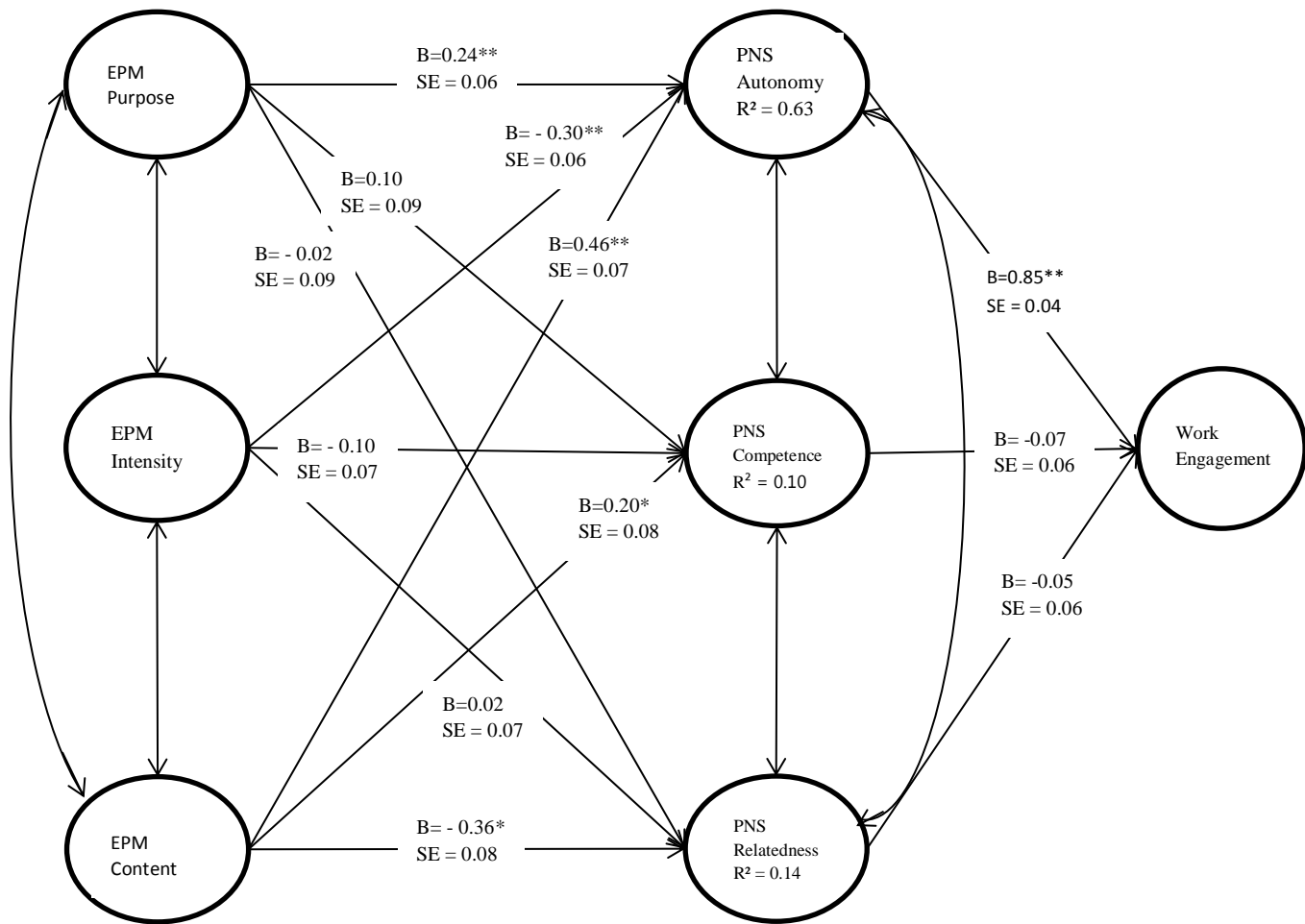


Figure 1.3 Structural model for EPM, PNS and work engagement

In order to determine any indirect effects of PNS, bootstrapping (with 5000 samples) was used. As shown in Table 9, it was found that the indirect relationship between EMP, and WE is made stronger through PNS – Autonomy.

Table 9: *Indirect effects of electronic performance management on work engagement*

Variable	Autonomy			Competence			Relatedness		
	Est.	SE	95% CI	Est.	SE	95% CI	Est.	SE	95% CI
Electronic Performance management - Purpose	0.20**	0.06	[0.10, 0.31]	-0.01	0.01	[-0.05, 0.00]	0.00	0.01	[-0.01, 0.02]
Electronic Performance management - Intensity	-0.25**	0.05	[-0.36, -0.15]	0.01	0.01	[-0.00, 0.03]	-0.00	0.01	[-0.02, 0.01]
Electronic Performance management - Content	0.39**	0.06	[0.27, 0.51]	-0.01	0.01	[-0.05, 0.00]	0.02	0.02	[-0.03, 0.06]

* p < 0.05

** p < 0.01

DISCUSSION

Conclusions

This study was motivated by the need to establish the relationship between electronic performance monitoring (EPM) and work engagement (WE) levels taking into account that this organisation renders an exclusive service, mandated to them by South African Law. In order for employees to be positively attached to their work environment with high energy levels, commitment and performing at optimal levels, they need to have a high degree of work engagement (Hallberg & Schaufeli, 2006). Another objective was to determine whether psychological need satisfaction (PNS) had a mediating effect on the relationship between EPM and WE.

Looking at the results obtained in this study, hypothesis 1 could be accepted, as it was evident that correlations exist between EPM and WE in the government organisation under research. A positive correlation between EPM – Purpose and EPM – Content elements and WE was found. This is an indication that employees feel more engaged when they receive regular feedback on their performance. They are also comfortable with the fact that the performance monitoring increases as long as the feedback in coaching sessions can add value to their performance. Unfortunately, the negative correlation between EPM – Intensity and WE is definite proof that employees become less and less engaged when they perceive call monitoring as worthless and too intense. According to May et al. (2004), it is very important

for individuals to be fully engaged in their work because they spend more than a third of their lives at work. Looking at the work engagement results from this study, there is reason for the organisation to feel a little unsettled. The mean of work engagement was 3.87 with a standard deviation of 1.38. Taking into account that a 7-point scale was used, it is evident that the work engagement levels in this organisation are not very high. In line with the finding of Holman et al., (2002), this study found that the impact of EPM in a call centre varies in terms of the effect that it has on the employees. Three composites of EPM (measured on a 5 point scale), namely the purpose, intensity and content/feedback were measured in this study and results obtained indicated that the mean score for the purpose of EPM was 3.44 with a standard deviation of 0.79. This indicates that there are more participants leaning towards the higher end of the scale, suggesting that employees in this study view the purpose of EPM as useful and fair as long as it identifies weaknesses and strengths, which could be used in training and development interventions. The mean score for content/feedback of EPM was 2.80 with a standard deviation of 1.05. This suggests that the participants in this study are neither extremely happy nor unhappy with the content/feedback they receive. Lastly, the mean score for intensity of EPM was 3.89 with a standard deviation of 1.06. Again employees are leaning towards the higher end of the scale (it should be noted that the items in the scale were not reversed scored and therefore the higher score indicates dissatisfaction), confirming that several employees feel that the EPM in the organisation is too intense, that they are monitored too much and that it increases the pressure they experience. Correlations between the three composites of EPM indicated that there is a positive correlation between purpose and content but a negative correlation between content and intensity, and purpose and intensity. Employees therefore understand that EPM is necessary to ensure that correct levels of client service can be maintained but feel that the information obtained during performance measurement is not used effectively in coaching sessions, which makes the intensity of monitoring worthless.

The second hypothesis of this study was to determine whether PNS would have a mediating effect on the relationship between EPM and WE. Building on a study done by Silman (2014), which confirmed that work-related basic need satisfaction significantly predicted work engagement levels, correlations found between PNS and WE in this study indicated that hypothesis 2 could be accepted. Correlation results revealed a significant positive correlation between the EPM – Purpose, EPM – Autonomy and WE, which implies that if the employees receive regular performance feedback, which clarifies their roles in the workplace,

they experience psychological freedom and feel more in control, which in turn results in higher engagement levels (Van den Broeck et al., 2010). There was also a positive correlation between EPM – Content/feedback, PNS – Competence and WE, meaning that participants in this study felt that if they received regular and constructive feedback they would have more self-confidence and be sufficiently competent to master their work environment, again leading to higher levels of work engagement (Deci & Ryan, 2011). The negative correlation between PNS – Relatedness and WE levels indicated that work engagement levels in this organisation are strongly influenced by the fact that employees do not feel connected and appreciated in a group context (Van den Broeck et al., 2010).

Referring to the study done by Sheldon and Schöler (2011), the argument was that the satisfaction of the three basic psychological needs, i.e. autonomy, competence and relatedness led to positive experiences, such as becoming autonomous, self-regulating and having close relationships with other people – all elements that are necessary for employees to be successful in their daily work. These three basic needs were also measured in this study and it was found that the mean score of autonomy was 3.01 with a standard deviation of 0.83. Several participants leaning towards the higher end of the scale felt that they would change how things were done at work if given the opportunity. They felt that they were forced to do things, which they did not want to do and often need to follow other people's instructions. Very few felt that the work they were doing was in line with what they really wanted to do. This is in line with the study done by Deci and Ryan (2000), which emphasised the fact that unless the need for autonomy is satisfied people do not see any meaning and interest in what they are doing. Secondly, the mean score of competence was 4.06 with a standard deviation of 0.86 and lastly relatedness was measured with a mean score of 2.92 with a standard deviation of 0.56. The positive correlation between PNS – Autonomy and PNS – Competence indicated that employees felt that they were good at their jobs and because of this self-confidence; they felt that there were certain things they would change if they were given the opportunity. However, because they do not have this luxury, the negative correlation between PNS – Autonomy and PNS – Relatedness confirmed that because the participants felt that they often needed to follow other people's commands they could not really discuss their concerns with colleagues.

Limitations and recommendations

Although this study contributes to the research field in human resource management, the researcher acknowledges that there are certain limitations that need to be taken into account. Firstly, the cross-sectional nature of data collection that was used in this study only considers variables at a certain point in time and therefore does not leave any room for possible changes over time. The second limitation of this study relates to a self-reported survey that was used in the form of a questionnaire as the only source of information. This can be the reason for the common method bias, which according to Podsakoff, MacKenzie, Lee, & Podsakoff (2003) can in turn give rise to measurement errors. Lastly, the study was conducted in one specific government organisation and it could be a limitation to generalise this study to the entire government sector. For further research, it is recommended that this research be expanded to other South African government organisations using call centres, in the form of a longitudinal study to determine casual relationships between the different constructs.

References

- Amick, B. C., & Smith, M. J. (1992). Stress, computer-based work monitoring and measurement systems: A conceptual overview. *Applied Ergonomics*, 23(1), 6-16.
- Attridge, M. (2009). Measuring and managing employee work engagement: A review of the research and business literature. *Journal of Workplace Behavioral Health*, 24(4), 383-398.
- Bakker, A. B., Albrecht, S. L., & Leiter, M. P. (2011). Key questions regarding work engagement. *European Journal of Work and Organizational Psychology*, 20(1), 4-28.
- 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 Organisational Psychology*, 12(4), 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(3), 187-200.
- Ball, K. S., & Margulis, S. T. (2011). Electronic monitoring and surveillance in call centres: A framework for investigation. *New Technology, Work and Employment*, 26(2), 113-126.
- Banks, D., & Roodt, P. (2011). The efficiency and quality dilemma: What drives South African call centre management performance indicators. *SA Journal of Human Resource Management* 9(1), 1-17.
- Benner, C., Lewis, C., & Omar, R. (2007). *The South African call centre industry: A study of strategy, human resource practices and performance*, Part of The Global Call Centre Industry Project. Retrieved September, 08, 2016.
- Bodin, M., & Dawson, K. (1999). *The call centre dictionary* (2nd ed.). New York, NY: Telecom Books.
- Bond-Barnard, T. J., Steyn, H., & Fabris-Rotelli, I. (2013). The impact of a call centre on communication in a programme and its projects. *International Journal of Project Management*, 31(7), 1006-1016.
- Bradley, H., Erickson, M., Stephenson, C., & Williams, S. (2000). *Myths at work*. Cambridge, MA: Polity Press.
- Byrne, B. M. (2010). *Structural equation modelling with AMOS: Basic concepts, applications and programming* (2nd ed.). Mahwah, NJ: Lawrence Erlbaum Associates.
- Callaghan, G., & Thompson, P. (2001). Edwards revisited: technical control and call centres. *Economic and Industrial democracy*, 22, 13-37.

