The impact of employee engagement on performance in the South African gold mining industry

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Research Article

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DECLARATION

I, Jeremy Rusere declare that this research report entitled 'The impact of employee engagement on performance in the South African gold mining industry' is my own unaided work. I have acknowledged, attributed, and referenced all ideas sourced elsewhere. I am hereby submitting it in partial fulfilment of the requirements of the degree of Master of Business Administration at the University of the Witwatersrand, Johannesburg. I have not submitted this report before for any other degree or examination to any other institution.

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Signed at Johannesburg on 31st March 2022

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ABSTRACT

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Thesis Title: The impact of employee engagement on performance in the South African gold mining industry.

The purpose of the study was to evaluate factors that influence employee engagement at five gold mining companies in South Africa as well as to determine the effect of employee engagement on employee performance. Additionally, the research aimed to recommend strategies that promote employee engagement at the concerned companies. The research followed a quantitative approach, whereby data collection was by means of a questionnaire distributed online to 600 participants out of which 329 participants provided valid responses. Standard multiple linear regression was applied to the data set to determine the cause-and-effect relationships between eight predictors (compensation, work from home, work environment, organisational policies, training and career development, team and co-worker relationship, employee wellbeing and leadership) and employee engagement. Similarly, the research applied multiple regression analysis to establish the influence of employee engagement on employee performance. The research found that compensation as well as work from home were statistically significant and positively predicted employee engagement. Based on these findings, this empirical work recommended executives of the five gold mining companies to review compensation of the workforce with a view to drive employee engagement in this economically crucial industry.

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Finally, to the unnamed data collection team, I salute you all.

Thank you.

DEFINITION OF KEY TERMS AND CONCEPTS

Key term/concept	Definition
Covid-19:	A respiratory disease caused by the SARS-CoV-2 virus.
Refrigeration:	Is the removal of heat to lower underground temperatures.
Gold Reserves:	Quantity of proven gold in the earth.
Gross domestic product:	Total monetary value of goods produced and services provided in a country for a one-year period.
POPIA Act:	A new law passed in South Africa to protect personal information.
Productivity:	Represents the total output as an expression of total input (cost and labour).
Rock mechanics:	A geoscience study, which focuses on the mechanical behaviour of rocks and rock masses.
SPSS:	A software developed by IBM to handle statistical analysis, business intelligence, inter alia.

1 INTRODUCTION TO THE RESEARCH

1.1 Context of and background to the study

1.1.1 Challenges faced by the gold mining industry of South Africa

For over a century, South Africa was the largest producer of gold attaining peak production equivalent to 75% of global output in 1970 (Obraztsova, 2021). However, since 1994, annual gold production has been on free fall as shown in Figure 1.

The plummeting gold production signifies underlying fundamental problems within the industry such as strike-related production stoppages; increasing operational costs related to electricity, labour, increasing depth of gold reserves, rock mechanic complications and refridgeration. Furthermore, lockdown measures due to Covid-19 caused gold production to decline by 5% to 90 tonnes in 2020 (Garside, 2021).

All these challenges bedeviling this industry have led to deteriorating productivity as mentioned by Neingo & Tholana (2016). Business leaders should respond by developing turnaround strategies to regain competitive advantage.

1.1.2 Employee engagement

An industry riddled with militant labour unions, menacing Covid-19 pandemic, increasing operational costs and massive retrenchments, has a recipe to shatter employee engagement and productivity. Edem-Adah & Daniel (2020) stated that deteriorating industrial relations between managenent and labour unions impacts employee engagement and productivity.

Bedarkar & Pandita (2014) opined that if employee engagement is properly harnessed as a strategic tool, it can be a key enabler towards achieving long-term productivity and profitability in the workplace. In 2020, Gallup revealed that organisations with engaged employees are 21% more profitable and their teams are 17% more productive than their counterparts who have disengaged employees (as cited in Deyan, 2021).

Such a trend was explained by Markos & Sridevi (2010) who posited that an engaged workforce has a great intimacy with its organisation and always thrive to work hard to achieve resounding success. Organisational leaders in the gold mining industry of South Africa must have dip insights of employee engagement to resuscitate high productivity and competitiveness. This study endeavours to analyse drivers of employee engagement and its effect on employee performance in the gold mining sector of South Africa.

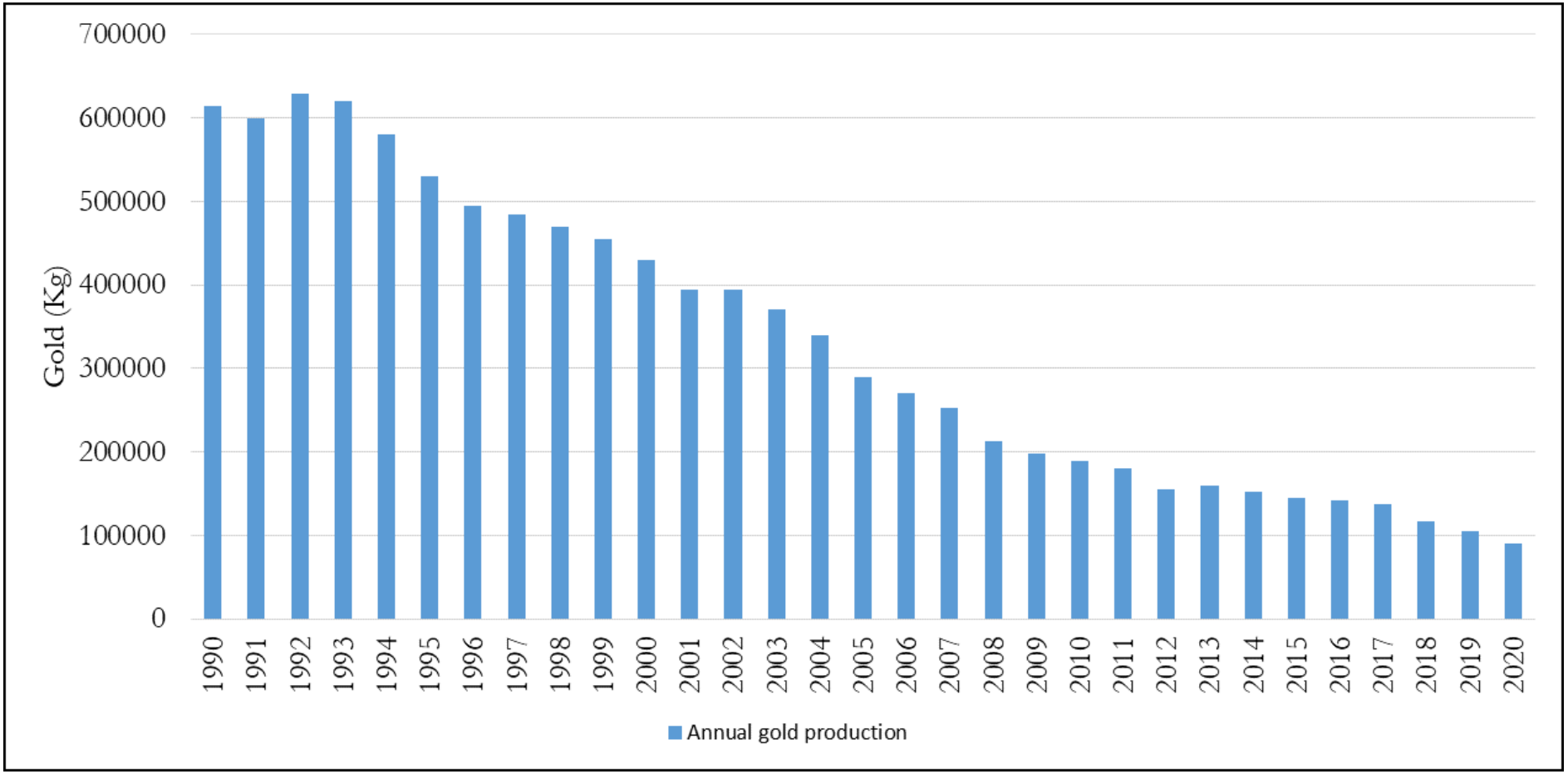

Figure 1: Gold production of South Africa for the period 1990-2020 (Ceicdata, 2020).

1.2 Research conceptualisation

1.2.1 The research problem statement

Globally, employee engagement is on the decline (Saks & Gruman, 2014). Bersin (2014) stated that a Gallup research indicated that only 13% of the global workforce is actively engaged at work. According to Bersin (2014), signs are clear that companies have failed to engage the current generation of employees in the workplace. According to Gallup, in South Africa, only 9% of the entire workforce is engaged (as cited in Otto, 2018).

Gallup added that 45% of the remaining 91% disengaged employees showed extreme negativity towards their occupation and the work environment (as cited in BountiXP, 2020). According to Gallup, chances are high that this group of employees can spread negative energy to co-workers especially in the mining industry (as cited in Palo & Rothman, 2016). The alarmingly low level of employee engagement in South Africa which could partly explain the declining productivity shown in Figure 2 (Ceicdata, 2020) is a cause for concern.

BountiXP (2020) observed that as a result of high levels of disengagement in South Africa in general, more than 50% of young professionals consider to move to another organisation within a year of employment. On average, such professionals succeeded changing jobs within a 2-year period implying that some companies incur training and development costs while others benefit (BountiXP, 2020). Bersin (2014) observed that the 21st century workforce is demanding and aspires for meaningful work.

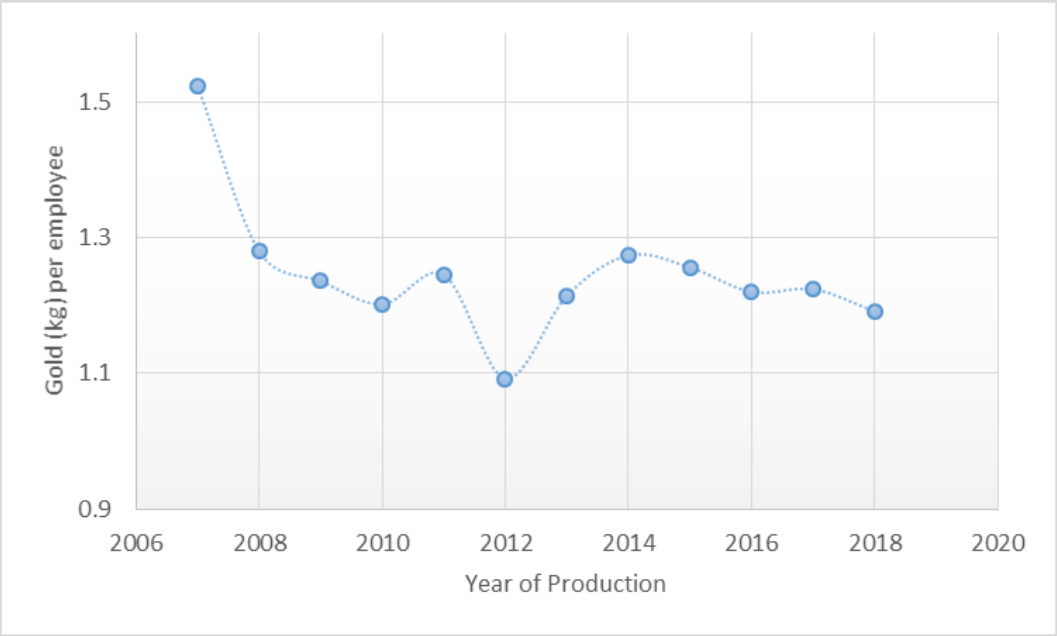

Figure 2: Gold annual productivity of South Africa 2006 – 2018 (Ceicdata, 2020)

1.2.2 The research purpose statement

Surprisingly, a dearth of research exists on factors that foster employee engagement in the gold mining industry of South Africa. This void exists despite the significant contribution of this industry to the country's gross domestic product.

This research aimed to evaluate factors that influence employee engagement and how this phenomenon impacts employee performance at five gold mining companies in South Africa. Anitha (2014) carried-out a similar study in India, while the current study which expected different findings, tested her model in the South Africa gold mining context.

This research followed a quantitative approach and a cross-sectional research design. The current researcher anticipated to use the measuring instrument of Anitha (2014) for data collection. However, attempts to contact Anitha through email were fruitless, therefore a new tool was developed and tested for reliability and validity prior to full usage.

Lastly, the research aimed to recommend strategies that promote employee engagement at the five gold minig companies. Considering the diminishing productivity in the gold sector over the years, the need to understand the dynamics of employee engagement cannot be overemphasised.

1.2.3 The research questions and hypotheses

According to Anthony-McMann, Ellinger & Astakhova (as cited in Hurtienne, Hurtienne & Kempen, 2021), employee engagement originates from positive psychology, an area that seeks to understand human behaviours which can lead to sustainable actions that impact productivity and profitability in the workplace. Bailey, Soane, Delbridge & Alfes (as cited in Hurtienne et al., 2021) emphasised that engaged employees are loyal, enthusiatic about work and are absorbed in their work. According to Prerana (2017), employee engagement presents opportunities for organisations to gain competitive advantage over their peers as a result of improved productivity, employee retention and better management as well as leadership qualities.

Human resource professionals should therefore understand factors that lead to high productivity, employee retention and commitment in organisations (Hurtienne et al., 2021) to reverse low employee engagement and declining productivity in the gold mining industry in general. With the worrying low engagement trends in the gold mining sector, this researcher endeavours to understand factors that influence employee engagement and employee performance at the selected five mining companies. As a point of departure, factors proposed by Anitha (compensation, work environment, leadership, team and co-worker relationships, training and career development, organisational policies and employee well-being) were considered adequate for investigation. The researcher also sought to investigate work from home as an enabler of employee engagement during this Covid-19 pandemic.

1.2.3.1 Research Question 1

Which factors influence employee engagement at the five gold mining companies in South Africa?

The following hypotheses were informed by the literature review:

Hypothesis 1: Compensation (CP) positively and significantly influence employee engagement at the five gold mining companies.

Hypothesis 2: Work from home (WFH) due to Covid-19 positively and significantly influences employee engagement at the five gold mining companies.

Hypothesis 3: Work environment (WE) positively and significantly influences employee engagement at the five gold mining companies.

Hypothesis 4: Leadership (LP) positively and significantly influences employee engagement at the five gold mining companies.

Hypothesis 5: Team and co-worker relationships (TR) positively and significantly influences employee engagement at the five gold mining companies.

Hypothesis 6: Training and career development (TC) positively and significantly influences employee engagement at the five gold mining companies.

Hypothesis 7: Organisational policies (OP) positively and significantly influence employee engagement at the five gold mining companies.

Hypothesis 8: Employee wellbeing (EW) positively and significantly influences employee engagement at the five gold mining companies.

1.2.3.2 Research Question 2

What is the effect of employee engagement on employee performance at the five gold mining companies in South Africa?

Hypothesis 9: Employee engagement positively and significantly influences employee performance at the five gold mining companies in South Africa.

1.3 Delimitations and assumptions of the study

Theofanidis & Fountouk (2018) stated that delimitations are boundaries establised by a researcher to ensure that aims and objectives of a study remain manageable and achieveable.

This empirical study was only open to all fulltime employees of five gold mining companies listed on the Johannesburg Stock Exhange while operating in Gauteng and Free State provinces. However, as a quality control measure, only matriculants holding at least a certificate and having a minimum of two years' working experience where allowed to participate in this survey. Additionally, contractors and other specialist service providers were excluded.

This empirical work adopted a quantitative approach; to participate, individuals received a link of the survey through email from human resource managers of the selected companies. The first section of the survey was designed to automatically eliminate non-qualifying respondents.

The research problem was centred on the extremely low employee engagement level in South Africa. This research assumed that the low employee engagement level also

applies to the gold mining industry particularly the chosen five companies due to labour unrests, retrenchment and Covid-19-related anxieties experienced by the workforce. Figure 3 depicts a worrisome gold production trend at the five gold mining companies.

Secondly, this study assumed that only participants meeting the minimum criteria completed the survey and that they responded to all questions honestly.