- Callaghan, G., & Thompson, P. (2002). We recruit attitude: the selection and shaping of routine call centre labour. *Journal of Management Studies*, 39, 233-254.
- Castanheira, F., & Chambel, M. J. (2010). Reducing burnout in call centers through HR practices. *Human Resource Management*, 49(6), 1047-1065.
- Chen, J. V., & Ross, W. H. (2007). Individual differences and electronic monitoring at work. *Information, Community and Society*, 10(4), 488-505.
- Creswell, J. W. (2013). *Research design: Qualitative, quantitative, and mixed methods approaches*. Sage publications.
- 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 behaviour*. 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. (2011). Levels of analysis, regnant causes of behaviour and well-being: The role of psychological needs. *Psychological Inquiry*, 22, 17-22.
- Deci, E. L., & Vansteenkiste, M. (2004). Self-determination theory and basic need satisfaction: Understanding human development in positive psychology. *Ricerche di Psicologia*, 1(27), 23-39.
- Deery, S., Iverson, R., & Walsh, J. (2002). Work relationships in telephone call centres: Understanding emotional exhaustion and employee withdrawal. *Journal of Management studies*, 39(4), 471-496.
- De Waal, J. J., & Pienaar, J. (2013). Towards understanding causality between work engagement and psychological capital. *SA Journal of Industrial Psychology*, 39(2), 1-10.
- Ellis, S. M., & Steyn, H. S. (2003). Practical significance (effect sizes) versus or in combination with statistical significance (p-values): Research note. *Management Dynamics: Journal of the Southern African Institute for Management Scientists*, 12(4), p-51.
- Ellway, B. P. (2013). Making it Personal in a call centre: electronic peer surveillance. *New Technology, Work and Employment*, 28(1), 37-50.

- Gefen, D., Straub, D., & Boudreau, M. C. (2000). Structural equation modeling and regression: Guidelines for research practice. *Communications of the association for information systems*, 4(1), 7.
- Grandey, A. A., Dickter, D. N., & Sin, H. P. (2004). The customer is not always right: customer aggression and emotion regulation of service employees. *Journal of Organisational Behaviour*, 25, 397-418.
- Greguras, G. J., & Diefendorff, J. M. (2009). Different fits satisfy different needs: Linking person-environment fit to employee commitment and performance using self-determination theory. *Journal of applied psychology*, 94, 465-477.
- 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.
- Gilson, K. A., & Khandelwal, D. K. (2005). Getting more from call centres. *The McKinsey Quarterly*, November 22, 1-8.
- Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2010). *Multivariate data analysis: A global perspective*. Upper Saddle River, NJ: Pearson.
- Hallberg, U. E., & Schaufeli, W. B. (2006). "Same same" but different? Can work engagement be discriminated from job involvement and organizational commitment?. *European psychologist*, 11(2), 119-127.
- 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(2), 268.
- Holman, D. (2002). Employee well-being in call centres. In *Call Centres and Human Resource Management* (pp. 223-244). Palgrave Macmillan UK.
- Holman, D., Chissick, C., & Totterdell, P. (2002). The effects of performance monitoring on emotional labor and well-being in call centers. *Motivation and Emotion*, 26(1), 57-81.
- Holman, D. (2003). Phoning in sick? An overview of employee stress in call centres. *Leadership and organisational development journal*, 24(3), 123-130.
- Holman, D. (2005). *The essentials of the new workplace. A guide to the human impact of modern working practices*. London: John Wiley and Sons.
- Houlihan, M. (2000). Eyes wide shut? Querying the depth of call centre learning. *Journal of European Industrial Training*, 24(2), 228-240.
- Houlihan, M. (2001). Managing to manage? Stories from the call centre floor. *Journal of European Industrial Training*, 25(2), 208-220.

- Hu, L. T., & Bentler, P. M. (1999). Cut off criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural equation modelling: a multidisciplinary journal*, 6(1), 1-55.
- Huckerby, L. (2002). Recruitment and retention strategies for a complex workforce. *Insight: Shaping the Future of Business*, 16, 12.
- Iacobucci, D. (2009). Everything you always wanted to know about SEM (structural equations modelling) but were afraid to ask. *Journal of Consumer Psychology*, 19(4), 673-680.
- Iacobucci, D. (2010). Structural equations modelling: Fit indices, sample size, and advanced topics. *Journal of Consumer Psychology*, 20(1), 90-98.
- Janse van Rensburg, Y. J., Boonzaier, B., & Boonzaier, M. (2013). The job demands-resources model of work engagement in South African call centres. *SA Journal of Human Resource Management*, 11(1), 1.
- Jeske, D., & Santuzzi, A. M. (2015). Monitoring what and how: psychological implications of electronic performance monitoring. *New Technology, Work and Employment*, 30(1), 62-78.
- Kline, R. B. (2011). *Principles and practice of structural equation modelling* (3rd ed.). New York, NY: The Guilford Press.
- Knights, D., & McCabe, D. (1998). What happens when the phone goes wild? Staff stress and spaces for escape in a BPR telephone banking work regime. *Journal of Management Studies*, 32(2), 163-194.
- Lyon, D. (2001). *Surveillance society: Monitoring everyday life*. McGraw-Hill Education (UK).
- Lynch, M., Plant, R., & Ryan, R. (2005). Psychological needs and threat to safety: Implications for staff and patients in a psychiatric hospital for youth. *Professional Research and Practice*, 36, 415-425.
- Lyubomirsky, S., King, L., & Diener, E. (2005). The benefits of frequent positive affect: Does happiness lead to success? *Psychological Bulletin*, 131, 803-855.
- Mahesh, V. S., & Kasturi, A. (2006). Improving call centre agent performance. *International Journal of Service Industry Management*, 17(2), 136-157.
- Malinowski, P., & Lim, H. J. (2015). Mindfulness at work: positive affect, hope, and optimism mediate the relationship between dispositional mindfulness, work engagement, and well-being. *Mindfulness*, 6(6), 1250-1262.
- Markos, S., & Sridevi, M. S. (2010). Employee engagement: The key to improving performance. *International Journal of Business and Management*, 5(12), 89.

- May, S. 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.
- Mulki, J. P., Locander, W. B., Marshall, G. W., Harris, E. G., & Hensel, J. (2008). Workplace isolation, salesperson commitment, and job performance. *Journal of personal selling & sales management*, 28(1), 67-78.
- Múthen, L. K., & Múthen, B. O. (1998-2016). *Mplus user's guide* (8th ed.). Los Angeles, CA: Múthen & Múthen.
- Podsakoff, P. M., MacKenzie, S. B., Lee, J. Y., & Podsakoff, N. P. (2003). Common method biases in behavioral research: a critical review of the literature and recommended remedies. *Journal of applied psychology*, 88(5), 879.
- 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(3), 879-891.
- Rafnsdóttir, G. L., & Gudmundsdottir, M. L. (2011). EPM technology and the psychosocial work environment. *New Technology, Work and Employment*, 26(3), 210-221.
- Ram, P., & Prabhakar, G. V. (2011). The role of employee engagement in work-related outcomes. *Interdisciplinary Journal of Research in Business*, 1(3), 47-61.
- Raykov, T. (2009). Evaluation of scale reliability for unidimensional measures using latent variable modeling. *Measurement and Evaluation in Counseling and Development*, 42(3), 223-232.
- Reynders, E. F. (2005). *Job insecurity, psychological empowerment and work engagement in a government organisation* (Doctoral dissertation, North-West University).
- Richardson, H. J., & Howcroft, D. (2006). The contradictions of CRM—a critical lens on call centres. *Information and Organization*, 16(2), 143-168.
- 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.
- Salanova, M., Agut, S., & Peiró, J. M. (2005). Linking organizational resources and work engagement to employee performance and customer loyalty: the mediation of service climate. *Journal of applied Psychology*, 90(6), 1217.
- Satorra, A., & Bentler, P. M. (2010). Ensuring positiveness of the scaled difference chi-square test statistic. *Psychometrika*, 75(2), 243-248.
- Sawyer, O. O., Srinivas, S., & Wang, S. (2009). Call centre employee personality factors and service performance. *Journal of Service Marketing*, 23, 5, 301-307.

- Schaufeli, W. B., Salanova, M., Gonzalez-Roma, V., & Bakker, A. (2002). The measurement of engagement and burnout: A confirmative analytic approach. *Journal of Happiness Studies, 3*, 71-92.
- Sheldon, K. M., Abad, N., & Hinsch, C. (2011). A two-process view of Facebook use and relatedness need-satisfaction: disconnection drives use, and connection rewards it.
- Sheldon, K. M., & Gunz, A. (2009). Psychological needs as basic motives, not just experiential requirements. *Journal of personality, 77*(5), 1467-1492.
- Sheldon, K. M., & Schüler, J. (2011). Wanting, having, and needing: integrating motive disposition theory and self-determination theory. *Journal of personality and social psychology, 101*(5), 1106.
- Silman, F. (2014). Work-related basic need satisfaction as a predictor of work engagement among academic staff in Turkey. *South African Journal of Education, 34*(3), 01-05.
- Simpson, M. R. (2009). Engagement at work: A review of the literature. *International journal of nursing studies, 46*(7), 1012-1024.
- Simons, J. C., & Buitendach, J. H. (2013). Psychological capital, work engagement and organisational commitment amongst call centre employees in South Africa. *SA Journal of Industrial Psychology, 39*(2), 1-12.
- Stanton, J. M. (2000). Traditional and electronic monitoring from an organizational justice perspective. *Journal of Business and Psychology, 15*(1), 129-147.
- Steger, M. F., Littman-Ovadia, H., Miller, M., Menger, L., & Rothmann, S. (2013). Engaging in work even when it is meaningless: Positive affective disposition and meaningful work interact in relation to work engagement. *Journal of Career Assessment, 1069072712471517*.
- Storm, K., & Rothmann, S. (2003). A psychometric analysis of the Utrecht Work Engagement Scale in the South African police service. *SA Journal of Industrial Psychology, 29*(4), 62-70.
- Struwig, F. W., & Stead, G. B. (2001). *Research: Planning, designing and reporting research*. Cape Town, South Africa: Pearson Education.
- Swart, J. (2006). *The relationship between job characteristics, work wellness and work-related flow of call centre agents in an insurance company*. Mini-dissertation. Industrial Psychology Honours. North-West University, Potchefstroom, South Africa.
- Taylor, P., & Bain, P. (2001). Trade unions, workers' rights and the frontier of control in UK call centres. *Economic and Industrial Democracy, 22*(1), 29-66.

- 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 Rensburg, Y. J., Boonzaier, B., & Boonzaier, M. (2013). The job demands-resources model of work engagement in South African call centres. *SA Journal of Human Resource Management*, 11(1), 1.
- Vansteenkiste, M., Neyrinck, B., Niemiec, C., Soenens, B. D., Witte, H., & Van den Broeck, A. (2007). Examining the relations among extrinsic versus intrinsic work value orientations, basic need satisfaction, and job experience: A Self-determination theory approach. *Journal of Occupational and Organizational Psychology*, 80, 251-277.
- Van Wyk, A. (2008). *Work wellness, absenteeism and productivity in a call centre in the insurance industry*. Mini-dissertation. Industrial Psychology Masters. North-West University, Potchefstroom, South Africa.
- Varca, P. E., (2001). Service representative, job control, and white-collar blues. *Journal of Service Marketing*, 15, 4, 257-269.
- Visser, W. A., & Rothmann, S. (2008). Exploring antecedents and consequences of burnout in a call centre. *SA Journal of Industrial Psychology*, 34(2), 79-87.
- Visser, W. A., & Rothmann, S. (2009). The development of a hassle-based diagnostic scale for predicting burnout in call centres: original research. *SA Journal of Human Resource Management*, 1, 1.
- Wang, J., & Wang, X. (2012). *Structural equation modelling: Applications using Mplus*. Chichester, England: Wiley.
- Wells, D. L., Moorman, R. H., & Werner, J. M. (2007). The impact of the perceived purpose of electronic performance monitoring on an array of attitudinal variables. *Human Resource Development Quarterly*, 18(1), 121-138.
- Wood, S., Holman, D., & Stride, C. (2006). Human resource management and performance in UK call centres. *British Journal of Industrial Relations*, 44(1), 99-124.

CHAPTER 3: RESEARCH ARTICLE

RESEARCH ARTICLE 2

The Relationship between Psychological Need Satisfaction, Work Role Fit and Absenteeism in a Call Centre.

ABSTRACT

Orientation: According to Statistics South Africa, the South African economy loses between R12 and R16 billion a year due to absenteeism and more than 40% of sick notes are issued without a diagnosis, which possibly points to a deeper problem of psychologically unhappy employees. Taking into account the huge amount of time, effort and costs involved in the recruitment process of call centre employees in South Africa's government organisations, makes it very important to ensure that employee well-being and the correct work role fit is prioritised.

Research purpose: This study explored the relationship between psychological need satisfaction (PNS), absenteeism and work role fit amongst call centre employees in a South African government organisation.

Motivation for the study: Employees are the heart and soul of any organisation. They are the mechanism that helps the organisation to perform, so the recruitment of employees that fit into their work role is very important. It is also important to keep the appointed employees happy by making sure that their psychological needs are satisfied. This study was motivated by the need to determine the relationship between psychological need satisfaction and absenteeism in a South African government organisation and to determine the mediating effect that work role fit has on this relationship.

Research design, approach and method: The researcher used a cross-sectional survey design and the sample comprised of call centre employees in a government organisation.

Main findings: SPSS 23 and Mplus 7.4 were used to investigate the current research. The main findings indicated that, in terms of psychological need satisfaction, only the autonomy need had a correlation with the absenteeism levels in the South African call centre. It was found that low work role fit levels influence the autonomy need and could therefore lead to increased absenteeism.

Practical / managerial implications: In order to increase work role fit levels, management needs to focus on interventions that will satisfy appointed employees' autonomy needs.

Furthermore, the recruitment process needs to be refined to include measurements that can determine work role fit levels – even before prospective employees are appointed.

Contribution / value-add: By determining the level of work role fit and psychological need satisfaction during the recruitment process, the government organisation can grow and strengthen their call centre agents emotionally, thereby reducing the cost of absenteeism.

Key terms: Psychological need satisfaction; autonomy; competence; relatedness; electronic performance monitoring; call centre environment; absenteeism; work role fit.

INTRODUCTION

The unique, one of a kind service rendered by government organisations in South Africa require skilled employees because of the knowledge-intensive products they administer on behalf of the South African government. It is therefore very important to place strong emphasis on planning, training and monitoring performance to ensure effectiveness and quality. In order to facilitate and co-ordinate communication between stakeholders and government organisations, the South African government introduced the use of call centres (Bond-Barnard, Steyn, & Fabris-Rotelli, 2013). Unfortunately high turnover rates and excessive absenteeism in these call centres means that already limited, tax-deprived public funds, which could have been used for other important public services, must be used to recruit new employees, provide intensive training and fund absenteeism (Bain, Taylor, & Dutton, 2005; Hilmer, Hilmer, & McRoberts, 2004; Holman, Batt, & Holtgrewe, 2007). Most of the current industrial psychology literature relating to call centre environments focuses on the negative aspects of working in a call centre and the impact of these aspects on employee well-being (Janse van Rensburg, Boonzaier, & Boonzaier, 2013). The rapid growth of the call centre industry is characterised by unique job demands, intrusive electronic performance monitoring and psychological fatigue, which lead to levels of high absenteeism and negative health conditions (Banks & Roodt, 2011; Jeske & Santuzzi, 2015; Rameshbabu, Reddy, & Fleming, 2013).

Research done by Avey, Patera, and West (2006) confirmed that consistent absenteeism could be a potential source of pressure for managers and workers to sustain productivity. This

type of absenteeism causes increased workloads for those employees who are present at work or additional spending on overtime and temporary workers for the company. Navarro and Bass (2006) noted additional indirect costs associated with absenteeism in their research. Some of these costs include loss of quality of customer service, lower productivity, low employee morale and severe performance issues that all contribute to aggregate economic and operational costs for the organisation. Absenteeism also has a negative effect on callers who are faced with reduced accessibility, longer holding times and rushed behaviour by employees that could lead to serious flaws in judgement and performance (Hilmer et al., 2004). Call centres have been labelled as “electronic sweatshops” and associated with high stress levels and a feeling of low autonomy due to the limited control that employees have over their work role (Jeske & Santuzzi, 2015). Brannan (2005) describes employees working in a call centre as emotional labourers that experience mixed feelings between their real emotional state and the fake display of emotions forced on them by the organisation when dealing with clients. This overcompensation to avoid negative performance reviews could add to psychological distress that can escalate to symptoms of mental health issues (Hilton, Sheridan, Cleary, & Whiteford, 2009). Fortunately, it seems evident that managers in call centres are becoming increasingly interested in employees’ occupational well-being because of the benefits it holds for work-related outcomes (Slemp, Kern, & Vella-Brodrick, 2015).

It is also a fact that employees’ work expectations have changed over the past few decades. They are constantly looking for employment that will provide them with opportunities for personal development, well-being and fulfilment in order to derive social connections, meaning and happiness in the workplace (Wrzesniewski, McCauley, Rozin, & Schwartz, 1997). This study therefore examined the role that psychological need satisfaction plays in government call centre employee absenteeism levels seeing that the self-determination theory (SDT) suggests that the satisfaction of an individual’s autonomy, relatedness and competence needs could lead to personal growth, optimal functioning, environmental coherence and well-being (Vansteenkiste & Ryan, 2013). More emphasis has also been placed on the fit between individuals and their work roles. It is important to ensure alignment between the employee’s skills, strengths, knowledge, needs and work role demands (Edwards, 1991; Kristof-Brown, Zimmerman, & Johnson, 2005). Therefore, the mediating effect of work role fit on the relationship between psychological need satisfaction and absenteeism levels was also determined.

LITERATURE REVIEW

Electronic performance management (EPM) in call centre environments

Various studies confirmed that customer service jobs are stressful, because they entail substantial personal contact with clients (Cordes & Dougherty, 1993; Susskind, Kacmar, & Borchgrevink, 2003; Zapf, 2002). In most cases, the presentation of emotions is specified by the organisation where employees are required to follow a set script and very clear instructions on how to act and what to say while dealing with a client (Morris & Feldman, 1997; Macdonald & Sirianni, 1996). These unique workplace characteristics are also evident in most call centres where employees need to render a customer service via telephone technology (Batt & Moynihan, 2002) with the main objective to maximise customer satisfaction and minimise costs in the organisation (Taylor & Bain, 1999).

In order to track performance in the call centre most organisations use electronic performance monitoring systems that can capture and report on the quality of customer interactions; call duration; product knowledge and time spent away from the phone (Kinnie, Purcell, & Hutchinson, 2000). Unfortunately, this causes the call centre employees to have very little control over their work and can lead to temporary withdrawal from work through absenteeism as a coping mechanism to deal with these emotional strains (Schalk & Van Rijckevorsel, 2007) and will also have an effect on an individual's need for autonomy (Jeske & Santuzzi, 2015).

Various studies have been conducted to determine the effect that the electronic performance monitoring system in call centres has on the psychological well-being (Banks & Roodt, 2011; Holman, 2003; Simons & Buitendach, 2013; Visser & Rothmann, 2009) and work role fit of call centre employees (Oliver & Rothmann, 2007).

Absenteeism

Because organisations often recognise different types of absences, it is somewhat difficult to agree on what exactly is meant by absenteeism (Van Wyk, 2008). The government organisation in this study distinguishes between annual leave, sick leave, extended sick leave, maternity leave, trade union leave, family responsibility leave and discretionary leave granted in special circumstance. According to Van der Merwe and Miller (1976), absenteeism can be

defined as an unplanned, disruptive incident, and can be seen as non-attendance when an employee is scheduled to work. Absenteeism is regarded as one of the greatest strategic risks for companies. It disrupts operations, adds unnecessary pressure on co-workers and is often very costly for the organisation (Beira, 2008). Recent figures released by Statistics South Africa, revealed that absenteeism costs the economy more than 12 billion rand annually (Hamduly, 2014).

Bakker, Demerouti, and Schaufeli (2003) distinguish between two kinds of absence measures, namely absence duration and frequency. Absence frequency is regarded as an indicator of “voluntary absenteeism” and represents the number of times an individual has been absent during a particular period. Absence duration on the other hand, is an indicator of “involuntary absence” and represents the total length of time the employee is absent during each absence frequency. Absence duration is associated with the inability rather than the unwillingness to be at work, which can be a result of ill health or unexpected circumstances beyond an individual’s control.

In a study done by Rafnsdóttir and Gudmundsdottir (2011) it was confirmed that employees working under electronic performance monitoring reported high levels of work-related stress, mainly caused by technology that creates a tendency towards an increased working pace, limited opportunities to be involved in decision-making and fewer natural breaks. Previous studies found that absence behaviour is often a reaction to job stress, where stress is conceived as a sign of failure to cope with job demands. Absenteeism may therefore be used as a coping mechanism to deal with low organisational commitment, job dissatisfaction, job strain, stress, burnout, anxiety and performance problems (Bakker, Demerouti, de Boer, & Schaufeli, 2001; Holman, 2003).

Smith, Carayon, Sanders, Lim, and LeGrande (1992) found that employees working under EPM showed signs of disorders and diseases, such as depression, shoulder and back pain and fatigue. These employees also felt that they had very little control over their working conditions. Mental exhaustion and anxiety were also symptoms identified in call centre employees by Rafnsdóttir, Tomansson, and Gudmundsdottir (2005). It is thus evident that the electronic performance monitoring systems in call centres limit the opportunities for call centre agents to create “personal space” for themselves, and one of the most common methods of coping with the emotional strains of the job is temporarily withdraw from work through absenteeism (Schalk & Van Rijckevorsel, 2007).

Work role fit

Employees' physical and emotional well-being is very important to employers who spend enormous amounts of money on recruiting and training employees to maintain a competitive advantage (Harter, Schmidt, & Hayes, 2002). According to Spector (1997), good call centre agents are becoming increasingly hard to find because of the high demands placed on them in the call centre environment. Barnes (2001) thus emphasised that the selection of suitable staff or staff whose personality types meet particular job requirements, can most likely reduce stress and lead to a better fit between the individual and their work role (Oliver & Rothmann, 2007).

It is therefore imperative to ensure that the right person for the job is appointed in order to ensure an optimal fit (May, Gilson, & Harter, 2004). According to a study done by Visser and Rothmann (2008), it was found that the excessive long-term monitoring and surveillance of employees via electronic performance monitoring systems in the call centre environment unfortunately had a very negative effect on call centre employees. Various studies have been done on the relationship between the individual and his/her role in the organisation (work role fit), and it was found that individuals will seek out work roles which allow them to be creative, self-expressive and goal-orientated (Khan, 1990; Kreitner & Kinicki, 2007; Kristof, 1996; Olivier & Rothman, 2007).

Work role fit is defined by May et al. (2004) as the individual's ability to express his beliefs, principles and values as a result of a perceived fit between an individual's concept of his work role and the self, which in return affect the psychological well-being of the individual. In a study done by Van Zyl, Deacon, and Rothmann (2010) it was found that there is a positive relationship between work role fit and psychological meaningfulness, mainly because individuals do not see their work merely as a financial necessity but rather as a calling (Dik & Duffy, 2008).

Psychological need satisfaction

According to the self-determination theory (SDT) explained by Deci and Ryan (2000), all human beings have three essential basic psychological needs – competence (a feeling of effectiveness), autonomy (psychological freedom and being in control of your own choices and behaviour) and relatedness (receiving and giving care and concern to others). These

needs – also called psychological nutriment - need to be satisfied in order to maintain physical and psychological health as well as social well-being (Vansteenkiste, Niemiec, & Soenens, 2010).

As previously explained and confirmed by Van Wyk (2008), it is evident that more and more organisations make use of call centres to improve customer service and reduce costs but unfortunately it was also confirmed that working in a call centre is an unsatisfying, stressful and physically unhealthy job, and stressful experiences at work have a definite effect on an employee's psychological well-being and therefore on absenteeism levels (Lyubomirsky, King, & Diener, 2005). It was also confirmed that there is a positive relationship between the need for autonomy, competence and relatedness and employees' work-related well-being in terms of job satisfaction, work engagement levels, job performance, organisational commitment, absenteeism levels and general well-being (Greguras & Diefendorff, 2009, 2010; Lynch, Plant, & Ryan, 2005; Van den Broeck et al., 2010; Vansteenkiste et al., 2007).