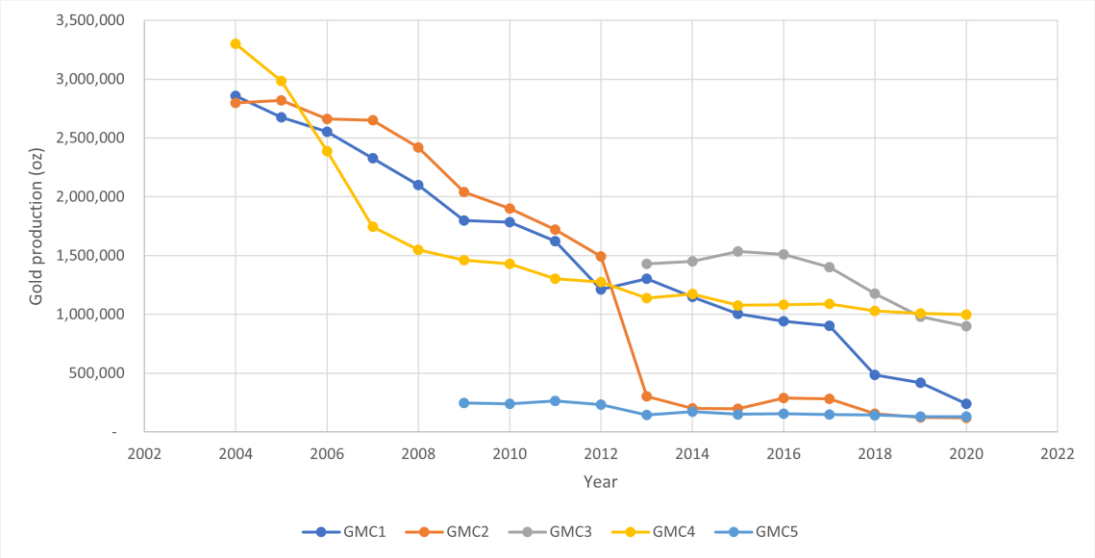

Figure 3: Gold production at five mining companies – Author compiled (Rusere, 2022). GMC – Gold mining company

1.4 Significance of the research study

From an academic viewpoint, this research successfully enumerated factors that promote employee engagement at the five gold mining companies and investigated the impact of this phemomenon on employee performance. In South Africa, several researchers (e.g. Palo & Rothman, 2016; Pillay & Singh, 2018) interrogated drivers of employee engagement in other sectors under normal living conditions prior Covid-19 pandemic.

Table 1 shows recent research on employee engagement drivers in the South African context. According to this researcher, there is no published empirical study that investigated drivers of employee engagement in this industry prior and during Covid-19 pandemic. This study evaluated the impact of eight predictor variables (compensation, work environment, organisational policies, training and career development, team and co-worker relationship, leadership, employee wellbeing and work from home) on employee engagement and how this phenomenon affect employee performance.

Table 1:

Latest employee engagement drivers investigated in South Africa - Author compiled (Rusere, 2022).

Researcher(s)	**Variables Investigated**
Rothman & Rothman, 2010	(1) Psychological meaningfulness, safety and availabilty. (2) Job resources and job demands.
Palo & Rothman, 2016	Task identity, task significance, autonomy, competence support & relatedness support.
Pillay & Singh, 2018	Job design, culture, recognition communication, career development, employee involvement & motivation.
Moletsane, Tefera & Migiro, 2019	Personal feeling, work environment, communication, leadership & commitment.
Bale & Pillay, 2021	Leadership, communication, recognition, decision making, employee wellbeing.

Anitha (2014), after an in-depth literature review, investigated empirically how the first seven of these determinants predicted employee engagement. Anitha (2014) found that all the independent variables investigated influenced employee engagement and that team and co-worker relationship as well as working environment had the highest impact. Anitha (2014) also found employee engagement as a key driver of employee performance.

Anitha (2014) invited researchers to carry-out empirical studies at large scale and multinational companies worldwide in order to authentic and reinforce the validity of her model. This current study is a response to the call made by Anitha (2014) for further research. However, the current research was conducted in a different context, geographic zone, cultural setting and at the peak of the global Covid-19 pandemic.

This research presented human resource management interventions that foster the much desired heightened levels of employee engagement while arresting disengagement. Bale & Pillay (2021) asserted that without implementating sustainable employee engagement strategies, engagement levels would remain very low and thus continue to damage employee morale, financial positions and competitiveness of organisations. Findings of this research have academic relevancy and significant practical implications.

1.5 Preface to the research report

This report comprises six chapters. Chapter 1 is introductory; Chapter 2 provides a literature review covering the research problem, gap analysis and interpretive framework. Chapter 3 discusses the research strategy, design, procedure and methods, research strengths, weaknesses and limitations. Chapter 4 outlines the research results while Chapter 5 discusses research findings. Chapter 6 concludes the report and articulates practical implications of the research findings.

2 LITERATURE REVIEW

This chapter provides insights of the research problem (Section 2.1), knowledge gap analysis (Section 2.2), independent variables key to the research (Section 2.3), the interpretive framework (Section 2.4) while Section 2.5 presents the summary and conclusion of the chapter.

2.1 Research problem analysis

According to Saks & Gruman (2014), William Kahn (1990) is recognised as the first to advance the concept of engagement which he referred to as personal engagement. Gallup is credited for bringing the term employee engagement forward in 1999 as mentioned by Ferguson & Carstairs (2005).

Kahn (1990) stated that personal engagement occurs only when the three psychological conditions namely meaningfulness, safety and availability are fulfilled. According to Kahn (1990), the key drivers of meaningfulness are work interactions, task characteristics and role characteristics while safety is influenced by factors such as relationships between individuals, interactions of people in different social groups and styles of management among others. The third psychological condition namely availability is dependent on physical, emotional and psychological resources that an individual brings on board to carry out the assigned work role (Kahn, 1990).

Schaufeli & Bakker defined employee engagement as "a positive, fulfilling, work-related state of mind that is characterized (sic) by vigour, dedication, and absorption" (Prerana, 2017; p. 102). An engaged workforce understands the business context and has great intimacy with its organisation and always thrive to work hard to achieve resounding success (Wushe & Shenje, 2019; Zondo, 2020).

Demerouti, Mostert & Bakker defined the concept of disengagement as when an employee withdraws or distances self from work roles (cited in Mostafa, Farley & Zaharie, 2021). Disengaged employees have no interest, commitment and lack enthusiasm in their work roles (Allam, 2017).

The research problem of the current study is centred on the low employee engagement level in the gold mining industry of South Africa in general and at the selected five mining companies in particular. Globally, it is estimated that the workforce that is either actively or passively disengaged is 85% (Harter, 2017); against an alarming 91% in South Africa (Gallup as cited in BountiXP, 2020).

Low levels of employee engagement manifest in various forms. According to Allam (2017), disengaged employees have no interest in problem solving and have no drive to achieve the purpose, vision and values of the organisation. Furthermore, disengaged employees purposely show high intentions to leave the current employment for another organisation (Allam, 2017). It is typical that this group of employees only focus on accomplishing the assigned task with no intention to provide solutions, work extra hours or revisit their own work (Allam, 2017).

According to Branham (2005), disengaged employees are on the lookout for opportunities to cause trouble and laying complaints. Rostagi, Pati, Krishnan & Krishnan (2018) cited low energy, counter productive behaviours, poor perfomance, anti-social behaviours and frequent dissatisfaction as some of the leading characteristics displayed by disengaged workers. Allam (2017) posited that disengaged employees lack trust, they hide information and are not at liberty to freely share ideas.

In South Africa, Deloitte found that employees are brokenhearted due to the absence of attractive salaries and benefits, programs to retain talented individuals, performance related rewards, long term career development, recognition for achievements among others (Gallup as cited in BountiXP, 2020). However, Rastogi et al. (2018) underscored the lack of empirical studies to account for the real causes of employee disengagement.

Various scholars offered diverse causes of employee disengagement. Kahn (1990) opined that employees make decisions to disengage when the three psychological conditions specifically meaningfulness, safety and availability are not fulfilled. He stated that if any or all of these condition are violated employees disconnect from work roles therefore resulting in disengagement.

Burnout has been suggested as a cause of disengagement. According to Maslach, Schaufeli & Leiter, burnout is viewed as opposite to work engagement and is characterised by three dimensions which are exhaustion, cynicism and inadequate professional efficacy (as cited in Prerana, 2017). Exhaustion results from physical strain or exposure to job demands (Demerouti, et al., 2001). Demerouti et al. (2001) posited, job demands cause exhaustion and lack of job resources (e.g. job security, feedback and reward) leads to disengagement (Figure 4).

Thirdly, the social exchange theory implies that when employers offer resources desired by employees, these employees reciprocate by bringing themselves fully with emotional,

physical and cognitives resources (Saks, 2006). However, in situations where employees perceive negative treatment they respond by disengaging (Allam, 2017).

Employee disengagement has serious implications for organisations and nations at large. According to Harter (2017), the world is losing US7 trillion annually owing to disengagement. The South African economy suffers losses of about R700 billion annually owing to employee disengagement-related issues (BountiXP, 2020).

Employee disengagement results in poor performance, lack of commitment, high turnover, low subjective well-being and counterproductive tendencies as stated by Rastogi et al. (2018). Allam (2017) listed frequent absenteeism at work, regular health problems, rigid to accept performance feedback, conflicting with fellow subordinates and violence in the workplace as some of the consequences of high levels of disengagement.

According to Van der Walt, Thasi, Jonck & Chipunza (2016), intermittent labour unrests and high turnover of skilled workers in the gold mining industry are clear consequences of employee disengagement in the South African context. Additionally, in gold mines of South Africa, employees suffer fatigue due to extended working hours and work overload on residual staff (Van der Walt et al., 2016), as a result accidents, absenteeism and health challenges are prevalent (Pelders & Nelson, 2019). Van der Walt et al. (2016) concluded that increased work overload results in low job satisfaction and propells intention to leave an organisation.

Human resource management interventions have potential to address these worrying levels of disengagement and their consequences in this concerned industry and South Africa at large.

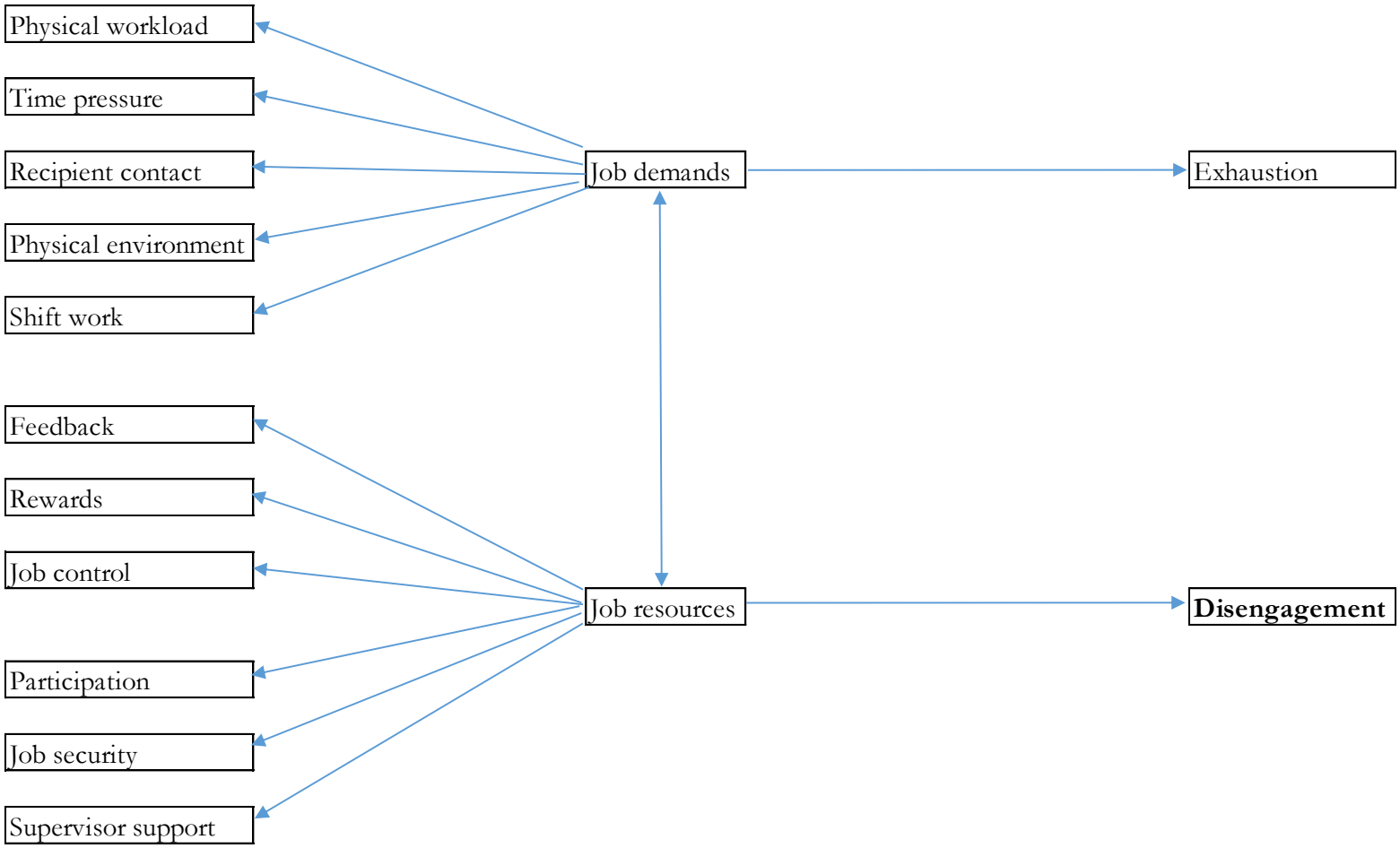

Figure 4: The job resource-demand model of disengagement (Demerouti et al., 2001).

2.2 Research knowledge gap analysis

The objectives of this section included identifying a research knowledge gap and justifying the relevancy of this current study. A review of past empirical studies that highlight previous attempts to investigate factors, which promote employee engagement in the workplace is presented. This analysis also includes empirical studies that probed the influence of employee engagement on employee performance.

Inspired by the role theory, Kahn set out to investigate the psychological conditions which causes people to engage at the workplace in 1990. To achieve his goals, Kahn investigated two populations - adolescents and counsellors at a summer camp and employees of an architectural firm (Hurtienne et al., 2021). The two studies were qualitative in nature whereby in-depth interviews were conducted with participants. These studies concluded that personal engagement only develops when the three psychological conditions namely meaningfulness, safety and availability are met (Hurtienne et al., 2021).

According to Kahn (1990), meaningfulness is driven by work interactions, task characteristics and role characteristics while safety is influenced by factors such as the relationships between individuals, interactions of people in different social groups and styles of management styles among others. The third psychological condition, availability, is dependent on physical, emotional and psychological resources that an individual brings to work (Kahn, 1990).

May, Gilson, & Harter (2004) yielded to the recommendations of Kahn (1990) and undertook an empirical study at an insurance company in USA. The study followed a quantitative approach and 213 employees participated in the survey. Saks & Gruman (2014) claimed that this was the first empirical work to validate the theory brought forward by Kahn (1990).

May et al. (2004) concentrated on the drivers and mediating effects of the three psychological conditions that influence employee engagement. The relationships between engagement and variables such as job enrichment, work role fit and co-worker relations (variables of meaningfulness) were investigated. The links between engagement and independent variables of safety (co-worker relations, supervisor relations and co-worker norms) were also studied during the research. Lastly, the relationships between engagement and availability (self-consciousness, resources and outside activities) were also interrogated.

Overall, results of this study showed that the three psychological conditions show significant and positive relationships with employee engagement. Of the three conditions, meaningfulness had the most significant correlation with employee engagement. The contributions of these researchers made a significant impact to the body of knowledge as these findings supported the work of Kahn (1990) and resulted in the modification of the original conceptual model.

After noticing scarcity of empirical work on employee engagement in scholarly literature, Saks (2006) embarked on a research to explore the antecedents and consequences of job engagement and organisational engagement based on the model of Kahn (1990) and the social exchange theory.

Through his study, Saks (2006) proved that the two variables; job and organisation engagement have material contrast. This study also found that perceived organisational support predicted these two forms of employee engagement while job characteristics showed a positive and significant relationship with job engagement. Through the same quantitative study involving 102 participants from various Canadian organisations, it was concluded that attitude, intention and behaviours of employees were strongly related to both job and organisation engagement. The overall implication of this empirical work was that employee engagement was a critical construct which requires more research to bring more understanding to this phenomenon. Saks (2006) recommended research on additional variables such as incentives, hybrid work as well as training and development.

Shuck, Reio & Rocco (2011) applied Kahn's framework to test the relationship between employee engagement and the antecedents such as "job fit, affective commitment, and psychological climate" (p. 430) as well as two outcomes namely intention to turnover and discretionary effort (performance related variables). 283 participants from various USA industries (banks, technology, retail among others) took part in this quantitative study. Both the antecedents and dependent variables were found to be strongly related to employee engagement. Shuck et al. (2011) recommended more research to investigate employee engagement in diverse cultural settings, different geographic locations and contexts.

Anitha (2014), through an in-depth literature review summed up factors related to the three pyschological conditions necessary for engagement according to Kahn's theory of 1990. These factors central to this study were compensation, work environment, organisational policies, training and career development, team and co-worker

relationship, employee wellbeing and leadership. This researcher investigated, by means of an empirical quantitative study, how these determinants predicted employee engagement. The empirical study was limited to middle managers working for small organisations affiliated to the Coimbatore District Small Industries Association, India (Anitha, 2014). 383 participants, representing 55% of the 700 questionnaires distributed, provided valid responses (Anitha, 2014).

In this study, Anitha (2014) found that all the independent variables investigated influenced employee engagement and that team and co-worker relationship as well as working environment had the highest impact. Anitha (2014) also concluded that employee engagement was a key driver of employee performance. Anitha (2014) invited researchers to carry-out empirical studies at multinational companies in order to authentic and reinforce the validity of this model. This current study is a response to the call of Anitha (2014) to understand the dynamics of the phenomenon in a different context, culture and geographical location using her model.

Palo & Rothmann (2016), driven by the paucity of information relating to engagement in the mining industry of South Africa applied a quantitative approach in a study of 980 participants out of which 564 responses were valid. These researchers investigated how job design, support of supervisor and co-worker impacted employee engagement in a particular organisation in the platinum sector. All the factors were found to be significant and positively related to work engagement. These researchers encouraged more surveys since the empirical study was limited to only one company.

The foregoing reviews demonstrate that there is a knowledge gap relating to factors that promote employee engagement in the gold mining industry of South Africa. Additionally, this review also identified a dearth of research on the strength of the impact of employee engagement on employee performance. It is therefore evident that drivers of employee engagement and the impact of this phenomenon on employee performance are not studied in the gold mining industry of South Afric and more importantly during the Covid-19 pandemic.

2.3 Independent Variables Key to the Research

This section highlights all the key quantitative variables on which data was collected to address questions and test hypotheses. A methodical approach underpinning this literature review informed quantitative variables that drive employee engagement.

Compensation is the first independent variable for discussion. Markos & Sridevi (2010) emphasised that employee engagement can be improved by availing financial and non-financial incentives to the workforce. Anitha (2014) asserted that compensation is an important aspect that can influence employee engagement since employees that are happy with their compensation are motivated to be more productive and tend to focus on growth. Hypothesis 1 (Section 1.2.3.1) therefore followed. However, Markos & Sridevi (2010) mentioned that some employees in developed countries are not bothered by issues of salaries and benefits. These researchers suggested replication studies in third world countries to confirm validity of this conclusion.

The second independent variable was the impact of working from home on employee engagement during Covid-19 lockdown. Mehta (2021) found that employees experienced happiness as a result of working from home. In the same study, Mehta (2021) mentioned that employee engagement and happiness have a significant and positive relationship therefore hypothesis 2 (Section 1.2.3.1) was formulated.

The third predictor variable of employee engagement is work environment. Kahn (1990) observed that employees feel safe in situations where they are confident of not being reprimanded for failure when they experiment with new ideas at the workplace. He also noted that employee engagement blossoms in work environments that are easy to predict, show consistency and are nonthreatening. On this basis hypothesis 3 (Section 1.2.3.1) was formulated.

The fourth variable is leadership. According to Kahn (1990), psychological safety increases when leaders in an organisation demonstrate that they are supportive and resilient. In such situations, employees develop trust in the way leaders are managing the organisation (Pillay & Singh, 2018). Wang & Hsieh (2013) established that trust and authentic leadership are both positively related to employee engagement. Therefore, hypothesis 4 (Section 1.2.3.1) was developed.

The fifth variable is team and co-worker relationships. Anitha (2014) concluded that good working relations with colleagues at work is positively related to employee engagement, therefore hypothesis 5 (Section 1.2.3.1) was derived:

Training and development is the sixth variable. These are strategies put in place for employees to receive new skills and knowledge that enhance personal growth (Nda & Fard, 2013). Anitha (2014) mentioned that training impacts accuracy during service delivery and as a result individual performance and employee engagement improve. Robertson-Smith & Markwick (2009) observed that training, coaching and secondments improve employee engagement. These studies supported formulation of hypothesis 6 (Section 1.2.3.1).

Organisational policy is the seventh varibale in this study. Anitha (2014) mentioned that employees expect organisations to implement favourable policies and practices and if this is done properly employee engagement has a chance to blossom. This led to hypothesis 7 (Section 1.2.3.1).

The eighth variable is employee wellbeing. According to Juniper (2011), the health and performance of an employee in the workplace are related positively and there is a general understanding that healthy employees are happy and likely to be more productive. Harter et al. (2002) argued for a positive relationship between psychological wellbeing and employee engagement leading to formulation of hypothesis 8 (Section 1.2.3.1).

Lastly, Anitha (2014) confirmed the importance of employee engagement in producing a high performing workforce and that there is an undeniable strong link between employee engagement and employee performance. Hypothesis 9 (Section 1.2.3.1) was developed from this literature.

In light of the preceding discussions, the conceptual model illustrated in Figure 5 is considered adequate to understand all the predictor variables. The conceptual framework depicts the antecedents of employee engagement and the relationship with employee performance.

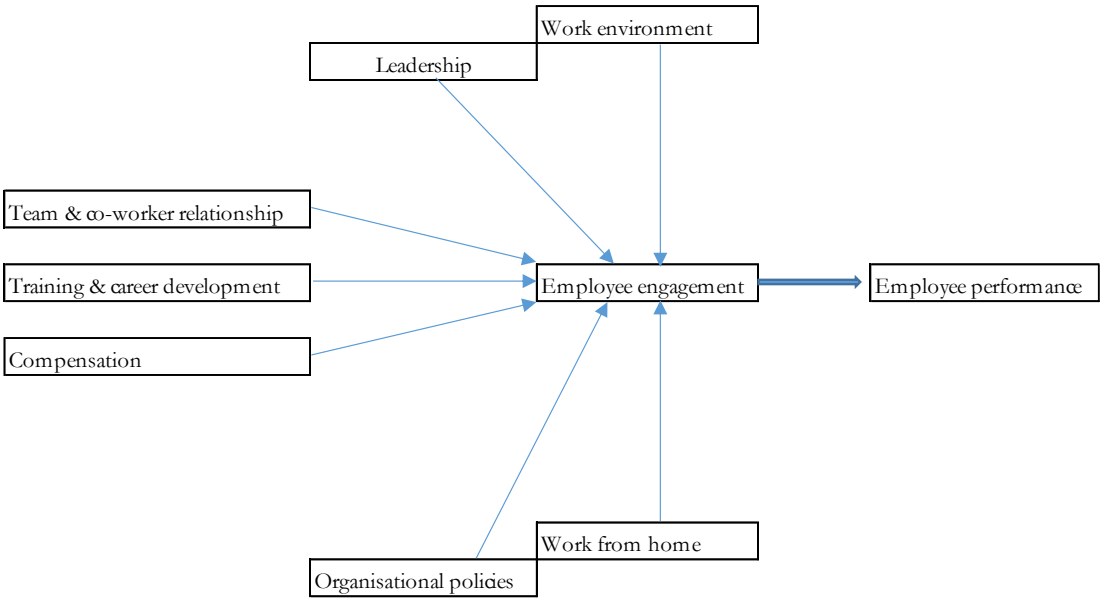

Figure 5: The proposed conceptual model

2.4 Framework for interpreting research findings

This section outlines existing employee engagement theoretical frameworks that can facilitate interpretation of results of this research. This is a necessary requirement after displaying a thorough understanding of the field of research and the key variables as explained by Wotela (2016).

As the concept of employee engagement evolved, the subject attracted fierce debates; as such, to-date there is no consensus on theoretical frameworks (Saks, 2006). Saks (2006) attributed this to the widening gap between business practitioners and scholars. In this section the needs-satisfying approach, the job-demand resources model and social exchange theory (SET) are discussed in a format that adhers to the guidelines stipulated by Wotela (2016). Other frameworks such as the broaden and build theory, path-goal model, Mercer model, inter alia will not be discussed any further due to lack of merit in relation to this current study.

2.4.1 The needs-satisfying approach

The first framework originated from the pioneering ethnographic study of Kahn (1990) discussed earlier. This study concluded that employee engagement occurs when psychological meaningfulness, safety and availability are met. Kahn mentioned that psychological meaningfulness is a sense of being rewarded or getting a return on investment for giving away physical, cognitive and emotional energy.

Kahn (1990) stated that psychological safety thrives if the work environment allows workers to express themselves with no fear of damage to self-image and career. He also observed that psychological safety occurs when interpersonal relationships have strong elements of support, openness and trust; managers are supportive and lastly people do not stray from norms.

The third condition established by Kahn (1990) is psychological availability, which means that physical, emotional or psychological resources exist for engagement to occur. He also found that personal situations, outside of work, negate availability.

Additional details of the needs-satisfying approach are summarised in Table 2. All variables that influence engagement according to Kahn (1990) are shown in Table 3; these have been correlated with variables attributed to May et al. (2004) and Anitha (2014).

Table 2:

The Needs-satisfying approach - Author compiled (Rusere, 2022).

	Pioneer	**Supporters**		
Author and year	**Kahn (1990)**	**May et al (2004)**	**Saks (2006)**	**Saks & Gruman (2014)**
Title of article	Psychological conditions of personal engagement and disengagement at work	The psychological conditions of meaningfulness, safety and availability and the engagement of the human spirit at work	Antecedents and consequences of employee engagement	What do we really know about employee engagement?
What events led to the development of the needs-satisfying approach	Erving Goffman developed the role theory in 1959, stating that the way people connect to and disconnect from work roles varies. This sparked interest in Kahn who then investigated personal engagement in 1990.			
How was the needs-satisfying approach developed and what was its intended purpose?	Kahn investigated the psychological conditions causing employees to engage or disengage at the work place. Kahn applied a qualitative approach to study two groups of respondents (a summer camp attended by adolescents and counsellors; and the second study was carried out at an architectural firm)			
What does the needs-satisfying approach describe or explain or relate?	The framework explains that employee engagement can only occur when all three psychological conditions (meaningfulness, safety and availability) are met. Kahn defined personal engagement "as the harnessing of the organisation members' selves to their work roles; in engagement, people employ and express themselves physically, cognitively and emotionally during roles performance" (p. 694)	Conducted the first empirical study to validate Kahn's theory. Through a quantitative study May et al (2004) confirmed that meaningfulness, safety and availability were significantly linked to employee engagement. Also established that self-consciousness and resources are directly related to engagement.	Saks supported the theory, conducted empirical study and established that engagement was an independent and critical construct that required more research. Criticism dissipated and paved way for scholarly work.	
What are the advantages and usefulness of the needs-satisfying approach	The framework clearly states the conditions necessary for employee engagement to occur, making it easier for practioners to implement and improve employee engagement in the workplace.	Advises managers to design jobs that demand excess cognitive, emotional or physical labour to promote engagement at work.	Recommended managers to show care and provide support to foster employee engagement	This theory is more convincing by articulating conditions and drivers necessary for engagement. Employers must offer resources and benefits that provoke employees to respond with higher levels of engagement.
What are the disadvantages and limitations of the needs-satisfying approach	No empirical studies to support the framework.	May et al (2004) did not find a significant link between availability and engagement as purported by Kahn (1990). This relationship only arose after considering the impact of resources on the model.	The model does not specify why employees respond to the three psychological conditions differently.	

Table 3:

Linking variables of Kahn (1990), May et al. (2004) and Anitha (2014) - Author compiled (Rusere, 2022).

Psychological condition	**Kahn (1990) variables**	**Variable modified by May et al (2014)**	**Anitha (2014) variables linked to psychological conditions**
Meaningfulness	Job enrichment Work role fit Co-worker relations	Job enrichment Work role fit	Incentives and rewards
Safety	Co-worker relations Supervisor relations Co-worker norms	Co-worker relations Supervisor relations Co-worker norms Self-consciousness	Team and co-worker relations Leadership Work environment
Availability	Self-consciousness Resources Outside resources	Resources Outside resources	Organisational policies, employee wellbeing and training & career development

Despite the limitations highlighted in Table 2, this framework offers superior basis to understand and link the variables of interest to the research questions and hypotheses. The needs-satisfying approach also clearly outlines conditions favourable for sustainable employee engagement to emerge and grow. Additionally, it was also reasonable for this study to mimic the footsteps of Anitha who adopted the needs-satisfying approach to have comparable results. As a result of these facts, this current study opted for the needs-satisfying approach as an oppropriate interpretive framework for research results.

2.4.2 The job demand resources model

The second model that can explain employee engagement is the Job Demand Resources (JD-R) model, which is attributed to proponents of the burnout theory. Scholars who are of the opinion that engagement and burnout are direct opposites are in favour of the Job-Demand Resource (JD-R) model. This model presents these two end members as distinct constructs of a comprehensive model as mentioned by Crawford, Lepine & Rich (2010). The evolution and major attributes of the JD-R model are summarised in Table 4. The model was less favourable as an interpretive framework of this research given that the list of drivers of employee engagement in this model is not exhaustive as argued by Crawford et al. (2010). Furthermore, the JD-R does not perfectly match research hypotheses and questions of this current study.

Table 4:

Summarised Job demand resource model as an interpretive framework - Author compiled (Rusere, 2022).

	Pioneer	**Supporters**				**Antagonists**
Author and year	Maslach, Jackson & Leiter (1996) as cited in Schaufeli & Bakker, 2004	Demerouti, Bakker, Nachreiner, Schaufeli, 2001	Schaufeli & Bakker (2004)	Crawford, LePine & Rich (2010)	Schaufeli & Taris (2014)	Saks & Gruman (2014)
Title of article	Job demands, job resources, and their relationship with burnout and engagement: a multi-sample study	The job demands: resources model of burnout	Job demands, job resources, and their relationship with burnout and engagement: a multi-sample study	Linking job demands and resources to employee engagement and burnout: A theoretical extension and meta-analytic test	A critical review of the Job demands-resources model: Implications for improving work and health	What Do We Really Know About Employee Engagement
What events led to the development of the job demand resource model?	Maslach et al (1996) had theorised that certain job demands and job resources lead to burnout which causes turnover, absenteeisim, etc					
How was the job demand resources model developed and what was its intended purpose?	Maslach et al (1996) developed a descriptive model that was used only as an interpretive framework for survey results obtained through the Masclach Burnout Inventory questionnaire.	These researchers were the first to empirically test the JDR model using a German questionnaire. The purpose was to investigate antecedents of burnout.				
What does the Job demand resource model describe or explain or relate?	A combination of high job demands and low job resources leads to stress and burnout and the opposite give rise to engagement	The JDR model states that high job demands lead to exhaustion, which is a component of burnout, while insufficient job resources induce disengagement. Job resources reduce job demands.	Schaufeli & Bakker revised the JDR model to include work engagement. They posited that burnout mediates job demands and health issues while work engagement mediates job resources and turnover intention.	Refined the theory by stating that the relationship between resources and engagement is positive while that between demands and engagement rely on the type of demand. Concluded that burnout and engagement are two distinct constructs.	High job demands give rise to strain and health issues, while adequate resources lead to motivation and productivity in the workplace.	
What are the advantages and usefulness of the job demand resources model?		These researchers proved that the JDR model holds in other occupations outside human services. JDR model is useful to reduce burnout & disengagement in the workplace	The revised model is balanced in that it explains both negative and positive psychological states (burnout and work engagement respectively) unlike earlier models which focused on negatives only. Also results of cross sectional surveys is convincing.	Useful in categorising working conditions into demands and resources. Employee engagement at work can be improved by providing more resources. Reducing demands limits burnout at the workplace.	Offer broader scope of categories of engagement conditions (job demands and resources) than other models. JDR is also flexible and is useful in diverse work environments. These two aspects make JDR model more likeable by practitioners and researchers. Widely used to evaluate job and personal qualities impacting the health and wellbeing of employees.	
What are the disadvantages and limitations of the job demand resources model	No empirical studies to support the descriptive model.	Difficult to interprete the relationship between burnout and working conditions due to the cross-sectional design of the study.	Most empirical work on JDR model is cross sectional surveys that led to weak evidence of the effect of job demands & resources.	List of drivers of employee engagement presented in this model is not exhaustive; several important factors are missing (e.g. leadership). Empirical studies based on this model investigating the relationship between engagement and demands have produced conflicting findings.	The fact that JDR model offers broad scope of demands and resources implies limited generalisability. The distinction between demands and resources is not as easy as it appears.	JDR model does not specify which resources are critical for engagement and why they are important

2.4.3 The social exchange theory

The last framework for analysis is the Social Exchange Theory (SET) coined by Homans (1958). The evolution and attributes of the SET are summarised in Table 5.