Various research studies relating to the predictive contribution that psychological need satisfaction makes towards well-being were found. These include studies relating to daily well-being (Reis, Sheldon, Gable, Roscoe, & Ryan, 2000); effective work performance and satisfaction (Baard, Deci, & Ryan, 2004); identity development (Luyckx, Vansteenkiste, Goossens, & Duriez, 2009); gratitude (Weinstein, DeHaan, & Ryan, 2010) and even enhanced brain functioning (Miklikowska, Duriez, & Soenens, 2011).

The satisfaction of the three psychological needs provides individuals with a subjective feeling that there is correlation between their work-related behaviour and their feeling of true self, which according to Greguras and Diefendorff (2009), points towards the positive relationship between basic need satisfaction and high levels of work role fit. Very limited research in a South African context could be found.

Hypothesis 1: There is a relationship between psychological need satisfaction and absenteeism in this South African call centre.

Hypothesis 2: There is a relationship between psychological need satisfaction and work role fit in this South African call centre.

Hypothesis 3: Work role fit plays a mediating role in the relationship between psychological need satisfaction and absenteeism.

RESEARCH DESIGN

Research approach

A cross-sectional survey design was used in this study. This design enabled the researcher to examine several groups of people at a specific point in time (Mann, 2003), and examined the potential relationship between two or more variables (Kerlinger & Lee, 2000). To test the hypotheses, a quantitative research approach was followed which permitted the inclusion of a large representative sample and a relatively structured collection process (Creswell, 2013; Struwig & Stead, 2001).

Research method

Research participants

The research participants were call centre employees from a South African government organisation situated in Gauteng, KwaZulu-Natal and Cape Town. The organisation consisted of 690 employees holding various positions, such as managers, consultants and agents. Convenience sampling was done and based on availability of the participants (Struwig & Stead, 2001). Of the total number of questionnaires distributed, 457 (66%) were returned. The participant characteristics covered in this study include gender, age, ethnic group, educational level and occupational status.

The characteristics of the participants are presented in Table 1 below:

Table 10: *Characteristics of the participants (n=457)*

Item	Category	Frequency	Percentage
Area	KwaZulu-Natal	93	20.4
	Doringkloof	87	19.0
	Alberton	143	31.3
	Belville	134	29.3
Gender	Male	141	30.9
	Female	316	69.1
Age	19-30 years	171	37.4
	31-40 years	200	43.8
	41-50 years	73	16.0
	50+ years	13	2.8
Ethnic group	African	308	67.4
	Coloured	90	19.7
	Indian	21	4.6

	White	32	7.0
	Other	6	1.3
Educational level	Higher certificate (Grade 12)	262	57.3
	Diploma	135	29.5
	Degree	24	5.3
	Postgraduate degree	10	2.2
	Technical qualification	26	5.7
Occupational status	Manager	8	1.8
	Agent	430	94.1
	Consultant	12	2.6
	Other	7	1.5
Absenteeism	0-1 day	41	8.9
	2-10 days	333	72.9
	11-20 days	67	14.7
	20+ days	16	3.5

The sample was composed of the four call centres in a government organisation with 31.3% participants in Alberton (Gauteng), 29.3% in Bellville (Cape Town), 20.4% in Durban (KwaZulu-Natal) and 19% participants in Doringkloof (Gauteng). Almost half of the sample was aged between 31 and 40 years (43.8%), with more females (69.1%) than males (30.9%). The majority of the participants were African (67.4%), with 19.7% Coloured, 4.6% Indian and 7.0% white.

Most of the participants had an educational level of Grade 12 (57.3%), with diplomas (29.5%), degrees (5.3%), technical qualifications (5.7%), and postgraduate degrees (2.2%) making up the other 43.7%. Most of the respondents were employed as agent (94.1%), with 1.8% managers and 2.6% consultants. 72.9% of the participants indicated that they had had an absenteeism rate of between 2 and 10 days in the three months before the questionnaire was completed.

Measuring instruments

To achieve the objectives of this study the following measuring instruments were used:

Biographical questionnaire. In order to determine the demographics of the research participants, a biographical questionnaire was used to evaluate different variables in certain groups. The questionnaire focused on characteristics, such as gender, age, ethnic group, educational level and occupational status.

Work-related basic need satisfaction scale (W-BNS); (Van den Broeck et al., 2010). This scale was used to measure psychological need satisfaction and contains eighteen items. The items were evaluated on a five-point scale varying from 1 (*totally disagree*) to 5 (*totally agree*). The W-BNS measures three subdimensions of psychological needs satisfaction, namely autonomy which relates to the individual's ability to make decisions independently at work (six items; e.g., "I feel that I can be myself at my job"), competence that relates to the individual feeling competent at work (six items; e.g., "I feel competent at my job") and relatedness which relates to the individuals need to build relationships at work (six items, e.g., "At work, I feel part of a group"). The reliability for autonomy, competence and relatedness satisfaction were respectively confirm by Cronbach's alpha coefficients of 0.86, 0.88 and 0.86.

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. Items included in the measure was "I like the identity my job gives me"; "My job fits how I see myself" and "My job fits how I see myself in the future". The reliability of the WRFS was confirmed by a study done by Olivier and Rothmann (2007) in a petrochemical company ($\alpha = 0.90$).

Absenteeism data was obtained from the absenteeism records at the Human Resources department of the Call Centre. Absenteeism ratings were converted into a four point scale, with 1 representing 0-1 days, 2 representing 2-10 days, 3 representing 11-20 days and 4 representing >20 days absences. An additional question, pertaining to the frequency of absenteeism during the last three month before the questionnaire was completed, was included in the biographical questionnaire. This information was compared with the absenteeism records received from the Human Resources department to ensure the reliability of data.

Research procedure

The entire call centre business unit ($N = 690$) in a government organisation was approached by means of a random sample. Permission was obtained from the organisations research committee and the Group Executive of this division. Participation in this study was done on a voluntary basis and employees confirmed their informed consent and willingness to participate through a signed return slip. The researcher distributed hard copy questionnaires

to all participants. All questionnaires were completed anonymously and collected by the researcher after completion. Information was treated with absolute confidentiality as per ethical guidelines.

Statistical analysis

Statistical analysis was carried out using the SPSS 23 (IBM Corporation, 2015) and Mplus 7.4 (Múthen & Múthen, 1998-2016) software programs. The suggestion by Ellis and Steyn (2003) that effect sizes be used to determine practical significance of the correlations was used and cut-off points of 0.50 for a large effect and 0.30 for a medium effect were applied. In order to test the reliability of the scales the composite reliability coefficients (ρ) as recommended by Raykov (2009) were used, composite reliability was found to be more appropriate when doing latent variable modelling. For statistical significance the confidence interval levels were set at a value of 95% ($\rho < 0.05$).

Structural equation modelling (SEM) was done by using the Mplus 7.4 software program. SEM not only allows for the simultaneous analysis of multiple relationships between latent and observed variables (Múthen & Múthen, 1998-2016) but was also found by Byrne (2010) to be more appropriate when using a larger sample size and to estimate indirect effects.

It is important to note that the competing models were tested with the maximum likelihood robust (MLR) estimator to take skewness and kurtosis of the data distribution into account (Wang & Wang, 2012). Due to the use of the MLR, the chi-squares of the competing models could not be compared directly (Múthen & Múthen, 1998-2016; Satorra & Bentler, 2010). To overcome this problem, the Satorra-Bentler chi-square difference test was performed which made it possible to calculate the significance in the chi-square changes between the compared models (Satorra & Bentler, 2010). The measurement model that had the best fit was used as basis for the structural model (Iacobucci, 2009). In order to determine the best fit, two competing structural models were tested and the Satorra-Bentler chi-square difference test was once again performed to confirm that the hypothesised structural model was the better fit (Satorra & Bentler, 2010).

The following fit indices were considered: the chi-square (χ^2), and its associated degrees of freedom (df), the standardised root mean square residual (SRMR), the comparative fit index (CFI), the Tucker-Lewis index (TLI), and the root mean square error of approximation (RMSEA) (Hu & Bentler, 1999). A non-significant chi-square statistic is considered to

indicate good fit with the sample data (Iacobucci, 2010). Values higher than 0.95 for CFI and TLI are considered preferable (Iacobucci, 2010); but values higher than .90 are commonly accepted in practice (Wang & Wang, 2012). Values lower than 0.08 and 0.05 are accepted as indication of close fit between the model and the data for the RMSEA and SRMR indicators respectively (Hu & Bentler, 1999). It is good practice to compare measurement models in order to ascertain the best fitting model and it was decided to use two fit statistics, namely the Akaike information criteria (AIC) and the Bayes information criteria (BIC). The lower the value, the better the model (Hair, Black, Babin, & Anderson, 2010), as the AIC and BIC values serve as an index for model parsimony (Kline, 2011).

The final step was to test the possible mediating effects. This was done using the bootstrap data-resampling method. When testing for statistical significance of indirect effects, 5000 draws were done to establish confidence intervals of 95% (Shrout & Bolger, 2002). When compared with the traditional Baron and Kenny (1986) approach and the Sobel test, bootstrapping was found to be more beneficial, mainly due to its higher statistical power (MacKinnon, Lockwood, & Williams, 2004). By using this approach, it was also possible to assess standard errors (SE) and 95% confidence intervals (CIs) (Deng, Allison, Fang, Ash, & Ware, 2013).

Ethical Considerations

In this study, each participant received a cover letter attached to the questionnaire containing a brief description of the purpose and procedure of the research process. The participant's cooperation was respectfully requested in the consent form and by signing the consent form, the participants agreed to voluntarily participate in the study. The research was conducted in such a manner that data could not be linked to a specific participant. However, each coded questionnaire was linked to a specific operational manager in order to accurately analyse the data. All data and information obtained was treated as confidential and only used for research purposes. Participants were assured that they could withdraw from or terminate participation in the research at any stage without fear of prejudice. The identity, affiliation and qualifications of the researcher were made known and the research was done honestly and with integrity. No evidence was manipulated.

RESULTS

Testing the measurement models

Different possible factor structures were analysed using the Mplus 7.4 software program in order to ascertain the best fitting measurement model between psychological need satisfaction (PNS) with its three composites (autonomy, competence, relatedness), work role fit (WRF) and absenteeism (ABS), (Van den Broeck et al., 2010). At this stage no items were removed and no error correlations were included. Only two of the three models gave useable results.

1. Model 1: Consisted of four first order latent variables PNS – Autonomy, PNS – Competence, PNS – Relatedness and WRF.
2. Model 2: Consisted of a second order latent variable PNS with its three first order latent variables PNS – Autonomy, PNS – Competence and PNS – Relatedness and another first order latent variable WRF.
3. Model 3: Consisted of two first order latent variables PNS and WRF.

Table 11: *Fit statistics of initial competing measurement models*

Model	χ^2	<i>df</i>	AIC	BIC	CFI	TLI	RMSEA	SRMR
Model 1	247.38	142	25607.03	25883.39	0.95	0.94	0.04	0.05
Model 2	Non-positive definite latent variable covariance matrix - Unreliable fit statistics							
Model 3	640.02	149	26076.83	26324.31	0.76	0.72	0.09	0.09

χ^2 = chi-square; *df* = degrees of freedom; AIC = Akaike information criteria; BIC = Bayesian information criteria; TLI = Tucker-Lewis index; CFI = comparative fit index; RMSEA = root mean square error of approximation; SRMR = standardised root mean square residual

According to Table 11, Model 1 presented the best statistical fit compared with the other competing models. Model 2 presented an unreliable statistical fit.

This study used the MRL estimator and therefore the chi-square (χ^2) values could not be directly compared as a direct indicator of a better fit and therefore to overcome this problem, the Satorra-Bentler chi-square difference test was done to determine the significance of the change in chi-square, these results are presented in Table 12 (Satorra & Bentler, 2010).

Table 12: *Difference testing for changes in chi-square in initial competing measurement models*

Model	$\Delta\chi^2$	Δdf	<i>p</i> -value
Model 3	287.59	7	0.00**

** *p* < 0.01

It is evident from Table 12 that Model 1 fitted the data significantly better because $\Delta\chi^2$ for Model 3 increased with 287.59.

Post-hoc analysis of the measurement model

Model 1, which was the proposed measurement model, was developed further in order to determine the best fit according to cut-off values suggested for the fit indices. To improve the model fit, the error variances of certain items were allowed to correlate, and certain items were removed, because they were problematic in terms of cross loading, low factor loading, and/or high modification indices (Iacobucci, 2009).

After the development of the structures, Model 1 was compared against two other possible models: Model 2 consisted of a second order latent variable (PNS) with its three first order latent variables, (PNS – Autonomy, PNS – Competence, and PNS – Relatedness) and another first order latent variable (WRF); Model 3 consisted of two first order latent variables: (PNS) and (WRF) As shown in Table 13, Model 1 seemed to show the best fit.

Table 13: *Fit statistics of competing measurement models*

Model	χ^2	<i>df</i>	AIC	BIC	CFI	TLI	RMSEA	SRMR
Model 1	212.15	125	24015.41	24279.39	0.96	0.95	0.04	0.05
Model 2	223.43	129	24020.65	24268.13	0.95	0.94	0.04	0.05
Model 3	600.55	132.00	24480.78	24715.89	0.76	0.73	0.09	0.09

χ^2 = chi-square; *df* = degrees of freedom; AIC = Akaike information criteria; BIC = Bayesian information criteria; TLI = Tucker-Lewis index; CFI = comparative fit index; RMSEA = root mean square error of approximation; SRMR = standardised root mean square residual

Model 1 had the following fit statistics: $\chi^2 = 212.15$; *df* = 125; CFI = 0.96; TLI = 0.95; RMSEA = 0.04; SRMR = 0.05; AIC = 24015.41; and BIC = 24279.39. The use of the MLR estimator meant that the chi-square (χ^2) values could not be directly compared as a direct indicator of a better fit. For this reason, the Satorra-Bentler chi-square difference test was done in order to determine the significance of the change in chi-square. These comparison results are presented in Table 14 (Satorra & Bentler, 2010).

Table 14: *Difference testing for changes in chi-square in competing measurement models*

Model	$\Delta\chi^2$	Δdf	<i>p</i> -value
Model 2	11.42	4	0.02*
Model 3	286.38	7	0.00**

** $p < 0.01$

It is evident from Table 14, that Model 1 fitted the data significantly better because Model 2 and Model 3 were shown to have a significantly worse fit. Model 1 was therefore used as the basis for constructing the structural model.

Testing the structural model

The reliability coefficients, descriptive statistics, and correlations between the different variables are reported in Table 15. Measures are regarded as reliable with ρ ranging from 0.60 to 0.90, which according to Raykov (2009) indicates acceptable internal consistency. Although Raykov (2009) recommended a cut-off of 0.70, anything above 0.50 is still acceptable. No reliability coefficient for absenteeism exists because it is an observed variable that is measured directly.

Table 15: *Descriptive statistics, reliability coefficients, and correlations*

Variable	M	SD	ρ	1	2	3	4
1 Autonomy (1-5)	2.82	1.05	0.60	-			
2 Competence (1-5)	4.06	0.86	0.75	0.41†**	-		
3 Relatedness (1-5)	2.92	0.56	0.74	-0.33†**	-0.34†**	-	
4 Work role fit (1-5)	2.81	1.21	0.90	0.83‡**	0.33†**	-0.32†**	-
5 Absenteeism (1-4)	2.13	0.60	-	-0.12*	-0.02	0.06	-0.15**

* $p < 0.05$ – statistically significant

** $p < 0.01$ – statistically significant

† $r > 0.30$ – practically significant (medium effect)

‡ $r > 0.50$ – practically significant (large effect)

A regression pathway analysis was done between the constructs in the structural model. The proposed model (Model 1) estimated all the indirect and direct pathways at the same time. Model 2 (only direct pathways) estimated pathway from PNS – Autonomy, PNS –

Competence and PNS – Relatedness; directly to absenteeism (ABS). The paths from PNS – Autonomy, PNS – Competence, PNS – Relatedness to (WRF) were constrained to zero.

Model 3 (only indirect pathways) estimated pathways from PNS – Autonomy, PNS – Competence, and PNS – Relatedness via (WRF) to absenteeism (ABS) with the pathways from PNS – Autonomy, PNS – Competence, PNS – Relatedness directly to absenteeism (ABS) constrained to zero.

Table 16: *Initial framework fit indices and standardised path coefficients*

Measures		Direct and indirect pathways (Model 1)	Direct pathways (Model 2)	Indirect pathways (Model 3)
	Fit indices	χ^2	212.15	398.11
	<i>df</i>	125	128	128
	AIC	24015.41	24234.40	24010.07
	BIC	24279.39	24486.01	24261.67
	CFI	0.96	0.86	0.96
	TLI	0.95	0.84	0.95
	RMSEA	0.04	0.07	0.04
	SRMR	0.05	0.14	0.05
Direct effects on absenteeism	Work role fit	-0.18	-0.15**	-0.15**
	Autonomy	0.03	-0.02	-
	Competence	0.04	0.05	-
	Relatedness	0.03	0.03	-
Direct effects on work role fit	Autonomy	0.83**	-	0.83**
	Competence	-0.04	-	-0.04
	Relatedness	-0.06	-	-0.06

* $p < 0.05$

** $p < 0.01$

According to Table 16, the estimated regression coefficients of Model 3 were significant from PNS – Autonomy to WRF ($\beta = 0.83, p < 0.01$), and from WRF to absenteeism ($\beta = -0.15, p < 0.01$).

In Table 17, difference testing for the significance in changes in chi-square for the competing structural models was presented.

Table 17: *Difference testing for changes in chi-square in competing structural models*

Model	$\Delta\chi^2$	Δdf	<i>p</i> -value
Model 2	150.64	3	0.00**
Model 3	0.59	3	0.90

** *p* < 0.01

Results indicated that Model 2 was significantly inferior to Model 1. There was a very small, but significant difference between Model 1 and 3. Model 3 was therefore used to construct the final structural model because of the lower AIC and BIC levels.

Figure 1 indicates the standardised path coefficients that were estimated by using Mplus 7 (Muthén & Muthén, 1998-2016).

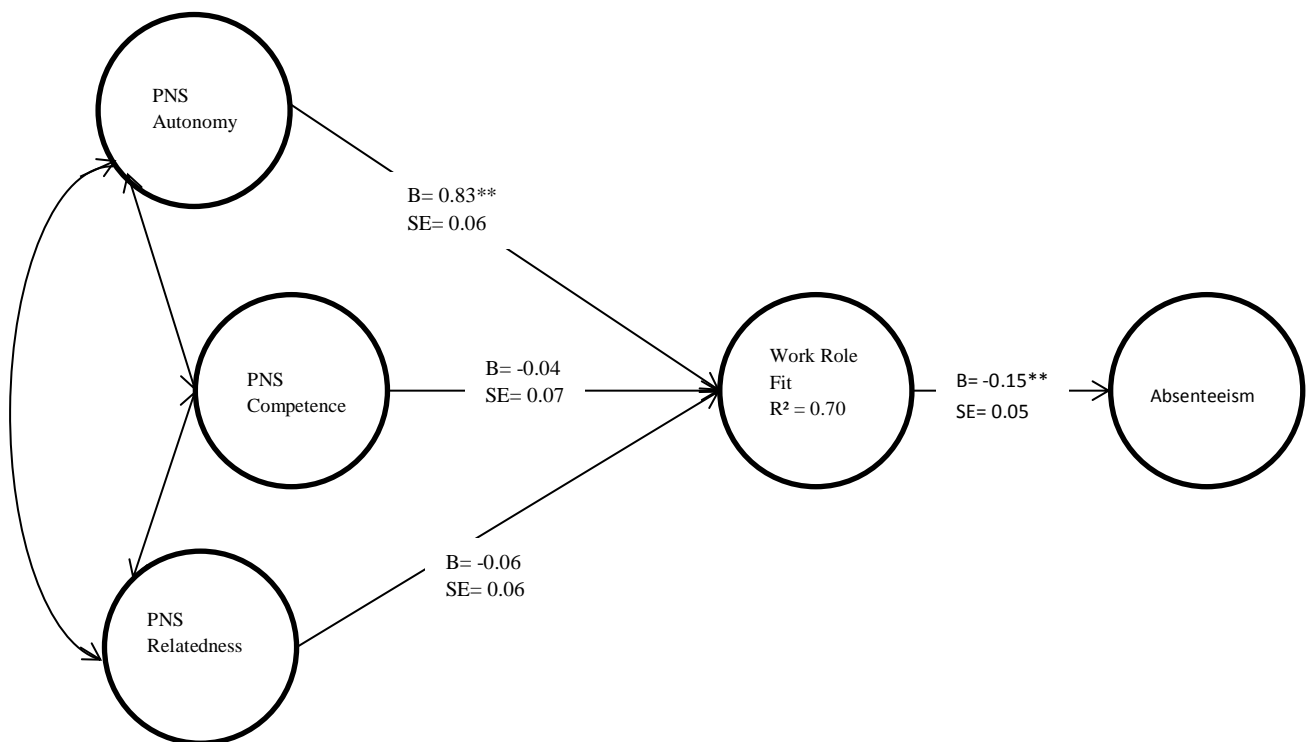


Figure 1.4 *Structural model for PNS, work role fit and absenteeism*

In order to determine any indirect effects of WRF, bootstrapping (with 5000 samples) was used. As shown in Table 18, it was found that the indirect relationship between PNS and absenteeism is made stronger through PNS – Autonomy.

Table 18: *Indirect effects on absenteeism*

Variable	Autonomy			Competence			Relatedness		
	Est.	SE	95% CI	Est.	SE	95% CI	Est.	SE	95% CI
Work role fit	-0.13**	0.04	[-0.21, -0.05]	0.01	0.01	[-0.01, 0.03]	0.01	0.01	[-0.01, 0.04]

* $p < 0.05$

** $p < 0.01$

DISCUSSION

Conclusions

The main aim of this study was to establish whether there was any relationship between psychological need satisfaction (PNS – Autonomy , PNS – Relatedness and PNS – Competence), absenteeism levels (ABS) and work role fit (WRF) in the call centre of a South African government organisation. Taking into account the high amount of taxpayer money spent on absenteeism in the government sector, it is essential to try to remedy the situation.

The first hypothesis of this study was to determine whether there is a relationship between PNS and absenteeism levels in a South African call centre. The majority of participants (72.9%) in the self-reported questionnaire indicated that they were absent from the workplace between 2 and 10 days during the three months prior to the questionnaire being distributed. These self-reported statistics were compared with absenteeism data obtained from the statistician in the government call centre under research, and it was found that the majority of participants were leaning towards the higher end of the scale (10 days absent).

Looking at the correlation between PNS – Autonomy, PNS – Competence and PNS – Relatedness and absenteeism, results of this study indicated a significant negative correlation between PNS – Autonomy and absenteeism. This is in line with the study done by Rafnsdóttir and Gudmundsdottir (2011) which confirmed that constant monitoring at work lead to employees experiencing mental exhaustion because they felt that they do not have any influence when important performance decisions are made. Therefore, hypothesis 1 was accepted. Gagnè and Deci (2005) argue that individuals are naturally prone to be self-determined. They are beings that will attempt to incorporate themselves into a larger social work environment and in order to accomplish this internalisation, three fundamental psychological needs (autonomy, competence and relatedness) have to be satisfied. Autonomy relates to a feeling of control where the individual see him/herself as the initiator of work-

related processes. The need for competence relates to the individual feeling capable to master work-related tasks and relatedness boils down to a feeling that the individual is supported by colleagues (Sheldon & Schöler, 2011). The three basic psychological needs were also measured in this study and it was found that the mean score of autonomy was 2.82 with a standard deviation of 1.05. Participants leaning towards the higher end of the scale felt that they often needed to follow other people's instructions and are therefore forced to do things they do not want to do, The participants felt that they would change how things were done at work if given the opportunity. Very few felt that the work they were doing was in line with what they really wanted to do. The mean score of competence was 4.06 with a standard deviation of 0.86 indicating that participants in this study felt that they were good at their jobs and that they felt competent to master the task. The relatedness need was measured with a mean score of 2.92 and a standard deviation of 0.56. The intensity of electronic performance monitoring often means that there are very limited possibilities to socialise with colleagues and this could be a possible reason why the employees in this call centre do not feel part of a group. The positive correlation between PNS – Autonomy and PNS – Competence found in the results of this study indicated that employees felt that they were good at their jobs and because of this self-confidence; they felt that there were certain things they would change if they were given the opportunity. This is in line with the study done by Deci and Vansteenkiste (2004) where it was reported that those individuals with high levels of need satisfaction indicated that they felt better about themselves, thus having higher self-esteem.