Table 5:

Summarised Social exchange theory as an interpretive framework- Author compiled (Rusere, 2022).

	Pioneer	**Supporters**		**Antagonists**
Author and year	Homans (1958)	Cropanzano & Mitchell (2005)	Saks (2006)	Miller (2005)
Title of article	Social Behavior as Exchange	Social Exchange Theory: An Interdisciplinary Review	Antecedents and consequences of employee engagement	Communication Theories
What events led to the development of the social exchange theory	Triggered by the belief that any community resembles a social system.			
How was the social exchange theory developed and what was its intended purpose?	Studied behaviours and attitudes of individuals and small groups. He noted rewards and costs for each member as they interact. Its purpose was to assist people to appreciate relationships, to explain why people choose to start some relationships and stop others and to explain interractions among people.			
What does the social exchange theory describe or explain or relate?	People always weigh the cost of interacting against the reward they get. If an interaction is more costly than it rewards it is terminated. If a behaviour is rewarding it is likely to be repeated.	Employees engage depending on the resources the employer is offering.	When employers offer desired resources, employees respond by bringing themselves fully with emotional, cognitive and physical resources.	
What are the advantages and usefulness of the social exchange theory	It educates people how to maintain relationships. Results in improvement of interpersonal communication among people.	Results in trust and mutual commitment. Connectedness among employees creates good interpersonal relationships in the workplace.	Social exchange theory explains why employees respond differently resulting in different levels of engagement. When employers offer resources and benefits, employees respond with high levels of engagement.	
What are the disadvantages and limitations of the social exchange theory	Individualism prevails and people become reward oriented.	Inadequate information relating to exchange rules		Its not always true that intimacy is a key objective of every relationship as assumed by the theory. Interactions between individual is reduced to a step-wise process. Also relationships do not have linear structures as assumed by the theory.

Saks (2006) suggested that the SET offers a better theoretical basis to explain the concept of employee engagement because it explains why employees are willing to engage. However, the SET was not applied since this present study is inclined towards the needs-satisfying approach which clearly outlines conditions favourable for sustainable employee engagement to emerge and grow.

2.5 Summary and conclusion

Global trends showing low levels of employee engagement are worrisome. Unfortunately, this trend hit South Africa harder wherefore only 9% of the workforce is engaged in the workplace. The current research assumed the same pattern exists in the gold mining industry of South Africa given perennial labour unrests and standoffs between management and trade union leadership that might have negatively influenced attitudes and behaviours of employees as argued by Palo & Rothmann (2016).

To deal with this challenge, globally, scholars have conducted empirical studies, which demonstrated that employee engagement spearheads increased individual and organisational productivity, profitability, shareholder value among others (Anitha, 2014; Markos & Sridevi, 2010). Pillay & Singh (2018) postulated that engaged employees are passionate and motivated to achieve goals and objectives of their organisations.

In South Africa, scholars such as Palo & Rothmann (2016) and Moletsane, Tefera & Migiro (2019) studied employee engagement in the platinum and sugar industry respectively. This current study aimed to investigate factors that influence employee engagement at five gold mining companies in South Africa by applying the model after Anitha (2014). This identified knowledge gap kept eluding many researchers who chose to concentrate on other sectors of the South African economy leaving out an industry which is impactful towards employment creation and the country's gross domestic product.

3 RESEARCH STRATEGY, DESIGN, PROCEDURE AND METHODS

This research is about answering the two research questions posed in Section 1.2.3. To address these questions, this chapter outlines the research strategy and design in addition to the procedure and methods in sections 3.1, 3.2 and 3.3 respectively. The chapter culminates with discussions of reliability and validity of the measuring instrument (Section 3.4) and the technical and administrative limitations related to the research (Section 3.5).

3.1 Research strategy

A research strategy is defined as a general orientation of how a researcher will execute a research study (Bryman & Bell, 2014). It is therefore critical to choose the correct research strategy. Maree (2020) discussed three research strategies: quantitative, qualitative and mixed methods.

This current study adopted a quantitative approach. Bryman & Bell (2014) observed that quantitative research deals with numbers, from data collection to data analysis. Quantitative strategies embrace deductive reasoning whereby a hypothetical theory is developed based on existing knowledge (Bryman & Bell (2014). According to Maree (2020), statistical analysis is then applied on the numerical data to establish relationships between variables. On the basis of these attributes, quantitative approach proved more suitable for the current study. As a result, this study adopted positivism and objectivism as explained by Bryman & Bell (2014).

This current research applied the model after Anitha (2014) in a different context; therefore, it was considered appropriate to follow a quantitative approach to mimic her study intending to have comparable results. Quantitative strategy is advantageous in that the study can be repeated anytime and at any geographic location and still achieve comparable results.

Several other researchers applied the quantitative strategy, for instance Palo & Rothmann (2016), although this was not explicitly stated in their article. The aim of their study was to evaluate the impact of supervisor support, job design and co-worker support on employee engagement at a platinum mining company. These researchers selected this approach in order to test a theoretical model deduced from literature along

with various engagement scales created by other researchers (e.g. Engagement Scale, etc). Their strategy was centred on concrete numbers, hence reduced research biases and made the findings more accurate.

In this current research, the quantitative strategy enabled quick generation of large quality data that was also accurate.

3.2 Research design

Research design is a framework demonstrating approaches of data collection and data analysis (Bryman & Bell, 2014). Asenahabi (2019) stated that research design is a function of the research problem, research questions and the theoretical framework.

Bryman & Bell (2014) stated that the research design ensures that research questions are addressed adequately and that external validity of research findings is a function of the design. Asenahabi (2019) posited that the research design transforms the research problem into data that is then analysed to provide answers to the research questions. Asenahabi (2019) subdivided research designs as shown in Figure 6; however, Bryman & Bell (2014) classified research designs into experimental, case study, cross-sectional, longitudinal and comparative designs.

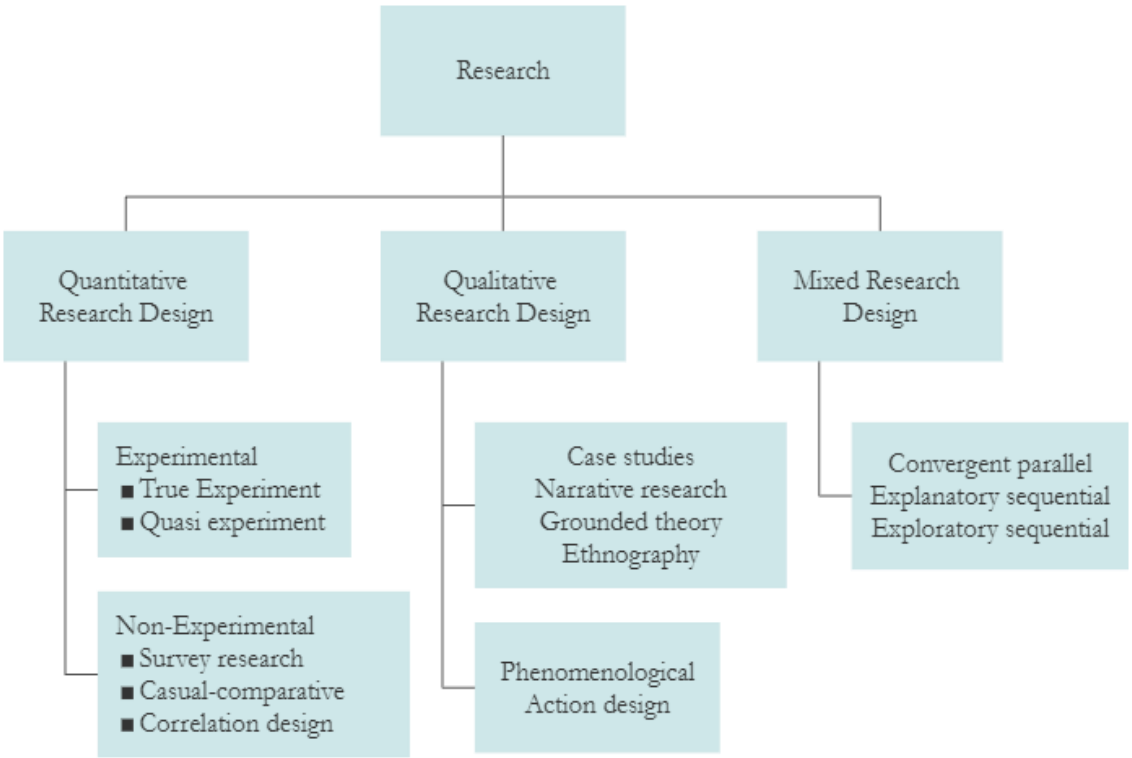

Figure 6: Research designs (Asenahabi, 2019)

According to Bryman & Bell (2014), a cross-sectional research design involves collecting data, for at least two variables, from a specific population at a certain point in time. A cross-sectional research design is "descriptive, exploratory and explanatory" (Asenabahi, 2019; p. 80) and data is frequently collected through face to face interviews, email, telephone interviews and online surveys.

Considering that the present study targeted a specific population in a specific geographic location at a certain point in time, the cross-sectional research design was viewed as the most appropriate design. Furthermore, this study aimed to establish the relationships between different variables as determined in Section 2.3. An online questionnaire was administered to achieve this objective. Large amounts of data were quickly generated through an effortless data collection processes.

In a related study, Anitha (2014) invesigated factors that influence employee engagement and performance following a cross-sectional research design although she did not explicitly mention the design type. It can be inferred that Anitha, being an academic, exploited a fast and reasonably cheap means of obtaining accurate information from the population at a particular point in time. The current researcher applied cross-sectional research design to ensure quick generation of large amounts of quality and accurate data in a cost effective and effortless manner.

3.3 Research procedure and methods

Section 3.3 provides a detailed account of the actual procedure and the methods adhered to during data collection, collation, processing and analysis.

3.3.1 Research data and information collection instrument(s)

Research data collection instruments are the tools used to collect data during a research process (Moyo, 2017). Moyo (2017) posited that data collection instruments provide the analytical framework to address a research problem and generate data that leads to new knowledge; therefore, their design should ensure data that is accurate and credible. Bastos, Duquia, González-Chica, Mesa & Bonamigo (2014) emphasised that choosing the most appropriate data collection instruments is a very important stage in the research process as this influences validity, reliability and comparability with previous research studies of a phenomenon. Both quantitative and qualitative approaches are useful in collecting primary data (Dudovskiy, 2022). Quantitative studies widely use experimental methods, secondary data and surveys to collect data (Moyo, 2017).

This study being quantitative, utilised surveys as the preferred research data collection instrument. Surveys of quantitative nature are administered through a closed-ended questionnaire (Asenahabi, 2019). The questionnaire comprises questions that aim to generate research data regarding perceptions, feelings and attitudes of participants as mentioned by Bryman & Bell (2014).

According to Moyo (2017), data collection instrument can be unstructured, fully structured or semi-structured and this largely depends on the research problem and objectives of the study. In this study, a fully structured questionnaire was considered as the most appropriate. The involvement of the researcher was minimal yet huge amounts of quality data was generated rapidly.

May et al. (2004), in a study to establish the relationship between employee engagement and psychological meaningfulness, availability and safety applied a quantitative strategy in which a questionnaire was used to collect data from the target population. These researchers were the first to empirically test the theoretical model of Kahn (1990). The current study was closely aligned to that of Anitha (2014) to enable comparability of results.

This researcher aimed to adopt a questionnaire designed by Anitha (2014) which was considered a valid and reliable instrument. Unfortunately, Anitha's instrument was not available online and efforts to contact her were fruitless. Questions for the instrument (refer to Appendix 1) were then sourced from previous research on engagement (e.g., May et al., 2004; Saks, 2006). The reliability measure (Cronbach Alpha) and pilot testing are discussed in detail in sections 3.4 and 4.2.

3.3.2 Research target population and selection of respondents

3.3.2.1 Research target population

Research target population is a large group of individuals from which a sample maybe drawn from and to whom the results of the study should apply (Rahi, 2017).

As it pertains to this study, the target population comprised 9, 263-fulltime employees working at five gold mining companies that are listed on Johannesburg Stock Exchange. To qualify, companies must have experienced declining gold production and multiple labour unrests within the last 5 years.

Literature review identified a dearth of empirical studies on the gold mining industry of South Africa in relation to employee engagement. However, Palo & Rothmann (2016) conducted a reasonably similar research that evaluated the impact of supervisor support, job design and co-worker support on employee engagement at a platinum mining company. According to these researchers, the platinum sector was suitable for investigations because of labour unrests and standoffs between management and trade union leadership that might have negatively influenced attitudes and behaviours of employees. By studying this target population, these researchers established that task characteristics were instrumental in shaping employee engagement, more precisely at middle to senior manager levels.

Research related to employee engagement in the gold mining industry of the country remains scant. This researcher viewed this as a clear opportunity to study employee engagement dynamics in this target population with a view to suggest human resource management interventions that can stimulate employee engagement and performance.

3.3.2.2 Sampling or selecting respondents from the target population

According to Rahi (2017), sampling is the process of choosing a representative portion of the target population for investigations. Banerjee & Chaudhury (2010) posited that the research question is key in determining the population to be studied in terms of location, age, gender, occupation or industry. Surveying the entire target population is tedious and expensive; as such, researchers investigate the sample and make inferences of the target population (Banerjee & Chaudhury, 2010). Bryman & Bell (2014) opined that a smaller representative portion of a population can be used to make inference of a larger group with due care to avoid bias.

Sampling is broadly categorised into probability and non-probability methods; the choice of a method largely depends on the nature of the research study (Rahi, 2017). In probability sampling, each element in the target population has an equal opportunity to be selected for a study while in non-probability sampling the chance of a unit to be selected is unknown (Rahi, 2017).

Probability techniques are primarily based on the probability theory and randomness hence generalisation to target population applies (Maree, et al., 2020). Since this present study desires to generalise results to the target population it is alligned with the probability method which is further subdivided into simple random sampling, systematic sampling, stratified sampling and cluster sampling according to Rahi (2017).

Simple random sampling was selected due to its simplicity and lack of bias as suggested by Rahi (2017). In the present study, the research assistant and human resource managers at the selected five gold mining companies created a sample frame. To qualify for the survey employees must be matriculants holding at least a certificate, have at least two years' working experience, have a valid email address and willing to participate. Employees who met the first three conditions were contacted by respective human resources departments and those who responded positively automatically qualified as participants. This exercise significantly reduced the number of potential respondents from the population (9, 263) to the sample frame (600) who accessed the survey link.

The recommended sample size determined by Raosoft was 369 as shown in Appendix 2.

In a similar study, Anitha (2014) adhered to simple random sampling. That helped her to establish accuracy of representation and reduction of sampling error as stated by Rahi (2017). The present research study benefited immensely from the simplicity and accuracy of simple random sampling as stated by Maree, et al. (2020). The technique also ensured usage of representative samples to make inferences and generalisations about the target population in line with Banerjee & Chaudhury (2010). Having representative samples necessitated minimising sample bias significantly during the current study.

3.3.3 Ethical considerations when collecting research data

Bryman & Bell (2014) defined ethics as morals and moral behaviours while they envisaged ethics code as an outline of principles that guide conduct of researchers. According to Maree (2020), the first ethics principle concerns the best interest of participants relating to their safety and welfare.

The present researcher is a Zimbabwean national, who at the time of this study was employed as an exploration manager at African Industries, Nigeria (refer to Appendix 3). As someone who hailed from the gold mining industry of South Africa, the researcher was driven to find solutions to challenges the sector continues to grapple with within the sphere of employee engagement and performance. Additionally, the researcher is equipping and strategically positioning himself for future executive opportunities.