The second hypothesis in this study was to determine whether there is a relationship between PNS and WRF in the call centre. According to Rothmann and Hamukang'andu (2013), human beings are self-expressive and therefore often search for work roles where they can express their own signature strengths. Looking at the results of the present study, work role fit obtained a mean score of 2.81 with the standard variance of 1.21. It is thus evident that the majority of the participants do not feel a fit between themselves and their work role in the call centre. 54% of the participants felt that their current jobs did not fit how they saw themselves in the future and when they were asked whether the work they did on this job helped them to satisfy who they are, 43% disagreed with this statement. The study confirmed a significant positive correlation between PNS – Autonomy and WRF. The low levels of PNS – Autonomy and WRF is an indication that because the employees do not feel in control they also do not experience high levels of work role fit. Results confirmed a positive relationship

between PNS – Competency and WRF, but PNS – Relatedness had a negative correlation. Hypothesis 2 can therefore be accepted.

The third aim of this study was to determine whether WRF plays a mediating role in the relationship between PNS and absenteeism. The correlation found between WRF and absenteeism was significantly negative; meaning that if the work role fit levels could be increased there would be a decline in absenteeism. This statement is in line with the study done by Kahn (1990) which confirmed that individuals would devote more of themselves in order to achieve specific goals set by the organisation if the individuals experienced a fit between their inner self and their work roles. The only significant indirect effect that was found in this study was between PNS – Autonomy , WRF and absenteeism, making hypothesis 3 only partly true as there was no significant relationship between the other two elements PNS – Competency PNS – Relatedness, WRF and absenteeism.

Limitations and recommendations for further study

One of the limitations of this study is based on the research design that was used. Cross-sectional research is only a snapshot of a specific time frame and the research might provide different results if another time frame had been chosen. The second limitation of this study relates to the use of self-reported questionnaires to obtain data. When using self-reported questionnaires, there is always the possibility of being exposed to common-method variance, which can lead to bias and be the reason for measurement errors (Podsakoff & Organ, 1986). Lastly, the study was conducted in one specific government organisation and it could be a limitation to generalise this study to the entire government sector. For further research, it is recommended that this research be expanded to other South African government organisations in the form of a longitudinal study to determine causal relationships between the different constructs.

References

- Avey, J. B., Patera, J. L., & West, B. J. (2006). The implications of positive psychological capital on employee absenteeism. *Journal of Leadership & Organizational Studies*, 13(2), 42-60.
- Baard, P. P., Deci, E. L., & Ryan, R. M. (2004). Intrinsic Need Satisfaction: A Motivational Basis of Performance and Well-Being in Two Work Settings1. *Journal of applied social psychology*, 34(10), 2045-2068.
- Bain, P., Taylor, P., & Dutton, E. (2005). The thin front line: Call handling in police control rooms. In *23rd International Labour Process Conference* .
- Bakker, A. B., Demerouti, E., de Boer, E., & Schaufeli, W. B. (2001). Job demands and job resources as predictors of absence duration and frequency. *Journal of Vocational Behaviour*, 62, 341-356.
- Bakker, A., Demerouti, E., & Schaufeli, W. (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(4), 393-417.
- Banks, D., & Roodt, G. (2011). The efficiency and quality dilemma: What drives South African call centre management performance indicators?. *SA Journal of Human Resource Management*, 9(1), 17-pages.
- Barnes, P. (2001). People problems in call centres. *Management Service*, 45(7), 30-31.
- 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(6), 1173.
- Batt, R., & Moynihan, L. (2002). The viability of alternative call centre production models. *Human Resource Management Journal*, 12(4), 14-34.
- Beira, B. (2008). Debunking absenteeism. *Journal, HR Highway*, 2(29).
- Bond-Barnard, T. J., Steyn, H., & Fabris-Rotelli, I. (2013). The impact of a call centre on communication in a programme and its projects. *International Journal of Project Management*, 31(7), 1006-1016.
- Brannan, M. J. (2005). Once more with feeling: ethnographic reflections on the mediation of tension in a small team of call centre workers. *Gender, Work & Organization*, 12(5), 420-439.
- Byrne, B. M. (2010). *Structural equation modelling with AMOS: Basic concepts, applications and programming* (2nd ed.). Mahwah, NJ: Lawrence Erlbaum Associates.
- Cordes, C. L., & Dougherty, T. W. (1993). A review and an integration of research on job burnout. *Academy of management review*, 18(4), 621-656.

- Creswell, J. W. (2013). *Research design: Qualitative, quantitative, and mixed methods approaches*. Sage publications.
- 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., & Vansteenkiste, M. (2004). Self-determination theory and basic need satisfaction: Understanding human development in positive. *Ricerche di Psicologia*.
- Deng, N., Allison, J. J., Fang, H. J., Ash, A. S., & Ware, J. E. (2013). Using the bootstrap to establish statistical significance for relative validity comparisons among patient-reported outcome measures. *Health and quality of life outcomes, 11*(1), 1.
- Dik, B. J., & Duffy, R. D. (2009). Calling and vocation at work definitions and prospects for research and practice. *The Counseling Psychologist, 37*(3), 424-450.
- Edwards, J. R. (1991). *Person-job fit: A conceptual integration, literature review, and methodological critique*. John Wiley & Sons.
- Ellis, S. M., & Steyn, H. S. (2003). Practical significance (effect sizes) versus or in combination with statistical significance (p-values): Research note. *Management Dynamics: Journal of the Southern African Institute for Management Scientists, 12*(4), p-51.
- Gagné, M., & Deci, E. L. (2005). Self-determination theory and work motivation. *Journal of Organizational behaviour, 26*(4), 331-362.
- Greguras, G. J., & Diefendorff, J. M. (2009). Different fits satisfy different needs: Linking person-environment fit to employee commitment and performance using self-determination theory. *Journal of applied psychology, 94*, 465-477.
- 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.
- Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2010). *Multivariate data analysis: A global perspective*. Upper Saddle River, NJ: Pearson.
- Hamdulay, A. (2014). A virtuous circle of health: stress management-wellness. *HR future, 37*.
- 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*(2), 268.
- Hillmer, S., Hillmer, B., & McRoberts, G. (2004). The real costs of turnover: Lessons from a call center. *People and Strategy, 27*(3), 34.

- Hilton, M. F., Sheridan, J., Cleary, C. M., & Whiteford, H. A. (2009). Employee absenteeism measures reflecting current work practices may be instrumental in a re-evaluation of the relationship between psychological distress/mental health and absenteeism. *International journal of methods in psychiatric research, 18*(1), 37-47.
- Holman, D. (2003). Phoning in sick? An overview of employee stress in call centres. *Leadership and organisational development journal, 24*(3), 123-130.
- Holman, D., Batt, R., & Holtgrewe, U. (2007). The global call centre report: International perspectives on management and employment.
- Hu, L. T., & Bentler, P. M. (1999). Cut off criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural equation modelling: a multidisciplinary journal, 6*(1), 1-55.
- Iacobucci, D. (2009). Everything you always wanted to know about SEM (structural equations modelling) but were afraid to ask. *Journal of Consumer Psychology, 19*(4), 673-680.
- Iacobucci, D. (2010). Structural equations modelling: Fit indices, sample size, and advanced topics. *Journal of Consumer Psychology, 20*(1), 90-98.
- Janse van Rensburg, Y. J., Boonzaier, B., & Boonzaier, M. (2013). The job demands-resources model of work engagement in South African call centres. *SA Journal of Human Resource Management, 11*(1), 1.
- Jeske, D., & Santuzzi, A. M. (2015). Monitoring what and how: psychological implications of electronic performance monitoring. *New Technology, Work and Employment, 30*(1), 62-78.
- Kahn, M. A. (1990). Psychological conditions of personal engagement and disengagement at work. *The Academy of Management Journal, 33*, 692-724.
- Kerlinger, F. N., & Lee, H. B. (2000). Survey research. *Foundations of behavioral research, 599-619*.
- Kinnie, N., Hutchinson, S., & Purcell, J. (2000). 'Fun and surveillance': the paradox of high commitment management in call centres. *International Journal of Human Resource Management, 11*(5), 967-985.
- Kline, R. B. (2011). *Principles and practice of structural equation modelling* (3rd ed.). New York, NY: The Guilford Press.
- Kreitner, R., & Kinicki, A. (2007). *Organisational behaviour* (7th ed.). New York: McGraw-Hill Publishers.
- Kristof, A. L. (1996). Person-organisation fit: An integrative review of its conceptualizations, measurement, and implications. *Personnel Psychology, 49*, 1-50.

- 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*(2), 281-342.
- Luyckx, K., Vansteenkiste, M., Goossens, L., & Duriez, B. (2009). Basic need satisfaction and identity formation: Bridging self-determination theory and process-oriented identity research. *Journal of Counseling Psychology*, *56*(2), 276.
- Lynch, M., Plant, R., & Ryan, R. (2005). Psychological needs and threat to safety: Implications for staff and patients in a psychiatric hospital for youth. *Professional Research and Practice*, *36*, 415-425.
- Lyubomirsky, S., King, L., & Diener, E. (2005). The benefits of frequent positive affect: Does happiness lead to success? *Psychological Bulletin*, *131*, 803-855.
- Macdonald, C. L., & Sirianni, C. (1996). The service society and the changing experience of work. *Working in the service society*, 1-26.
- MacKinnon, D. P., Lockwood, C. M., & Williams, J. (2004). Confidence limits for the indirect effect: Distribution of the product and resampling methods. *Multivariate behavioral research*, *39*(1), 99-128.
- Mann, C. J. (2003). Observational research methods. Research design II: cohort, cross sectional, and case-control studies. *Emergency Medicine Journal*, *20*(1), 54-60.
- May, S. 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.
- Miklikowska, M., Duriez, B., & Soenens, B. (2011). Family roots of empathy-related characteristics: The role of perceived maternal and paternal need support in adolescence. *Developmental Psychology*, *47*(5), 1342.
- Morris, J. A., & Feldman, D. C. (1997). Managing emotions in the workplace. *Journal of managerial issues*, 257-274.
- Múthen, L. K., & Múthen, B. O. (1998–2014). *Mplus user's guide* (7th ed.). Los Angeles, CA: Múthen & Múthen.
- Navarro, C., & Bass, C. (2006). The cost of employee absenteeism. *Compensation and benefits Review*, *38*, 26-30.
- Olivier, A. L., & Rothmann, S. (2007). Antecedents of work engagement in a multinational oil company. *SA Journal of Industrial Psychology*, *33*(3), 49-56.
- Podsakoff, P. M., & Organ, D. W. (1986). Self-reports in organizational research: Problems and prospects. *Journal of management*, *12*(4), 531-544.
- Rafnsdóttir, G. L., & Gudmundsdóttir, M. L. (2011). EPM technology and the psychosocial work environment. *New Technology, Work and Employment*, *26*(3), 210-221.