This researcher demonstrated openness and honesty while providing necessary research information to participants in a truthful manner thereby avoided deception as mentioned by Bryman & Bell (2014). Participants were informed of the purpose of the

research, benefits of the study relating to generation of new knowledge and that the data generated was for academic purposes only.

The introductory part of the survey informed participants that the survey was voluntary and no one was pressured to participate and that it was not mandatory to participate in the research. All participants were treated with due respect. It was also stated clearly that by clicking OK at the end of page 1 of the survey, the participant had provided explicit consent to partake in the study. Furthermore, participants were informed of their rights to withdraw from the research survey at anytime.

The research considered harm to Wits Business School, the researcher and participants. However, being an online research, no one was exposed to physical harm, emotional harm or loss of self-esteem. The researcher informed participants that their identities were not required and would remain anonymous, therefore, issues of confidentiality were irrelevant to this study. The researcher also avoided the use of self-identifying statements and ensured that sensitive data was not solicited from participants. All data generated in the survey is stored in a Microsoft Excel file saved in the researcher's computer, both have password protection.

The researcher also wishes to emphasise that the research was self-funded, therefore there was no conflict of interest with affiliations and employer. Additionally, the researcher did not have business ties with any of the five gold mining companies.

Proceeding with surveys that involve human participants without ethics approval is strictly prohibited. This researcher was granted rights to conduct surveys by the Wits Business School Ethics Committee after issuance of an ethics clearance certificate (refer to Appendix 4).

3.3.4 Research data and information collection process

Research data collection is gathering of data in a systematic approach that enables the researcher to address the research question and draw conclusions (Bryman & Bell, 2014). Dudovskiy (2022) classified data as primary or seconday. Data collection methods at the disposal of researchers include questionnaire surveys, participant observation, interviews, documents and focus groups (Maree, 2020).

The present study administered online questionnaire surveys; 345 respondents completed the survey from the invited 600 employees. Participants received a link of the survey through email from the human resource manager of their organisation. This

protocol ensured researcher adhered to provisions of the POPIA Act. Wits Business School strongly discouraged direct contact with human participants owing to the Covid-19 pandemic, hence online survey became the preferred technique. Additionally, online surveys enabled rapid collection of large amounts of data in a more efficient manner.

In a similar study, Anitha (2014) used a traditional questionnaire to generate quantitative data that was analysed to establish relationships between employee engagement and its independent variables as well as that between employee engagement and performance.

Data collected from the present study is stored in Microsoft Excel because the program offers data organising and managing capabilities as well as excellent compatibility with SPSS used to analyse data. The data file is password protected and saved in the author's personal computer that strictly adheres to a sound filing system. A back-up data file is stored in Dropbox because of its 256-bit AES encryption security feature. These data storage strategies offer comfort from both security and ethical perspectives.

3.3.5 Research data and information processing and analysis

3.3.5.1 Research data and information processing

Maree, et al. (2020) envisage data processing as a process of translating raw data on a questionnaire into a format researchers can manipulate into statistics. According to Singleton & Straits (2018), in relation to the quantitative strategy, there are four stages in data processing and these include data editing, data coding, data entry and data cleaning; however, only the last three will be discussed in detail.

Data coding enables researchers to classify non-numerical information into cohesive groups; this is achieved by assigning numerical codes to the various categories (Maree, et al., 2020). Coding reduces the quantity of information to a format that can easily be handled and manipulated with computer software (Singleton & Straits, 2018). This present research operationalised coding by using numbers to represent response categories e.g. Female = 1, Male = 2 and Prefer not to say = 3. All codes applied in this study are in Appendix 5.

Data entry involves entering the collected information from questionnaires into Microsoft Excel or any other specialised program designed to detect and eliminate certain errors at an early stage (Singleton & Straits, 2018). However, manual data entry procedures introduce numerous errors and ommissions. In this present study,

respondents typed data online, hence eliminated manual procedures and their limitations.

Singleton & Straits (2018) posited that researchers must thoroughly cross-check data to detect and resolve errors before statistical analysis. This process is known as data cleaning. These researchers argued that data errors are avoidable and can be minimised through adequate training of clerks and monitoring of data capturing processes.

In this present study, out of the 345 respondents, 10 were completely deleted due to numerous missing values from the constructs. Descriptive test was conducted to further inspect missing values, the results highlighted 6 more critical errors from the screening questions. Therefore, in total 16 respondents were excluded from the entire analysis. Few more still missing values were discovered in isolated cases; these were treated using mean of nearby points. After data treatment, 329 valid responses were used for analysis.

Journal articles do not explicitly indicate data editing, data coding, data entry and data cleaning procedures. Notwithstanding, it was reasonably assumed that other researchers adhered to acceptable data processing protocols.

3.3.5.2 Research data and information analysis

Research data analysis entails cleaning, transforming and modelling of data collected during a study with a view to discover useful trends of a particular phenomenon (Dudovskiy, 2022). Data analysis is applicable to both qualitative and quantitative studies (Maree et al., 2020). According to Dudovskiy (2022), data analysis for quantitative studies encompasses analysis of numbers and figures followed by interpretation and synthesis of the main findings. Maree et al. (2020) emphasised that it is at the research design stage that researchers must clarify how they intend to conduct data analysis.

In quantitative studies, data can be analysed through charts, table, descriptive statistics, regression analysis and correlation analysis (Maree, et al., 2020). The present study utilised all these methods to investigate and establish the relationships between the eight independent variables and employee engagement and how it predicted employee performance. To determine the predictive effect of independent variables on dependent variables multiple linear regression analysis was found to be applicable to this study.

Anitha (2014) took advantage of the capability of regression analysis to analyse and conclude that the independent variables had significant influence on employee

engagement levels. The same researcher, through regression analysis and structural modelling successfully established that employee performance significantly depends on employee engagement. The present research study also benefited from these techniques.

3.4 Research strengthens—reliability and validity measures applied

In the present research, an online questionnaire was developed and administered. Such a measuring instrument comprises carefully selected items, measured by a Likert scale, that consist of all aspects of the construct under study as mentioned by Maree, et al. (2020).

The purpose of a measuring instrument is to collect data in a reliable and valid way (Taherdoost, 2016). According to Taherdoost (2016), the accuracy and consistency of the instrument are intergral components of research methodology commonly referred as validity and reliability. For the questionnaire to be standardised, validity and reliability are prerequisites (Maree, et al., 2020).

Validity and reliability illustrate how robust the research process is as well as the trustworthiness of the findings of the research (Roberts & Priest, 2006). According to these researchers, trustworthiness hinges on the research question, how data was collected, type of respondents, data analysis procedures and research findings.

Reliability implies that if the same instrument is administered to another set of participants drawn from a similar target population the findings of the research would be comparable (Maree, et al., 2020).

To attain high levels of reliability, researchers must take advantage of the various types of reliability such as test-retest reliability, equivalent form reliability, split-half reliability and internal reliability (Maree, et al., 2020). In this present study, internal reliability or internal consistency was applied to ensure reliability. Maree et al. (2020) mentioned that high internal consistency signifies high similarity of the items put together in an instrument to measure a construct.

The Cronbach Alpha coefficient is generally regarded as a suitable measure of reliability (Taherdoost, 2016). A scale is regarded as reliable and internally consistent if Cronbach Alpha is above 0.7, although 0.6 is acceptable according to Pallant (2010) and Malhotra (2010). Hinton, Brownlow, McMurray & Cozens suggested categories of reliability as

follows: excellent (≥0.9), high (0.7-0.9), moderate (0.5-0.7) and low (≤0.5) (as cited in Taherdoost, 2016).

This present study utilised a 5-point Likert scale that rated responses from strongly disagree to strongly agree. A pilot study was conducted as discussed in Section 4.2 to ensure reliability.

According to Joshi, Kale, Chandel & Pal (2015), there are controversies surrounding the Likert scale. Researchers debate whether to use a 5 or 7 point scale and whether the scale is ordinal or interval. The 5-point scale was used in this study because it is less confusing to the participants hence increases the response rate as suggested by Bouranta, Chitiris & Paravantis (as cited in Taherdoost, 2019). This researcher noted that other researchers such as Diefenbach, Weinstein & O'Reilly (as cited in Taherdoost, 2019) favour the 7 point scale.

Reliability was also enforced in this present study by demonstrating how data was collected, highlighting the respondents, data analysis procedures and research findings as suggested by Roberts & Priest (2006).

In a similar study, Anitha (2014) validated her measuring instrument through pilot testing data of 60 participants. Cronbach Alpha coefficients indicated statistically significant reliability. This test confirmed that the instrument was reliable and internally consistent in its measurements. In a like manner, the present study benefited from estimates of Cronbach Alpha coefficients.

Anitha (2014) ensured reliability by documenting how data was collected, profiling respondents, highlighting data analysis procedures and research findings. Taherdoost (2016) emphasised the importance of reliability in research studies. However, he mentioned that reliability has weaknesses until it is combined with validity.

Roberts & Priest (2006) agree that validity signifies the degree to which a measuring instrument measures what it is intended to measure. Maree (2020) argued that findings of a research can only be valid if they are representing features of the construct under investigation. Approaches of validating a quantitative research include measurement, external, internal and ecological validity (Maree, 2020).

At an early stage of this present study, the researcher decided on how to collect data, suitable sampling methods and ensured that the instrument measures what it was designed to measure.

Internal validity is about checking if the design of the study, how it was rolled out and the analysis that followed allow the researcher to have trustworthy answers to the posed research question (Andrade, 2018). Andrade (2018) also stated that internal validity checks the presence of systematic error. In this study, to ensure validity, participants were selected through non probability purposive sampling and simple random sampling; approaches that introduced representative sampling.

Furthermore, to ensure internal validity, correlation and multiple linear regression were subjected to statistical signifance test as a way of checking if the relationships between variables occur by chance as argued by Wegner (2016). Additionally, the coefficient of determination was estimated to show how close the data fit on the regression line.

According to Andrade (2018), external validity critically assesses if research findings are generalisable to different contexts. However, due to time constraints related to the MBA program, external validity through replica surveys could not be achieved. A subtype of external validity, Ecological validity is concerned about assessing if research findings are generalisable to situations in real life (Andrade, 2018).

Additionally, in this research, convergent validity envisaged by Field (2014) as the degree to which a set of items correlate together more than they correlate with other items to form a construct was tested. This researcher checked if the items for a specific construct measure that construct alone through the Corrected item-Total correlation (Table 6) which demonstrated that all items are converging well in the same direction.

In a related study, Palo & Rothmann (2016) enforced measurement validity through early decisions made on how to collect data, choice of suitable sampling methods and ensuring that the tool measures what was required. In the study of Palo & Rothmann (2016) internal validity was ensured by the application of stratified random sampling to guarantee representative sampling. Furthermore, statistical significance test was applied on correlation and regression analysis as a confirmation that the relationships between variables occur by chance. Their research was impactful in highlighting antecedents of employee engagement in the mining industry.

3.5 Research weaknesses and limitations

The present study had technical limitations with respect to research design, procedure and methods in addition to adminstrative issues.

This quantitative research applied the cross-sectional design, which was a snapshot of the phenomenon during Covid-19 pandemic. The research findings could have been different if another time frame was selected for the study. A longitunal research design has potential to yield very different findings compared to the current study.

In relation to procedure and methods, this study administered a structured questionnaire with closed ended questions to collect data, this approach prevented respondents from providing in-depth information which is associated with mixed research strategy.

Quantitative studies in general do not capture emotions and behaviours of respondents and also the structure of the survey is normally rigid. Additionally, quantitative data analysis is very complicated especially to professionals without solid background in statistics.

The study had serious time restrictions; as such, enforcing external validity was unattainable. The research study could have benefited immeasurably from interventions that ensure external validity such as conducting replica online surveys in diverse settings.

Administratively, inadequate time to run surveys compounded by the impact of Covid-19 restrictions was of great concern. Additionally, the researcher missed an opportunity to experience physical interractions with survey participants.

4 PRESENTATION OF RESEARCH RESULTS

This chapter aims to present results of the information collected and analysed from the target population through application of the procedure and methods outlined in Section 3.3. Firstly, the aim of the study was briefly discussed (Section 4.1) followed by reliability of the measuring instrument (Section 4.2), demographic profiling (Section 4.3), descriptive statistics (Section 4.4) and multiple regression analysis (Section 4.5).

4.1 Research purpose

This research aimed to evaluate factors that encourage employee engagement and employee performance at five gold mining companies in South Africa. Additionally, the research aimed to recommend strategies, which promote employee engagement at the five gold mining companies in South Africa.

This research followed a quantitative approach with data generated via online surveys.

4.2 Reliability of measuring instrument

In this study, the researcher carried out a pilot test using data of the first 50 respondents to validate the measuring instrument. The results of pilot testing showed internal consistency and that the tool was statistically significant because all the Cronback Alpha values were above the mininum threshold of 0.6 as mentioned by Malhotra (2010). A complete pilot study report illustrating how and why items were deleted is in Appendix 6. Additionally, Table 6 shows Cronbach Alpha values for the complete study (329 samples) which are all above the mininum threshold of 0.6, proving that all the constructs were internally consistent in their measurement. Furthermore, all items were converging well in the same direction.

Table 6:

Cronbach Alpha reliability coefficient and corrected item-total correlation of constructs

Constructs	Items	Corrected Item-Total Correlation	Cronbach's Alpha	Number of Items	Remarks
Work environment [WE]	WE1	0.501	0.761	5	
	WE2	0.572			
	WE3	0.610			
	WE4	0.548			
	WE5	0.428			
Leadership [LP]	LP1	0.541	0.777	4	
	LP2	0.623			
	LP3	0.623			
	LP4	0.577			
Team and co-worker relationship [TR]	TR1	0.537	0.768	5	
	TR2	0.611			
	TR3	0.567			
	TR4	0.520			
	TR5	0.434			
Training and career development [TC]	TC1	0.584	0.773	4	
	TC2	0.619			
	TC3	0.653			
	TC4	0.452			
Compensation [CP]	CP1	0.717	0.868	4	
	CP2	0.793			
	CP3	0.658			
	CP4	0.709			
Organisational policies [OP]	OP1	0.482	0.724	4	
	OP2	0.517			
	OP3	0.643			
	OP4	0.481			
Employee wellbeing [EW]	EW1	0.329	0.683	5	Item EW3 deleted
	EW2	0.537			
	EW4	0.566			
	EW5	0.404			
Work from home [WFH]	WFH1	0.521	0.762	3	
	WFH2	0.624			
	WFH3	0.636			
Employee Performance [EP]	EP1	0.579	0.790	4	
	EP2	0.702			
	EP3	0.611			
	EP4	0.483			

4.3 Demographic profiling of respondents

The present research drew participants from five gold mining companies in South Africa. However, since questions on the questionnaire demanded high literacy, only matriculants holding at least a certificate and have a minimum of 2 years' working experience were considered as the most appropriate providers of information.

Table 7 shows the demographic profiling of the research participants. It was noted that nearly 67.8% were male, 30.3% female while 1.9% declined to comment. The majority

of the respondents (55.7%) were of African origin and the remaining were whites (21.8%), coloured (13.5%) and Indian/Asian (9%). The age range 26 - 44 years (tech savy millenials and Gen X) dominated (78.1%) the survey. All respondents matriculated and out of these 76% hold at least a diploma, first degree or are post graduates. 67.6% of the survey participants had working experience falling within the 2-5 year range; followed by the 6-10 year range (18.2%) while the categories of 11-15 years and above 15 years constituted 9.3% and 4.9% of the respondents respectively. With respect to level of positions in organisations, the majority (62%) were junior managers while 14.3% were middle managers and 11.6% occupied supervisory positions. Senior and executive managers represented 8.2% and 4.0% of the respondents respectively.

Table 7:

Demographic profiling of research respondents

Variables		**Frequency**	**Valid Percent**	**Cumulative Percent**
Age	20-25 years	28	8.50	8.50
	26-34 years	133	40.40	48.90
	35-44 years	124	37.70	86.60
	45-54 years	27	8.20	94.80
	≥55 years	17	5.20	100.00
Gender	Male	217	67.80	67.80
	Female	97	30.30	98.10
	Prefer not to say	6	1.90	100.00
Race	White	71	21.80	21.80
	African	181	55.70	77.50
	Coloured	44	13.50	91.00
	Indian/Asian	29	9.00	100.00
Years of experience	2-5 years	219	67.60	67.60
	6-10 years	59	18.20	85.80
	11-15 years	30	9.30	95.10
	≥15 years	16	4.90	100.00
Educational Level	Certificate	79	24.00	28.60
	Diploma	103	31.30	55.30
	Degree	118	35.90	91.20
	Post graduate degree	29	8.80	100.00
Level of Position	Supervisor	38	11.60	11.50
	Junior management	204	62.00	73.60
	Middle management	47	14.30	87.80
	Senior management	27	8.20	96.00
	Executive management	13	4.00	100.00

4.4 Descriptive statistics

This section assessed the main tendency of the responses on scaled items. Central tendency measures were used to conduct the descriptive analysis of the eight variables in addition to employee engagement and employee performance.

All constructs were measured on a 5-point Likert scale that rated responses from strongly disagree (=1) to strongly agree (=5). A value of 2.5 was the acceptable mid-point of the 5-point Likert scale. Therefore, all mean values <2.5 meant that majority of respondents disagreed with the statements. Mean values between 2.5 and 3.5 indicate that respondents tend to neither agree nor disagree whereas all means >3.5 imply that most respondents either agreed or strongly agreed with the statements. Table 8 and Appendix 7 summarises the means, standard deviations of all investigated variables.

Table 8:

Descriptive statistics and Pearson correlation coefficient (r).

Item	Construct	Mean	Standard Deviation	1	2	3	4	5	6	7	8	9
1	Employee engagement	3.72	0.90	1								
2	Work environment	4.17	0.55	0.242	1							
3	Leadership	4.00	0.53	0.152	0.450	1						
4	Team & Co-worker relationship	4.11	0.55	0.326	0.593	0.515	1					
5	Training & career development	4.11	0.65	0.283	0.588	0.598	0.556	1				
6	Compensation	3.70	0.91	0.500	0.342	0.222	0.535	0.453	1			
7	Organisational policies	4.11	0.66	0.295	0.583	0.453	0.604	0.514	0.471	1		
8	Employee wellbeing	4.10	0.55	0.277	0.613	0.388	0.613	0.530	0.455	0.603	1	
9	Work from home	3.93	0.68	0.472	0.375	0.263	0.522	0.452	0.598	0.450	0.408	1

4.5 Multiple regression analysis

According to Maree al. (2020), multiple regression analysis is applied in cases where a dependent variable (Y) is predicted by more than one predictor variable (X_1, X_2, etc.). These authors mentioned that the relationship between these dependent and predictor variables is given by the equation:

$Y = a + b_1X_1 + b_2X_2 + \ldots + b_nX_n$

*X*s and *b*s represent predictor variables and coefficients respectively.

In this study, multiple regression analysis, conducted in IBM SPSS version 26, was used to predict the effect of the eight factors on employee engagement and this phenomenon's effect on employee performance.

4.5.1 Assumptions of multiple regression analysis

Before running multiple regression analysis, the researcher investigated several assumptions that were critical for the analysis to be reliable and valid.

The first assumption was that a linear relationship exists between independent and dependent variables. Scatterplots between independent and dependent variables showed linear relationship, therefore the assumption was met (refer to Appendix 8).

Secondly, the study investigated multicollinearity, a test ensuring that independent variables proposed in the conceptual model do not highly correlate. To achieve this, this study determined the tolerance and variance inflation factor (VIF) statistics (Table 9) in SPSS. Tolerance and VIF statistics attained in this study show scores above 0.1 and below 10 respectively, these are the ranges recommended by Pallant (2010) and Hair, Black, & Anderson (2010) for satisfying the multicollinearity assumption. The Pearson's Correlation Coefficients among independent variables were all below 0.9; an upper limit recommended by Hair et al. (2010). This further confirmed absence of multicollinearity in this study. Table 8 shows that Pearson correlation coefficients were statistically significant at the 0.01 level.

Table 9:

Tolerance and variance inflation factor (VIF) statistics.

Variable	Tolerance	VIF
Work environment	0.469	2.134
Leadership	0.558	1.793
Team and co-worker relationship	0.406	2.462
Training and career development	0.443	2.256
Compensation	0.526	1.902
Organisational policies	0.483	2.070
Employee wellbeing	0.475	2.107
Employee engagement	0.703	1.423
Work from home	0.566	1.768

a. Dependent Variable: Employee Performance

Thirdly, results of a normality test (Table 10) conducted in this study confirm that data was well distributed. Pallant (2010) argued that skewness should be between -2 and +2 while the accepted range for kurtois is -10 to +10. However, Kline (2011) stated that in large population samples, as in this study, accepted skewness and kurtosis values should not exceed 3 and 10 respectively. From these perspectives there are no normality issues with the data; therefore, the normality assumption was met.

Table 10:

Univariate normality test

Variable	Skewness	Kurtosis
Leadership	-2.624	10.176
Training and career development	-2.023	5.992
Work environment	-2.010	7.282
Employee wellbeing	-1.795	5.750
Team and co-worker relationship	-2.523	11.007
Compensation	-1.380	1.250
Organisational policies	-1.627	5.163
Employee performance	-1.433	3.618
Work from home	-1.631	3.993
Employee engagement	-0.819	-0.260

The fourth-key assumption investigated and confirmed was that values of the residuals were independent. The Durbin-Watson value of 1.33 attained in this study as shown in Table 12 supports this conclusion. Durbin values below 1 and above 3 may produce invalid analysis as stated by Field (2014). Lastly, Cook's distance values (Appendix 8) were all less than 1, the upper cut-off as stated by Pallant (2010). This implies that the study confirmed absence of influential values that can lead to bias in the model.

By undertaking the above exercise, the researcher proved that there were no violations of any of these assumptions: therefore, the following multiple linear regression analysis is reliable and valid.

4.5.2 Investigating factors of employee engagement

Section 1.2.3.1 posed the first research question of this study as follows: Which factors influence employee engagement at the five gold mining companies in South Africa? The following sub-sections addressed this question using multiple regression analysis.

4.5.2.1 Deriving the multiple regression model

Multiple regression analysis was applied in this study to assess the relationship between employee engagement (EE) and the eight predictor variables (LP, TC, WE, EW, TR, CP, OP and WFH). A model for estimating employee engagement based on the regression coefficients of the eight predictor variables (Table 11) estimated in SPSS was built following the equation in Section 4.5:

EE = 0.96 + 0.056*WE – 0.003*LP + 0.026*TR – 0.007*TC + 0.334*CP + 0.014*OP + 0.005*EW + 0.347*WFH.

CP has a regression coefficient of 0.334; this implies that employee engagement is expected to increase by 0.334 units for every additional unit increase allocated to compensation, with other variables constant.

Table 11:

Summary of regression coefficients.

Model		C	WE	LP	TR	TC	CP	OP	EW	WFH
Unstandardised Coefficients	***B***	0.962	0.056	-0.003	0.026	-0.007	0.334	0.014	0.005	0.347
	SE	0.411	0.113	0.106	0.120	0.099	0.064	0.092	0.112	0.082
Standardised Coefficients	**Beta**		0.034	-0.002	-0.016	-0.005	0.336	0.010	0.003	0.263
T		2.344	0.491	-0.03	-0.218	-0.069	5.189	0.152	0.047	4.206
Sig.		0.020	0.623	0.976	0.827	0.945	0.000	0.879	0.963	0.000
Correlations	**Zero Order**		0.242	0.152	0.326	0.283	0.500	0.295	0.277	0.472
	Partial		0.028	-0.002	-0.012	-0.004	0.279	0.009	0.003	0.230
	Part		0.023	-0.001	-0.010	-0.003	0.244	0.007	0.002	0.198
Collinearity Statistics	**Tolerance**		0.469	0.558	0.406	0.443	0.526	0.483	0.475	0.566
	VIF		2.134	1.793	2.462	2.256	1.902	2.07	2.107	1.768

a. Dependent Variable: Engagement

Notes: C-Constant, WE-Work environment, LP-Leadership, TR-Team & co-worker relationship, TC-Training & career development, CP-Compensation, OP-Organisational policies, EW-Employee wellbeing and WFH-Work from home.

4.5.2.2 Testing the significance of the regression model

The strength and significance of the model were tested by assessing the R Square as suggested by Wegner (2016). The output of multiple regression analysis from SPSS (Table 12) indicated that all the eight predictor variables influence employee engagement and that the model was moderately strong (R=0.545). The adjusted R Square implies that the eight factors considered by the model explained 28% of the variance in employee engagement. That is 28% of variance in employee engagement is attributed to compensation, work from home, work environment, organisational policies, training and career development, team and co-worker relationship, leadership and employee wellbeing.

4.5.2.3 Accuracy of the regression model

The error of the estimate provides an indication of the error of prediction; a lower estimate signifies a better fit of the model as explained by Wegner (2016). In this study, the achieved error estimate of 0.76643 (Table 12) is considered low, hence accurate.

Table 12:

Regression model – employee engagement.

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin - Watson
1	0.545[a]	0.297	0.28	0.76643	1.33

a. Predictors: (Constant), Work environment, Team & co-worker relationship, Training & career development, Compensation, Organisational policies, Employee wellbeing, leadership and Work from home

b. Dependent variable: Employee engagement.

Table 13 (anova) further indicates that the amount of variance explained is statistically significant to validate the model as the p-value of the F statistic (16,832) is significant (P<0.000). This means that at least one of the eight predictors significantly explain employee engagement.

Table 13:

ANOVA summary table.

Model		Sum of Squares	df	Mean Square	F	Sig.
1	**Regression**	79.098	8	9.887	16.832	.000[b]
	Residual	186.799	318	0.587		
	Total	265.897	326			

a. Dependent Variable: Employee Engagement.
b. Predictors: (Constant), Work environment, Team & co-worker relationship, Training & career development, Compensation, Organisational policies, Employee wellbeing, Leadership and Work from home.

4.5.2.4 Hypotheses tests on the model

Information in Table 14 was used to establish the predictive effects of independent variables on employee engagement. Beta-values indicate the direction and the strength of the relationship while p-values estimate the significance of the predictive effect as stated by Pallant (2010). P-values less than 0.05 are considered significant. This rule of thumb was applied to determine the rejection/acception of alternate hypotheses 1 to 8.

Table 14:

Summary of hypotheses test based on P-values.

		Standardized Coefficients			
Variable	**Hypothesis**	**Beta**	**T-value**	**P-value**	**Conclusion/Decision**
(Constant)			2.344	0.020	
Compensation	Hypothesis 1	0.336	5.189	0.000	Accept
Work from home	Hypothesis 2	0.263	4.206	0.000	Accept
Work environment	Hypothesis 3	0.034	0.491	0.623	Reject
Leadership	Hypothesis 4	-0.002	-0.030	0.976	Reject
Team and co-worker relationship	Hypothesis 5	-0.016	0.218	0.827	Reject
Training and career development	Hypothesis 6	-0.005	-0.069	0.945	Reject
Organisational policies	Hypothesis 7	0.01	0.152	0.879	Reject
Employee wellbeing	Hypothesis 8	0.003	0.047	0.963	Reject

4.5.3 Investigating employee engagement & performance

Section 1.2.3.2 raised the second research question as follows: What is the effect of employee engagement on employee performance at the five gold mining companies in South Africa? This sub-section addressed this question through multiple regression analysis.

4.5.3.1 Deriving the multiple regression model

This section illustrates how statistical tests were applied to predict the impact of employee engagement on employee performance. A model for estimating employee performance with employee engagement as the predictor variable was formulated using SPSS output in Table 15 following the equation in Section 4.5 as:

Employee performance = 2.735 + 0.347*Employee engagement

This equation shows that employee engagement plays an important role in influencing employee performance at the five gold mining companies.

Table 15:

Summary of regression coefficients.

Model		(Constant)	Employee Engagement
Unstandardised Coefficients	**B**	2.735	0.347
	Std. Error	0.144	0.038
Standardised Coefficients	**Beta**		0.454
	T	18.944	9.216
	Sig.	0	0
95,0% Confidence Interval for B	**Lower Bound**	2.451	0.273
	Upper Bound	3.019	0.421
Correlations	**Zero-order**		0.454
	Partial		0.454
	Part		0.454
Collinearity Statistics	**Tolerance**		1
	VIF		1

4.5.3.2 Testing the significance of the regression model

The strength and significance of the model were tested by assessing the R Square as suggested by Wegner (2016). In this study of the cause and effect relationship between employee engagement and employee performance, SPSS produced the regression model summary in Table 16. The model revealed that employee engagement explains 20.4% of the variance of employee performance of the workforce.

Table 16:

Regression model summary.

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.454[a]	0.206	0.204	0.61583

a. Predictors: (Constant), Employee engagement.
b. Dependent variable: Employee performance.

The ANOVA (Table 17) further indicates that the amount of variance explained is statistically significant to validate the model as the p-value of the F statistic (84.938) is significant (P=0.000).

Table 17:

ANOVA summary table.

Model		Sum of Squares	df	Mean Square	F	Sig.
1	**Regression**	32.213	1	32.213	84.938	.000[b]
	Residual	124.013	327	0.379		
	Total	156.226	328			

a. Dependent Variable: Employee Performance.
b. Predictors: (Constant), Employee Engagement.

4.5.3.3 Hypothesis tests on the model

According to the information presented in Table 15, the predictive effects of employee engagement on employee performance was established. Table 18 shows a summary of Beta, T-values and P-values. *Beta* indicates direction and strength of the relationship while the p-values estimate the significance of the predictive effect (Pallant, 2010).

Table 18:

Summary of hypothesis based on P-values.

		Standardized Coefficients			
Variable	**Hypothesis**	**Beta**	**T-value**	**P-value**	**Conclusion/Decision**
(Constant)			18.944	0.000	
Employee engagement	Hypothesis 9	0.454	9.216	0.000	Accept

4.6 Summary and conclusion

Out of the nine hypotheses tested in this study, only three were accepted on the basis of statistical significance at 0.000. All these results are set out in Table 19 and are further discussed in Chapter 5 with special emphasis on theoretical underpinnings.

Table 19:

Summary of the nine hypotheses results.

		Standardized Coefficients			
Variable	**Hypothesis**	**Beta**	**T-value**	**P-value**	**Conclusion/Decision**
(Constant)			2.344	0.020	
Compensation	Hypothesis 1	0.336	5.189	0.000	Accept
Work from home	Hypothesis 2	0.263	4.206	0.000	Accept
Work environment	Hypothesis 3	0.034	0.491	0.623	Reject
Leadership	Hypothesis 4	-0.002	-0.030	0.976	Reject
Team and co-worker relationship	Hypothesis 5	-0.016	0.218	0.827	Reject
Training and career development	Hypothesis 6	-0.005	-0.069	0.945	Reject
Organisational policies	Hypothesis 7	0.01	0.152	0.879	Reject
Employee wellbeing	Hypothesis 8	0.003	0.047	0.963	Reject
Employee engagement	Hypothesis 9	0.454	9.216	0.000	Accept

5 DISCUSSION OF RESEARCH FINDINGS

The foregoing chapter presented outcomes of descriptive statistics and multiple linear regression analysis. This chapter discusses these results in the context of the research questions and hypotheses and demonstrate how the research objectives were achieved.

5.1 Research questions and hypotheses

The research raised two research questions: (i) Which factors influence employee engagement at the five gold mining companies in South Africa? Nine research hypotheses were developed and outlined in Section 1.2.3.1. (ii) What is the effect of employee engagement on employee performance at the five gold mining companies in South Africa? The hypothesis developed in line with this question was set out in Section 1.2.3.2.

The following sub-sections illustrate the findings of the research.

5.2 Research findings

This section adequately addresses the two research questions of this study.

5.2.1 Research question 1

Hypothesis 1: Compensation positively and significantly influence employee engagement at the five gold mining companies.

The p-value of compensation is 0.000, which is below 0.05. In this regard, hypothesis 1 was accepted while the null was rejected. Research results indicated that compensation has a positive ($r = 0.500$) and statistically significant effect on employee engagement. Additionally, analysis of Table 19 shows that compensation as a factor of employee engagement has a beta value of 0.336, which suggests a 33.6% influence on employee engagement. Furthermore, Table 19 shows the highest t-value of 5.189 in favour of compensation. This means that this factor is the most important enabler of employee engagement because it is also statistically significant at 0.000.

This result supports findings of Wushe & Shenje (2019) who achieved p-value less than 0.05 which implies that compensation has a positive and statistically significant effect on employee engagement. However, according to Anitha (2014), compensation attained a

p-value of 0.209 which is order of magnitudes higher than the upper limit of 0.05. This result suggested that the factor in question in does not have a statistically significant effect on employee engagement.