- Rafnsdóttir, G. L., Tomasson, K., & Guomundsdóttir, M. L. (2005). The eye of technology and the well-being of women and men in Icelandic work places. *Laeknabladid*, 91(11), 821-827.
- Rameshbabu, A., Reddy, D. M., & Fleming, R. (2013). Correlates of negative physical health in call centre shift workers. *Applied ergonomics*, 44(3), 350-354.
- Raykov, T. (2009). Evaluation of scale reliability for unidimensional measures using latent variable modeling. *Measurement and Evaluation in Counseling and Development*, 42(3), 223-232.
- Reis, H. T., Sheldon, K. M., Gable, S. L., Roscoe, J., & Ryan, R. M. (2000). Daily well-being: The role of autonomy, competence, and relatedness. *Personality and social psychology bulletin*, 26(4), 419-435.
- Rothmann, S., & Hamukang'andu, L. (2013). "Callings, work role fit, psychological meaningfulness and work engagement among teachers in Zambia. *South African Journal of Education*, 33(2), 1-16.
- Satorra, A., & Bentler, P. M. (2010). Ensuring positiveness of the scaled difference chi-square test statistic. *Psychometrika*, 75(2), 243-249.
- Schalk, R., & van Rijckevorsel, A. (2007). Factors influencing absenteeism and intention to leave in a call centre. *Work and employment*, 22, 260-274.
- Sheldon, K. M., & Schüler, J. (2011). Wanting, having, and needing: integrating motive disposition theory and self-determination theory. *Journal of personality and social psychology*, 101(5), 1106.
- Shrout, P. E., & Bolger, N. (2002). Mediation in experimental and nonexperimental studies: new procedures and recommendations. *Psychological methods*, 7(4), 422.
- Simons, J. C., & Buitendach, J. H. (2013). Psychological capital, work engagement and organisational commitment amongst call centre employees in South Africa. *SA Journal of Industrial Psychology*, 39(2), 1-12.
- Slemp, G. R., Kern, M. L., & Vella-Brodrick, D. A. (2015). Workplace Well-Being: The Role of Job Crafting and Autonomy Support. *Psychology of Well-Being*, 5(1), 1.
- Smith, M. J., Carayon, P., Sanders, K. J., Lim, S. Y., & LeGrande, D. (1992). Employee stress and health complaints in jobs with and without electronic performance monitoring. *Applied Ergonomics*, 23(1), 17-27.
- Spector, P. E. (1997). *Job satisfaction: Application, assessment, causes, and consequences* (Vol. 3). Sage publications.
- Struwig, F. W., & Stead, G. B. (2001). *Research: Planning, designing and reporting research*. Cape Town, South Africa: Pearson Education.

- Susskind, A. M., Kacmar, K. M., & Borchgrevink, C. P. (2003). Customer service providers' attitudes relating to customer service and customer satisfaction in the customer-server exchange. *Journal of Applied Psychology, 88*(1), 179.
- Taylor, P., & Bain, P. (1999). 'An assembly line in the head': work and employee relations in the call centre. *Industrial Relations Journal, 30*(2), 101-117.
- Van der Merwe, R., & Miller, S. (1976). *Measuring absence and labour turnover*. Johannesburg: McGraw-Hill.
- Vansteenkiste, M., Neyrinck, B., Niemiec, C., Soenens, B., D Witte. H., & Van den Broeck, A. (2007). Examining the relations among extrinsic versus intrinsic work value orientations, basic need satisfaction, and job experience: A Self-determination theory approach. *Journal of Occupational and Organizational Psychology, 80*, 251-277.
- Vansteenkiste, M., Niemiec, C. P., & Soenens, B. (2010). The development of the five mini-theories of self-determination theory: An historical overview, emerging trends, and future directions. *Advances in motivation and achievement, 16*, 105-166.
- Vansteenkiste, M., & Ryan, R. M. (2013). On psychological growth and vulnerability: Basic psychological need satisfaction and need frustration as a unifying principle. *Journal of Psychotherapy Integration, 23*(3), 263.
- Van Wyk, A. (2008). *Work wellness, absenteeism and productivity in a call centre in the insurance industry/Adèle van Wyk* (Doctoral dissertation, North-West University).
- Van Zyl, L. E., Deacon, E., & Rothmann, S. (2010). Towards happiness: Experiences of work-role fit, meaningfulness and work engagement of industrial/organisational psychologists in South Africa. *SA Journal of Industrial Psychology, 36*(1), 1-10.
- Visser, W. A., & Rothmann, S. (2008). Exploring antecedents and consequences of burnout in a call centre. *SA Journal of Industrial Psychology, 34*(2), 79-87.
- Visser, W. A., & Rothmann, S. (2009). The development of a hassle-based diagnostic scale for predicting burnout in call centres. *SA Journal of Human Resource Management, 7*(1), 8-pages.
- Wang, J., & Wang, X. (2012). *Structural equation modeling: Applications using Mplus*. John Wiley & Sons.
- Weinstein, N., DeHaan, C. R., & Ryan, R. M. (2010). Attributing autonomous versus introjected motivation to helpers and the recipient experience: Effects on gratitude, attitudes, and well-being. *Motivation and Emotion, 34*(4), 418-431.
- Wrzesniewski, A., McCauley, C., Rozin, P., & Schwartz, B. (1997). Jobs, careers, and callings: People's relations to their work. *Journal of research in personality, 31*(1), 21-33.

Zapf, D. (2002). Emotion work and psychological well-being: A review of the literature and some conceptual considerations. *Human resource management review*, 12(2), 237-268.

CHAPTER 4

CONCLUSION, LIMITATIONS AND RECOMMENDATIONS

This chapter presents the empirical and theoretical conclusions of the study and then concludes with the limitations and recommendations for future research and practice.

4.1 Conclusion

The general aim of this study was to establish possible correlations between electronic performance monitoring (EPM) and work engagement (WE) levels in a government call centre; and whether psychological need satisfaction (PNS) (autonomy, competence and relatedness) mediates this relationship. Another aim was to establish possible correlations between PNS, absenteeism levels, and work role fit (WRF); and additionally, whether work role fit (WRF) mediates the relationship between PNS and absenteeism.

The first objective was to conceptualise call centres, electronic performance monitoring, psychological need satisfaction, work engagement, absenteeism, work role fit and the relationships between these constructs from existing literature. **Call centres** are conceptualised as client service divisions defined by the information and communication technologies that they use in order to render a service to their clients. These digital technology systems consist of an automated call distribution system, integrated voice recognition system, in-bound call functionalities and predictive dialling capacities (Taylor & Bain, 2007). According to Callaghan and Thompson (2001), call centre management often deliberately choose communication technology that was designed to increase the intensity of performance monitoring and limit employee autonomy where precise targets are set to which employees are held accountable to (Bain, Watson, Mulvey, Taylor, & Gall, 2002).

Electronic performance monitoring is conceptualised as a very pervasive and prominent call centre practice where information obtained from electronic surveillance systems is used by managers to determine an employee's average call time, types of calls taken and time spent on each call. It also entails a system where managers can listen in remotely on calls taken by call centre agents without their knowledge (Holman, 2002). The aim of electronic

performance monitoring is mainly to ensure that call centre employees meet the prescribed social and technical key performance indicators, such as call accuracy and friendliness (Russell, 2008). In the present study, it was confirmed that the call centre employees had a positive feeling towards the EPM – Purpose and EPM – Content. This could be based on the finding in a study done by Kidwell and Sprague (2009) who argued that call centre employees feel that electronic performance monitoring enables them to improve and develop new skills when they can see the broader purpose of the performance monitoring system. Unfortunately, the opposite is also true. There was a negative feeling towards EPM – Intensity in the present study which correlates with findings of Holman (2002) where research results indicated that when performance monitoring becomes too excessive and too frequent it could lead to negative effects on well-being.

Van den Broeck, Vansteenkiste, De Witte, Soenens, and Lens (2010) conceptualise **psychological need satisfaction** (autonomy, competence and relatedness) as vital for every individual to fulfil his/her potential, maintain health, integrity and growth in his/her personal and work life. PNS – Competence briefly refers to a sense of effectiveness or competence when an individual interacts with his/her environment (Deci & Ryan, 2000). PNS – Relatedness refers to the experience of care and love felt amongst others (Baumeister & Leary, 1995), and PNS – Autonomy refers to a feeling of control and self-endorsement over his/her activities (Ryan & Deci, 2006). The low levels of PNS – Autonomy reflected by the results of the present study could be an indication that the strict electronic performance monitoring system in the call centre limits the psychological freedom of employees when organising their work (Silman, 2014).

Bakker, Demerouti, and Schaufeli (2003) conceptualise **work engagement** as a fulfilling, positive and work-related frame of mind comprising dedication, vigour and absorption. According to Macey and Schneider (2008), an engaged employee understands organisational purpose, shows commitment, enthusiasm and high levels of energy – all desirable conditions, which are fundamentally important to any organisation's success. Results of this study indicated that the participants have relatively low work engagement levels, which according to Bakker and Xanthopoulou (2013) could lead to lower productivity and ill health. Unengaged employees tend to have low energy levels because they do not find their work challenging and stimulating and therefore lack the sense of personal competence and autonomy (Xanthopoulou, Bakker, Kantas, & Demerouti, 2012).

De Boer, Bakker, Syriot, and Schaufeli (2002) conceptualise **absenteeism** as a temporary withdrawal from work. This can be because of ill health or unfavourable working conditions. In a call centre study done by Van Wyk (2008) it was found that absenteeism plays a very important part in the daily management of the call centre. This is mainly because incoming calls are distributed by an automated workflow system that automatically routes calls to the next available agent, and if there is unexpected absenteeism in the team it has major implications for the call centre employees on duty that get flooded with incoming calls. Bakker et al. (2003) explain that various demanding characteristics, such as high emotional demands, low autonomy levels, low job satisfaction and high stress levels might lead to ill health in which case absenteeism is often used as a coping mechanism or behavioural response to dissatisfaction.

Work role fit is conceptualised as the anticipated fit between employees self-image and their work role in an organisation (May, Gilson, & Harter, 2004), therefore individuals tend to seek occupations that allow them to reveal their true selves (Olivier & Rothmann, 2007). It was also found that employees that reported high levels of work role fit, reported high levels of psychological need satisfaction (Greguras & Diefendorff, 2009).

The second objective of this study was to determine the relationship between EPM and WE levels with (PNS – Autonomy, PNS – Relatedness and PNS – Competence) being a possible mediator in the relationship. Results obtained from this study have indicated that two of the three composites of EMP, i.e. purpose and content/feedback, are perceived positively by employees in this organisation. This could add to the satisfaction of their psychological needs and therefore could lead to higher work engagement levels. Employees are relatively satisfied with the manner in which performance feedback is given, which is in line with previous studies done by Moorman and Wells (2003) where it was found that EPM can be applied in a useful and fair manner leading to employee development instead of it being used in a punitive manner. The third element, EMP – Intensity was negatively perceived by employees. Holman, Chissick and Totterdell (2002) had similar findings in their study where it was found that EPM – Intensity was the only aspect that had a negative effect on employees. Management should therefore ensure that the intensity of EPM is justified by providing frequent, constructive and useful feedback (Holman et al., 2002) where weaknesses and strengths are identified and action plans for development are put in place and managed.

Engaged employees are of fundamental importance to any organisation. Roberts and Davenport (2002) and May et al. (2004) emphasise that it is therefore very important for individuals to be fully engaged in their work because they spend more than a third of their lives in their work environment. The research results obtained in this study indicated that the employees experienced low levels of work engagement, which should be of concern to the organisation. A fair amount of participants indicated that they did not want to get up to go to work in the morning because they did not feel happy or were distracted when working. According to a study done by De Waal and Pienaar (2013), low levels of work engagement could lead to lower levels of productivity and higher levels of absenteeism, which is very bad for the organisation. Empirical research done in this study confirmed that there were significant correlations between EPM and WE levels in this South African government organisation and confirmed that PNS – Autonomy had a strong mediating effect on the indirect correlation between EPM and WE. This is in line with a study done by Silman (2014), which concluded that the satisfaction of the three psychological needs (autonomy, competence and relatedness) significantly predicted work engagement levels.

Low PNS – Autonomy levels, which could lead to lowered vigour (one of the elements of work engagement) and increased emotional exhaustion (Van der Elst, Van den Broeck, De Witte, & De Cuyper, 2012) were reported in this study. Deci and Ryan (2000) also confirmed in their study that if the individual's need for autonomy is not satisfied, he/she does not see any meaning and interest in what he/she is doing. In order to improve PNS – Autonomy levels, management should perhaps better explain the reasons for the intensive performance monitoring and consider involving employees in the design process of the monitoring system (Chalykoff & Kohan, 1989). This will give employees a feeling of control and psychological freedom when performing their daily tasks.