Undoubtedly, compensation is the major influencer of employee engagement in this study. Kahn (1990) argued that employees engage themselves provided they perceive rewards on the table as commensurate with the given task. Saks (2006) supported this by stating that when employees receive good rewards from employers they tend to respond by showing higher engagement at work. According to Anitha (2014), compensation inspires employees to work hard and concentrate on indiviudal career development.

Victor & Hoole (2017) who found that intrinsic and extrinsic rewards significantly and positively foster employee engagement supports findings of the current imperical study. Anitha (2014) asserted that compensation is an important aspect that can influence employee engagement since employees that are happy with their compensation are motivated to be more productive and tend to focus on growth. Compensation can be in monetary form or in kind (e.g. paid holidays).

However, the finding of this research are in sharp contrast to Harter, Schmidt, Asplund, Killham & Agrawal (2010) who suggested that compensation has a minute effect on employee engagement. Markos & Sridevi (2010) mentioned that in developed countries employees pay less attention to issues of salaries and benefits, the duo encouraged studies in developing nations; this has partly been achieved by this research work.

Hypothesis 2: Working from home due to Covid-19 positively and significantly influences employee engagement at the five gold mining companies.

The p-value of work from home is 0.000, which is below the upper limit of 0.05. Therefore, hypothesis 2 was accepted while the null was rejected. Working from home due to Covid-19 had a positive ($r = 0.472$) and statistically significant effect on employee engagement indicating that this variable predicts employee engagement.

Analysis of Table 19 shows a beta value of 0.263 corresponding to working from home, which translates to 26.3% influence on employee engagement. Moreover, work from home attained an aggregate t-value of 4.206. This t-value ranks work from home as the second most important influencer of employee engagement because it is statistically significant at 0.000.

This finding is in consonance with Mehta (2021) who opined that employees experienced happiness because of working from home. The same study mentioned that employee engagement and happiness have a significant and positive relationship. Working from home creates platforms for families to bond and stimulates happiness as discussed by Mehta (2021).

On the same subject, Chanana & Sangeeta (2020) noted that during lockdowns organisations devised creative online activities meant to stimulate employee engagement such as team building, game sessions, webinars with field experts, etc. As a results of these activities, employees become committed and motivated despite the tough times (Chanana & Sangeeta, 2020). These two researchers agreed that work from home engagement activities have been extremely successfully and well received by employees.

Hypothesis 3: Work environment positively and significantly influences employee engagement at the five gold mining companies.

The p-value achieved for work environment is 0.623, which exceeds the upper limit of 0.05; consequently hypothesis 3 was rejected and the null was accepted.

This p-value means that work environment does not have a statistically significant effect on employee engagement. This result contradicts findings of Anitha (2014) that this factor was statistically significant at 0.000. In her study, work environment was the most influential factor, being positively and significantly related to employee engagement.

Anitha (2014) stated that a work environment that encourages employees to focus on day to day job demands while also forstering development of interpersonal relationships is key for employee engagement. Attributes of such a supportive work environment include positive feeback, open communication channels, fair reward system, employees free to voice concerns, job autonomy, employees experiment or even fail without fear, etc. (Anitha, 2014; May et al., 2004).

Hypothesis 4: Leadership positively and significantly influences employee engagement at the five gold mining companies.

The p-value of leadership is 0.976, which is greater than the upper limit of 0.05. On the basis of this result, hypothesis 4 was rejected and the null was accepted. This result indicated that leadership does not have a statistically significant effect on employee

engagement. Similarly, according to Anitha (2014), leadership had a p-value of 0.479 which exceeds the upper limit of 0.05 indicating that leadership did not have a statistically significant effect on employee engagement in the workplace.

However, contrary to this imperical research, Wushe & Shenje (2019) found that leadership was positively ($r = 0.55$) and statistically ($p < 0.05$) related to employee engagement. This suggests leadership as an important factor of employee engagement.

Wang & Hsieh (2013) established that trust and authentic leadership are both positively related to employee engagement. Popli & Rizvi (2016) opined that leadership inspires and motivates employees to attain objectives of the organisation, therefore is an important factor in influencing employee engagement. Furthermore, Popli & Rizvi (2016) stated that leaders who display sound leadership qualities typically set up surbodinates to achieve the best. The duo also suggested that such leaders show confidence in their surbodinates' abilities and quality of work.

Hypothesis 5: Team and co-worker relationship positively and significantly influence employee engagement at the five gold mining companies.

The p-value of team and co-worker relationships is 0.827, which exceeds the upper limit of 0.05; therefore hypothesis 5 was rejected and the null was accepted. The implication is that team and co-worker relationship do not have statistically significant effect on employee engagement. This finding is consistent with Makera, Nasidi, Kamaruddeen & Jemaku (2019) whose multiple regression analysis revealed no statistically significant relationship between team and co-worker relationship versus employee engagement.

However, the result contradicts Kahn (1990) who found that striving interpersonal relationships promote the growth of employee engagement. Findings of this present study also negates Anitha (2014) who found that team and co-worker relationship statistically influences employee engagement significantly (p-value = 0.000). Baumeister & Leary (as cited in Makera et al., 2019) mentioned that strong relationships between co-workers give rise to free interactions, networking, open communication, sharing of goals and knowledge among other benefits; therefore, making the workplace a rewarding place.

Hypothesis 6: Training and career development positively and significantly influence employee engagement at the five gold mining companies.

The p-value of training and career development is 0.945, which is above the acceptable upper limit of 0.05. On this basis, hypothesis 6 was rejected and the null was accepted. This implies that training and career development do not have statistically significant effect on employee engagement. Similarly, in Anitha (2014), training and career development yielded a p-value of 0.982, which is comparable to that achieved in this current study and is considerably higher than the acceptable upper limit of 0.05.

However, these results contradict the findings of Wushe & Shenje (2019) whose $r = 0.66$ and $p<0.05$ indicated that training and career development had a positive and significant relationship with employee engagement. Melcrum (2007) opined that training and career development are key enablers of employee engagement. Similarly, Robertson-Smith & Markwick (2009) also observed that arrangements for training, coaching and secondments improve employee engagement.

Additionally, Wuse & Shenje (2019) opined that companies that succeed in promoting employee engagement encourage employees to develop themselves through learning new skills and acquiring knowledge. Bakar (as cited in Wuse & Shenje, 2019) suggested that to increase satisfaction and engagement managers should align tasks allocated to employees with their individual career goals.

Hypothesis 7: Organisational policies positively and significantly influence employee engagement at the five gold mining companies.

The p-value of organisational policies is 0.879, which is greater than the limit of 0.05. On that basis, hypothesis 7 was rejected and the null was accepted. The study discovered that organisational policies do not have statistically significant effect on employee engagement. Anitha (2014) yielded a p-value of 0.620 which is comparable with the result achieved in this current study, therefore, findings of these two studies are in agreement.

On the contrary, Wushe & Shenje (2019) achieved $r = 0.48$ and $p < 0.05$ which implies that organisational policies had a positive and significant relationship with employee engagement.

Keenoy (as cited in Wushe & Shenje, 2019) provided imperical evidence to support that good organisational policies are an important factor for employee engagement to blossom. Organisational policies of interest cover aspects such as promotion, recruitmet

and selection, work-life balance and many more (Townsend, Wilkinson & Burgess as cited in Wushe & Shenje, 2019).

Hypothesis 8: Employee wellbeing positively and significantly influence employee engagement at the five gold mining companies.

The p-value of employee wellbeing is 0.963, which is greater than the upper limit of 0.05. Based on the results of this study, employee wellbeing does not have a statistically significant effect on employee engagement; therefore, hypothesis 8 was rejected while the null was accepted. Anitha (2014) reached a similar conclusion because of the p-value of 0.287 which exceeded the upper limit of 0.05.

However, a study of Harter et al. (2002), argued for a positive relationship between psychological wellbeing and employee engagement. Anitha (2014) stated that according to data generated by Gallup, wellbeing "captures more variance in human behaviour than" (p. 312) any other metrics.

5.2.2 Research question 2

Hypothesis 9: Employee engagement positively and significantly influences employee performance at the five gold mining companies.

The p-value of 0.000 shows that employee engagement had a positive and statistically significant effect on employee performance. Therefore, hypothesis 9 was accepted.

The employee performance equation established in Section 4.5.3.1 highlighted the predictive effect of employee engagement on employee performance. Anitha (2014) also confirmed the importance of employee engagement in producing a high performing workforce and that there is an undeniable strong link between the two variables.

In a related study Sendawula, Kimuli, Bananuka & Muganga (2018) achieved $p < 0.05$, implying that employee engagement is a key predictor of employee performance in their study context. Gichohi (as cited in Sendawula et al., 2018) argued that increased commitment by engaged employees is a key enabler of better individual employee performance in the workplace. Pillay & Singh (2018) opined that engaged employees are enthusiastic, passionate, and motivated to achieve goals and objectives of their organisations, as such, they are the driving force behind organisational success. Engaged employees develop positive traits such as being effective, take initiatives, identify with

organsational brand and being exemplary which in turn boast employee performance as argued by Otieno, Wangithi & Njeru (2015).

5.3 Conclusion

The resultant employee engagement model is displayed in Figure 7. Results of this study have been discussed, in this chapter, in line with the research questions and hypotheses introduced in Section 1.2.3. Some of the results were in sync with the reviewed literature while others challenged current knowledge and introduced new and interesting insights.

This research was carried out under different conditions when South Africa and the rest of the world implemented lockdown restrictions to fight the menacing Covid-19 pandemic. It is suggested here that the emerging trend could be representing a shift in employee priorities due to this pandemic since many people are working from home therefore would not consider work environment, leadership, team & co-worker relationship, training & development, organisational policies, and employee wellbeing critical for the nurturing of employee engagement in the workplace.

Another explanation could be centred around the role the self-constructed research instrument played in producing these outcomes. Although the researcher tested for internal consistency, repeat measurement(s) done under the same condition(s) which could have added more weight on the reliability of the instrument was/were not conducted in this research.

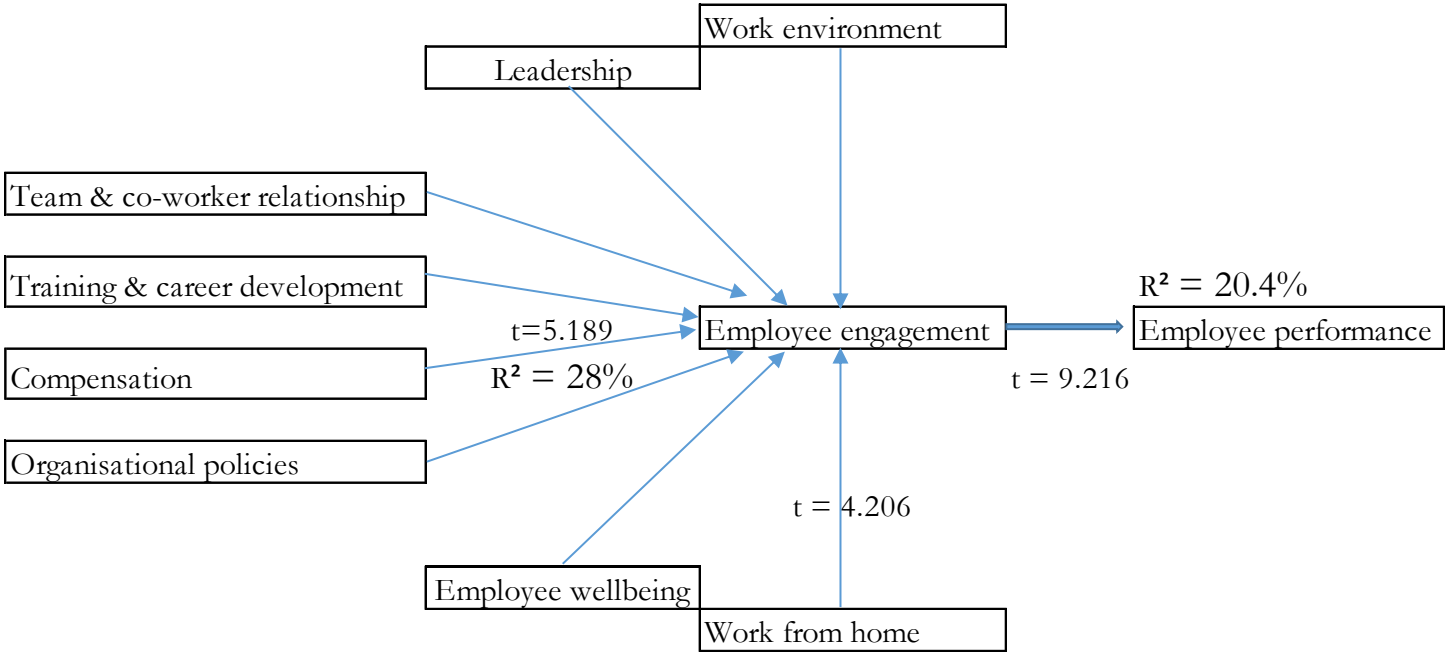

Figure 7: Revised employee engagement and performance model

6 CONCLUSION & RECOMMENDATIONS

Productivity in the gold mining industry and specifically the five gold mining companies has deteriorated over the years, simultaneously; the sector has experienced perennial labour unrests, retrenchments and mine closures. Notwithstanding, employee engagement has been advanced as a concept with great potential to improve business competitive advantage if fully harnessed as reported by Moletsane et al. (2019). Saks (2006) also demonstrated empirically how employee engagement is positively related to productivity, performance and organisational citizen behaviours. In this study, nine hypotheses were tested to enumerate factors that drive employee engagement and also how engagement impacts employee performance.

6.1 Findings

The research study found that compensation has the strongest positive and statistically significant impact on employee engagement followed by work from home. This implies that improving these two factors will give rise to desired heightened levels of employee engagement. The workforce will become more satisfied and motivated to be more productive. Furthermore, engaged employees are energetic and focus on attaining objectives of the organisation. This research also found that employee engagement has a positive and statistically significant impact on employee performance. Overall, the two research questions of this study were sufficiently addressed.

6.2 Academic contributions of the research

Results of the present research are profound in terms of contributing to the theoretical understanding of the concepts of employee engagement and employee performance as they pertain to the five gold mining companies in South Africa. Reviewed literature could not highlight factors that drive employee engagement specifically in this industry; however, this empirical work closed this knowledge gap.

6.3 Implications for management

Hypotheses tests implied that improving compensation as well as introducing work from home will translate to increased employee engagement among employees at the five gold mining companies in South Africa.

As discussed in Section 4.3, about 76% of respondents are suitably qualified professionals holding diplomas, degrees and higher degrees. Chances are high that this

category of employees compare incentives and rewards offered within their industry with those of organisations in other industries and even outside South Africa. Additionally, Section 4.3 highlighted that nearly 56% of the respondents are black Africans. Historically, the apartheid repressive laws led to salary gaps between whites and blacks on the same job. Unquestionably, this study offered employees in these categories a platform to express their perceptions concerning compensation issues in the workplace.

That said, in both cases, the screaming voices need listening ears, human resource professionals and executive managers cannot ignore them any longer. No wonder why employees in this industry wage salary wars with management. This calls for human resource management interventions to address compensation issues in order for employees to have descent and attractive salaries (and benefits) that enable sustainable living. Although this could be controversial, senior executives should consider cutting their hefty remunerations with a view to improve incentives and rewards of employees.

Owing to Covid-19 related lockdowns, working from home suddenly became the new normal. This construct still requires much empirical studies; however, employees at the five gold mining companies in South Africa have resoundingly suggested it as a key factor that stimulates employee engagement. Human resource professionals should consider a blended style with employees having days they work at home and others at the workplace. The majority of non-technical professionals can benefit; however, technical occupations in the mining industry will not enjoy such flexibility.

To bolster employee engagement during these tough times, organisations should introduce creative ways for employees to remain motivated, committed and satisfied. Virtual activities such as online team-ups, webinars for stress and anxiety, counselling, online feedback sessions, among others are leading motivators.

Satisfying these key drivers of employee engagement will lead to staff motivation, high retention, enthusiasm about work and increased employee commitment. Organisations that are seeking to improve employee performance and productivity in order to set themselves ahead of the curve should focus on enhancing employee engagement. Employee engagement has become a requirement as organisations position themselves for competition on the global marketplace as opined by Pillay & Singh (2018).