The third objective of this research was to investigate the relationship between PNS, WRF and absenteeism levels with work role fit being a possible mediator in this relationship. When it comes to the management of human resources, the call centre environment requires a different approach to normal office environments. The main reason for this is that the number of incoming calls cannot be accurately predicted and fluctuates on a daily basis, therefore management is faced with the gruelling task of continuously adjusting the levels of manpower, because if there are not enough employees the call waiting time increases, increasing the pressure on the staff members that are on duty (Schalk & Rijckevorsel, 2007). In order to ensure maximal flexibility, all activities (training interventions, meetings and

telephone operations) need to be planned thoroughly. Unplanned absenteeism can therefore have a tremendously negative effect on this planning process. Various studies have been conducted to establish the impact of EPM in call centres on the well-being of employees. The studies found that, due to the faster working pace created by call centre technology, limited opportunities for employees to be part of the decision-making process and therefore low autonomy levels, poor social relations and fewer natural breaks, call centre employees experience significant psychosocial stress that could contribute to ill health which in turn leads to higher absenteeism levels (Lyon, 2003; Rafnsdóttir & Gudmundsdottir, 2004). Botan and Vorvoreanu (2000) also confirm that employees working under constant surveillance in call centres experience a feeling of reduced privacy increased work-related stress, a decreased feeling of loyalty towards the company and a low desire to go to work.

Research results of this study confirmed that there was a negative correlation between WRF and absenteeism levels, meaning that if WRF levels increased absenteeism would decrease. Unfortunately, the WRF levels measured in this organisation were relatively low, with 54% of the participants indicating that their current call centre job did not “fit” how they saw themselves in the future. One of the reasons for low work role fit levels in the organisation can perhaps be explained as the gap between the employees self-concept (to deliver excellent client service) and the intensity of the electronic performance monitoring system which is more focused on quantity instead of quality (Rafnsdóttir & Gudmundsdottir, 2011).

Previous research confirmed that the satisfaction of the three psychological needs (autonomy, competence and relatedness) provides subjective feelings that the individual’s work-related behaviour correlates with his/her personal feelings (Leroy, Anseel, Gardner, & Sels, 2015). Call centre management should therefore focus on interventions that will enhance the work role fit levels of the appointed call centre employees but also ensure that the recruitment process is refined to include measurements that can determine levels of PNS – Autonomy in prospective employees.

4.2 Limitations of this research

This study had certain limitations, which should be kept in mind when results are interpreted. The first limitation to consider is the fact that the study was done in one specific South

African government organisation and care should therefore be taken when generalising the outcome to other organisations within the government sector. The second limitation is the use of a cross-sectional research design, which implies that data was collected at a certain point in time, which could have an influence on the results should the variables be measured over a longer period.

Another limitation of this study was data collection using a self-reported questionnaire. The use of a questionnaire increases the possibility for biased results because of it being exposed to common-method variances where both the focal and dependent variables are perceptual measures, which the participants produce. Chang, Witteloostuijn, and Eden (2010) suggest that this could be solved by using other sources of information for some of the important measures. The use of absenteeism data from the organisation's Human Resources department is a good example of using other sources to validate information.

4.3 Recommendations

Recommendations made can be of value to the government organisation in terms of improving the work environment for their employees, which could contribute to higher levels of client satisfaction. Based on the findings of this research several recommendations can also be made in respect of possible future research projects.

4.3.1 Recommendations for practice

Based on the findings of this study, certain recommendations could be made to the organisation. This study provided unique and interesting insights into the overall feeling of call centre employees towards the electronic performance management system, psychological need satisfaction and work engagement levels in a South African government organisation. Confirming the finding of a study done by Holman et al. (2002), the present study found that the perceived intensity of electronic performance monitoring caused some degree of concern as it negatively affected the call centre employees, especially concerning the feeling of autonomy where it was indicated that the employees do not feel in control. To address this, the organisation should perhaps focus on involving the call centre employees when drafting

performance-monitoring plans. This will give the employees a clearer understanding of why performance monitoring is needed and give them a sense of relatedness. A further recommendation to remedy this situation would be to look at the quality of the relationship between the employee and his/her direct manager. Deci and Ryan (1987) found that a manager that creates a supportive work environment by showing concern for team members' needs and feelings by constantly encouraging them to voice their opinions and concerns, and then providing positive feedback by solving the work-related problems, enhances employees' self-determination and increases their perceived engagement in their work role.

This study found a correlation between electronic performance monitoring and work engagement. The results confirmed that the work engagement levels in this organisation were relatively low and that psychological need satisfaction had a mediating effect on this relationship. It is therefore recommended that the organisation focuses on interventions, such as value adding performance feedback exercises, social support from management and colleagues, learning and development opportunities and giving the call centre employees the opportunity to make suggestions and apply their variety of skills to create a positive work environment which fosters a feeling of autonomy – all cited as predictors of engagement (Bakker & Demerouti, 2008; Koyuncu, Burke, & Fiksenbaum, 2006; Sonnentag, 2003).

The negative correlation between work role fit and absenteeism reported in this study should also encourage management to focus on possible ways to increase employee work role fit levels, and to focus on the recruitment process by including additional measurements, which could determine autonomy and work role fit levels in applicants. Probation periods could be introduced in order to determine whether a newly appointed employee accurately “fits” into the call centre environment before the individual is employed permanently.

4.3.2 Recommendations for future research

Besides the limitations mentioned before, the findings of this study may have important implications for future research. Call centre representatives in the government sector are the first contact between the public and the organisation that renders an exclusive service as, mandated to them by South African law. Limited research studies – especially in the South

Africa context – could be found in literature, and taking the importance of the service they render into account, future research should be encouraged.

It is recommended that the study be replicated in other government organisations in order to validate the results of the current study. Another recommendation is to use a mixed methods research design (qualitative and quantitative) in order to get a more in-depth understanding of employees' attitudes and feelings relating to the surveillance done in the call centre. This kind of research design would also be helpful to minimise the bias effect of a self-reported questionnaire.

A longitudinal study is also recommended since it has the advantage of producing information which describes occurrences and processes in the study over a longer period of time, making the results more reliable (Creswell & Clark, 2007). Literature confirmed that although call centre work is performed in teams, the call centre is still part of a broader division of labour (Glucksmann, 2004; Taylor & Bain, 2007). This was also the case in this study and a recommendation for future research could be to explore inter-team dynamics, to establish whether team leaders could manage teams differently in order to change their perspectives with regard to surveillance.

References

- Bakker, A. B., & Demerouti, E. (2008). Towards a model of work engagement. *Career development international, 13*(3), 209-223.
- Bakker, A., Demerouti, E., & Schaufeli, W. (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*(4), 393-417.
- Bakker, A. B., & Xanthopoulou, D. (2013). Creativity and charisma among female leaders: the role of resources and work engagement. *The International Journal of Human Resource Management, 24*(14), 2760-2779.
- Bain, P., Watson, A., Mulvey, G., Taylor, P., & Gall, G. (2002). Taylorism, targets and the pursuit of quantity and quality by call centre management. *New Technology, Work and Employment, 17*(3), 170-185.
- Baumeister, R. F., & Leary, M. R. (1995). The need to belong: desire for interpersonal attachments as a fundamental human motivation. *Psychological bulletin, 117*(3), 497.
- Botan, C. H., & Vorvoreanu, M. (2000, June). “What Are You Really Saying To Me?” Electronic Surveillance In The Workplace. In *Conference of the International Communication Association Conference, Acapulco, Mexico*.
- Callaghan, G., & Thompson, P. (2001). Edwards revisited: technical control and call centres. *Economic and Industrial democracy, 22*, 13-37.
- Chalykoff, J., & Kochan, T. A. (1989). Computer-aided monitoring: its influence on employee job satisfaction and turnover. *Personnel Psychology, 42*(4), 807-834.
- Chang, S. J., Van Witteloostuijn, A., & Eden, L. (2010). From the editors: Common method variance in international business research. *Journal of International Business Studies, 41*(2), 178-184.
- Creswell, J. W., & Clark, V. L. P. (2007). Designing and conducting mixed methods research.
- De Boer, E. M., Bakker, A. B., Syroit, J. E., & Schaufeli, W. B. (2002). Unfairness at work as a predictor of absenteeism. *Journal of organizational behavior, 23*(2), 181-197.
- De Waal, J. J., & Pienaar, J. (2013). Towards understanding causality between work engagement and psychological capital. *SA Journal of Industrial Psychology, 39*(2), 1-10.
- Deci, E. L., & Ryan, R. M. (1987). The support of autonomy and the control of behavior. *Journal of personality and social psychology, 53*(6), 1024.
- 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.

- Glucksmann, M. A. (2004). Call configurations: varieties of call centre and divisions of labour. *Work, employment & society*, 18(4), 795-811.
- Greguras, G. J., & Diefendorff, J. M. (2009). Different fits satisfy different needs: linking person-environment fit to employee commitment and performance using self-determination theory. *Journal of applied psychology*, 94(2), 465.
- Holman, D. (2002). Employee well-being in call centres. In *Call Centres and Human Resource Management* (pp. 223-244). Palgrave Macmillan UK.
- Holman, D., Chissick, C., & Totterdell, P. (2002). The effects of performance monitoring on emotional labor and well-being in call centers. *Motivation and Emotion*, 26(1), 57-81.
- Kidwell, R. E., & Sprague, R. (2009). Electronic surveillance in the global workplace: laws, ethics, research and practice. *New Technology, Work and Employment*, 24(2), 194-208.
- Koyuncu, M., Burke, R. J., & Fiksenbaum, L. (2006). Work engagement among women managers and professionals in a Turkish bank: Potential antecedents and consequences. *Equal Opportunities International*, 25(4), 299-310.
- Leroy, H., Anseel, F., Gardner, W. L., & Sels, L. (2015). Authentic Leadership, Authentic Followership, Basic Need Satisfaction, and Work Role Performance A Cross-Level Study. *Journal of Management*, 41(6), 1677-1697.
- Lyon, D. (2003). *Surveillance as social sorting: Privacy, risk, and digital discrimination*. Psychology Press.
- Macey, W. H., & Schneider, B. (2008). The meaning of employee engagement. *Industrial and organizational Psychology*, 1(1), 3-30.
- 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(1), 11-37.
- Moorman, R. H., & Wells, D. L. (2003). Can electronic performance monitoring be fair? Exploring relationships among monitoring characteristics, perceived fairness, and job performance. *Journal of Leadership & Organizational Studies*, 10(2), 2-16
- Olivier, A. L., & Rothmann, S. (2007). Antecedents of work engagement in a multinational oil company. *SA Journal of Industrial Psychology*, 33(3), 49-56.
- Rafnsdóttir, G. L., & Gudmundsdóttir, M. L. (2004). New technology and its impact on well being. *Work*, 22(1), 31-39.
- Rafnsdóttir, G. L., & Gudmundsdóttir, M. L. (2011). EPM technology and the psychosocial work environment. *New Technology, Work and Employment*, 26(3), 210-221.
- Roberts, D. R., & Davenport, T. O. (2002). Job engagement: Why it's important and how to improve it. *Employment Relations Today*, 29(3), 21-29.

- Russell, B. (2008). Call centres: A decade of research. *International journal of management reviews*, 10(3), 195-219.
- Ryan, R. M., & Deci, E. L. (2006). Self-regulation and the problem of human autonomy: does psychology need choice, self-determination, and will?. *Journal of personality*, 74(6), 1557-1586.
- Schalk, R., & van Rijckevorsel, A. (2007). Factors influencing absenteeism and intention to leave in a call centre. *Work and employment*, 22, 260-274.
- Silman, F. (2014). Work-related basic need satisfaction as a predictor of work engagement among academic staff in Turkey. *South African Journal of Education*, 34(3), 01-05.
- Sonnetag, S. (2003). Recovery, work engagement, and proactive behavior: a new look at the interface between nonwork and work. *Journal of applied psychology*, 88(3), 518.
- Taylor, P., & Bain, P. M. (2007). Reflections on the call centre-a reply to Glucksmann. *Work, Employment and Society*, 21(2), 349-362.
- 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 der Elst, T., Van den Broeck, A., De Witte, H., & De Cuyper, N. (2012). The mediating role of frustration of psychological needs in the relationship between job insecurity and work-related well-being. *Work & Stress*, 26(3), 252-271.
- Van Wyk, A. (2008). *Work wellness, absenteeism and productivity in a call centre in the insurance industry*/Adèle van Wyk (Doctoral dissertation, North-West University).
- Xanthopoulou, D., Bakker, A. B., Kantas, A., & Demerouti, E. (2012). Measuring burnout and work engagement: Factor structure, invariance, and latent mean differences across Greece and the Netherlands. *International Journal of Business Science and Applied Management*, 7(2), 40-52.