Although this study concluded that the other six factors (work environment, leadership, team and co-worker relationship, training and career development, organisational

policies and employee wellbeing) are not statistically significant to employee engagement, human resource professionals should not neglect them. According to the Maslow's Hierarchy, these six seemingly unimportant factors are likely to have influence once the basic need – compensation - is satisfied.

6.4 Implications for future studies

This present study identified the following areas for future research studies. Firstly, the current researcher developed a measuring instrument for this study after efforts to contact Anitha (2014) had proved futile. This study recommends establishment of a more robust, valid and reliable instrument that can be useful for cross-sectional studies.

Additionally, longitudinal studies are necessary to investigate the cause-and-effect relationships between the eight independent variables enumerated in this study and employee engagement over time. To consolidate the current research findings, additional surveys drawing participants from across the whole industry are required. This will enable generalisation of empirical research results.

Lastly, work from home as a driver of employee engagement requires thorough study to harness its benefits from perspectives of both the employee and organisation.

As detailed in Section 1.3, the study was limited to companies operating in Gauteng and Free State only therefore, there is an opportunity to expand this study to other provinces. In the same vein, the study can be perfected by allowing previously excluded potential participants - such as contractors who meet the respondent selection criteria - to partake in future studies.

6.5 Limitations of the study

Section 3.5 elaborated limitations of this study; the same will not be discussed again.

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Appendix 1: Data collection instrument(s)

Informed Consent

My name is Jeremy Rusere. I am pursuing a Master of Business Administration degree at Wits Business School, University of Witwatersrand, Johannesburg, South Africa. To fulfil the requirements of this program I am required to complete an applied research project and my research is titled: The impact of employee engagement on performance in the South African gold mining industry

To complete this research, I must collect data from the industry by means of an online questionnaire bearing in mind the unprecedented times of Covid-19 we are currently navigating through. Participants are required to complete this survey by choosing appropriate answers to the questions below and this process will take only 15-20 minutes of your time.

Please note that participation is purely voluntary, you name is not required (i.e., you remain anonymous) and you are not pressured to undertake this survey. Should you wish to withdraw your participation in this research survey, you are free to exit this questionnaire. However, should you continue, let it be registered in your mind that your participation is contributing to the body of knowledge and that the information is for academic purposes only.

The research questionnaire is accessed through the following link:

https://qfreeaccountssjc1.az1.qualtrics.com/jfe/form/SV_cuOnbLCUp0Lp8iO

In case you need clarification and or follow up on the findings of this empirical work you are free to contact:

Researcher - Jeremy Rusere (2356225@students.wits.ac.za) and

Supervisor - Mr Lee Larbi (lee.larbi@wits.ac.za).

If you feel aggrieved or you have concerns to raise against this survey, you can contact the Wits Human Ethics Research Committee (Non-Medical) on +27(0) 11 717 1408 or hrecnon-medical@wits.ac.za.

By clicking OK at the end of page 1 of the survey, you have provided explicit consent to partake in the study. Additionally, submission of your responses is taken as consent for the researcher to use the supplied information.

SECTION A: Demographic information

		Answer options				
1	Highest qualification	Certificate	Matric	Diploma	Graduate	Post Grad
2	Working experience	2.0 - 5years	6 to 10 years	11 to 15 years	Over 15 years	
3	Age	20-25 years	26-34 years	35-44 years	45-54 years	≥55 years
4	Gender	Female	Male	Prefer not to say		
5	Race	African	White	Coloured	Indian/Asian	
6	Employee category	Supervisor	Junior MM	Middle MM	Senior MM	Exec MM

MM = management

SECTION B: Employee's perceptions.

As you answer the following questions note that there is no right or wrong answer, answer to the best of your understanding using the following scale: [1] Strongly disagree [2] Disagree [3] Unsure [4] Agree [5] Strongly agree.

SECTION B1: Work environment

WE1. I give feedback to my manager freely without fear.

WE2. I am making good progress towards achieving my career development goals.

WE3. Organisation provides all tools and resources needed to execute my duties properly.

WE4. The organisation is strict on employee diversity and exclusion.

WE5. Co-workers are friendly and easily approachable.

SECTION B2: Leadership

LP1. My manager is a true role model for employees.

LP2. Leaders demonstrate that employees are the most valued asset of the company.

LP3. Leaders keep everyone updated with regards to what is currently happening in the company.

LP4. Managers sets clear performance expectations for me.

SECTION B3: Team and co-workers' relationship.

TR1. My colleagues value my contribution.

TR2. Interaction with my work colleagues is beneficial.

TR3. We frequently review and improve work processes as a team.

TR4. There is mutual respect for one another with the team.

TR5. Level of trust is very high within the team.

SECTION B4: Training and career development.

TC1. Manager shows great interest in my growth and career development.

TC2. Work is challenging and exciting such that I think this is great for career development.

TC3. My manager has invested in my success so far in my work journey.

TC4. The organisation offers good opportunities for skills development.

SECTION B5: Compensation

IR1. My salary is competitive compared to similar roles in other organisation.

IR2. I am satisfied with the benefits I get.

IR3. My compensation has not been affected by the Covid-19

IR4. I am happy with my salary.

SECTION B6: Organisational policies.

OP1. Organisational policies do not encourage discrimination on race, gender and age.

OP2. Policies in place are crucial in creating an enabling working environment in the organisation.

OP3. Management takes time to explain company policies to all employees.

OP4. The company policies are clear.

SECTION B7: Employee wellbeing

EW1. Organisation takes safety seriously and employees feels safe in the workplace.

EW2. Organisation cares about employee physical and mental wellbeing.

EW3. I feel good about my health I exercise regularly.

EW4. I can manage my workload.

EW5. I am able to cope with the workload even during Covid-19.

SECTION B8: Work from home

WFH1. I enjoy working from home and wishes to carry on post Covid-19.

WFH2. Working from home did not affect my work performance.

WFH3. I was able to reach my teammates regarding work matters during Covid-19.

SECTION B9: Employee engagement

EE1. I am able to handle the work tasks independently.

EE2. My organisation is a great company for me to make a contribution to my development.

EE3. Leaders in my organisation have shown that quality and improvement are important.

EE4. I don't see myself working for another company.

SECTION B10: Employee performance.

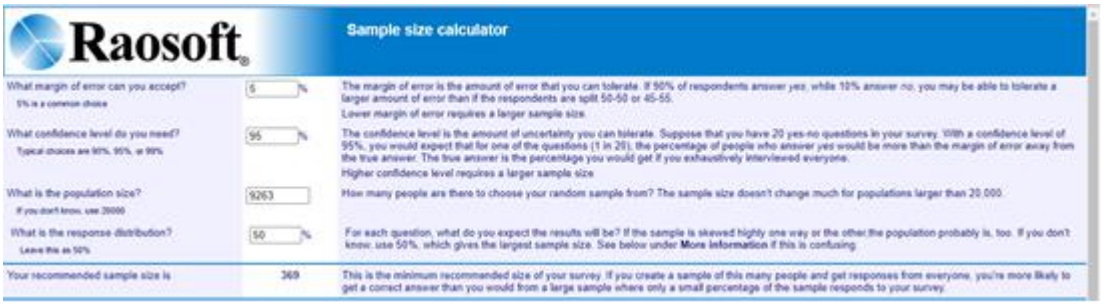
EP1. My leader provides me with adequate performance feedback.

EP2. I know what is expected of me in my job.

EP3. I am able to meet the deadlines.

EP4. I have a clear measure of each of my objectives.

Appendix 2: Sample size determination - Raosoft



Source: http://www.raosoft.com/samplesize.html

Appendix 3: Student Profile

Jeremy Rusere is a geologist with nearly 20 years' experience in mining and mineral exploration having worked for mining conglomerates in Zimbabwe, South Africa, Malawi and Nigeria. His primary interests are in mineral asset valuation and reporting of exploration results according to international standards such as the South African Mineral Resource Committee, Australasian Joint Ore Reserves Committee and Canadian National Instrument 43-101. Jeremy is a registered Professional Natural Geoscientist as defined by the South African Council for Natural Scientific Professions.

Jeremy is currently the exploration manager at African Industries, Nigeria where he leads the company's exploration division reporting to the Managing Director. His main role is to provide leadership to the various teams exploring for gold, iron ore and lithium across Nigeria. Previously, Jeremy worked as geology manager in Malawi for Globe Metals & Mining, an Australian based mid-tier mineral exploration company.

Jeremy holds a BSc Hons (Geology) from the University of Zimbabwe and MSc in Exploration Geology from Rhodes University (South Africa). He is currently completing a Master of Business Administration degree at Wits Business School.

Jeremy is a self-sponsored student who did not receive financial assistance one way or the other, from affiliations or any of the gold mining companies that participated in this research work. He declares no conflicts of interest relating to this empirical study.

Appendix 4: Ethics clearance certificate

Graduate School of Business Administration
University of the Witwatersrand, Johannesburg

Wits Business School

Wits Business School Ethics Committee
Constituted under the University Human Research Ethics Committee (Non-Medical)

Ethics Clearance Certificate

Ethics protocol number: WBS/BA2356225/600
This certificate is only valid with a legitimate ethics protocol number and signed by the Researcher (below).

This certificate is only valid if accompanied by formal permission from the relevant stakeholder(s).

Project title	The impact of employee engagement on performance in the South African gold mining industry
Investigator / Researcher	Mr Jeremy Rusere
Nature of Project	MBA (Research Article)
Decision of the Committee	Approved, provided stakeholders and participants are guaranteed anonymity and confidentiality.
Issue Date of Certificate	2021-09-29
Expiry date	Date of submission of the project report
Chairperson	Prof Anthony Stacey ☎ +27 11 717 3587 +27 82 880 4531 anthony.stacey@wits.ac.za

Declaration by Researcher

One copy must be signed by the Researcher and returned to the Chairperson of the Wits Business School Ethics Committee.

I fully understand the conditions under which I am authorized to carry out the abovementioned research and I guarantee to ensure compliance with these conditions. Should any departure to be contemplated from the research procedure as approved I undertake to resubmit the protocol to the Committee.

Signature

30/09/2021
Date:

Appendix 5: List of codes

Variables	Codes
Consent	1= Yes 2 = No
Working experience	1=< 3 years 2= 3-5 years 3=6-10 years 4=11-15 years 5=Over 16 years
Highest qualification	1= Matric 2= Certificate 3= Diploma 4= Degree 5= Post graduate degree
Age	1= 20-25 years 2= 26-34 years 3= 35-44 years 4 = 45-54 years 5 = Above 55 years
Race	1= White 2= African 3= Coloured 4= Indian/Asian 5= Other
Gender	1= Female 2= Male 3= Prefer not to say
Employee category	1= Supervisor 2= Middle management 3= Senior management 4= Executive management 5= Other

The coding of responses to questions B1 to B10 follows: Strongly disagree = 1; Disagree = 2; Unsure = 3; Agree = 4 & Strongly agree =5.

Appendix 6: Pilot study

Introduction

This report presents results of a pilot study conducted to assess the reliability of each construct and its items using the first 50 responses from the survey. For the scale to be reliable and internally consistent in its measurement, the Cronbach Alpha should be above 0.7 (Pallant, 2010).

For each construct, there are two tables of interest, namely reliability statistics and Item total statistics. Reliability table indicates if the Cronbach Alpha meets the required threshold of 0.7. Item total statistics indicate if the items are all moving towards the same direction. According to Pallant (2010), negative correlation indicates poor convergence; this implies that items are moving towards different directions. Positive correlation indicates good convergence, indicating that items are moving together towards the same direction (Pallant 2010). A good item contribution is considered to be between 0.30 and 0.50 (Pallant 2010). The last column (Cronbach's Alpha if Item Deleted) of Item total correlation indicates items that can be deleted to improve poor values of Cronbach Alpha.

Leadership

Table 1 results indicate the Cronbach Alpha of 0.882. which is above 0.7, indicating that all four items used to measure leadership are consistent in their measurement. This concludes the good reliability of the construct.

Table 1: Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardised Items	Number of Items
0.880	0.882	4

Table 1.2 indicate a good contribution of each item; implying that all these items are positively measuring leadership in the same direction.

Table 1.2 Item-Total Statistics

	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
My manager is a true role model for employees [LP1]	0.736	0.627	0.848
Leaders demonstrate that employees are the most valued asset of the company [LP2]	0.761	0.662	0.837
Leaders keep everyone updated with regards to what is currently happening in the company [LP3]	0.767	0.642	0.839
Managers sets clear performance expectations for me [LP4]	0.711	0.597	0.860

Training and career development

Based on Table 2, the items measuring training and career development are internally consistent in their measurement because of the Cronbach Alpha (0.833) above 0.7. This means that training and development is a good construct.

Table 2: Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardised Items	Number of Items
0.831	0.833	4

Based on Table 2.1, no item was deleted to improve the value of Cronbach Alpha because of the good Cronbach Alpha (0.833) attained. Therefore, all four items measure training and career development in the same direction.

Table 2.1: Item-Total Statistics

	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
My shows great interest in my growth and career development [TC1]	0.655	0.495	0.789
Work is challenging and exciting such that I think this is greater for career development [TC2]	0.640	0.481	0.797
My manager has invested in my success so far in my work journey [TC3]	0.762	0.649	0.743
My organisation offers good opportunities for skills development [TC4]	0.590	0.539	0.816

Work environment

Based on Table 3, the items measuring work environment are internally consistent in their measurement because of the Cronbach Alpha (0.853) above 0.7.

Table 3: Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardised Items	Number of Items
0.852	0.853	5

Based on Table 3.1, no item was suggested for deletion to improve the value of Cronbach Alpha because of the good Cronbach Alpha (0.853) attained. The five items measure work environment in the same direction.

Table 3.1: Item-Total Statistics

	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
I give feedback to my manager freely without fear [WE1]	0.653	0.592	0.825
I am making good progress towards achieving my career development goals [WE2]	0.708	0.598	0.812
Organisation provides all tools and resources needed to execute my duties properly [WE3]	0.771	0.605	0.794
The organisation is strict on employee diversity and exclusion [WE4]	0.659	0.465	0.824
Co-workers are friendly and easily approachable [WE5]	0.557	0.419	0.848

Employee wellbeing

Table 4 results show a poor Cronbach Alpha of 0.275 which is below the recommended threshold of 0.7. This means that there are poor items within the scale. Table 4.1 provided information as to which item to deleted to improve the value of Cronbach Alpha.

Table 4: Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardised Items	Number of Items
-0.104	0.275	5

Based on Table 4.1, EW3 was deleted because of its negative contribution, which affected the reliability of the scale. If item EW3 is deleted the value will improve into 0.729 which is a good Cronbach Alpha above the threshold of 0.7.

Table 4.1 Item-Total Statistics

	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
Organisation takes safety seriously and employees feels safe in the workplace [EW1]	0.033	0.381	-0.169[a]
Organisation cares about employee physical and mental wellbeing [EW2]	0.267	0.362	-0.486[a]
I feel good about my health I exercise regularly [EW3]	-0.563	0.391	0.729
I can manage my workload [EW4]	0.406	0.422	-0.775[a]
I am able to cope with the workload even during Covid-19 [EW5]	0.417	0.486	-0.911[a]

The results in Table 5 and Table 5.1 indicate new results of employee wellbeing construct after the suggested item EW3 was deleted. The remaining 4 items measuring employee wellbeing are consistent in their measurement.

Table 5: Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardised Items	Number of Items
0.729	0.727	4

Table 5.1 indicates that there is no item suggested for deletion to improve the value of Cronbach Alpha because of the good Cronbach Alpha (0.727) attained. This means that all the remaining 4 items measure employee wellbeing in the same direction.

Table 5.1: Item-Total Statistics

	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
Organisation takes safety seriously and employees feels safe in the workplace [EW1]	0.033	0.381	-0.169[a]
Organisation cares about employee physical and mental wellbeing [EW2]	0.267	0.362	-0.486[a]
I can manage my workload [EW4]	0.406	0.422	-0.775[a]
I am able to cope with the workload even during Covid-19 [EW5]	0.417	0.486	-0.911[a]

Team and co-worker relationship

Based on Table 6, the items measuring team and co-worker relationship are internally consistent in their measurement because of the Cronbach Alpha (0.816) which is above the threshold value of 0.7.

Table 6: Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardised Items	Number of Items
0.812	0.816	5

Table 6.1 indicates that there is no item suggested for deletion to improve the value of Cronbach Alpha because of the good Cronbach Alpha (0.816) attained. This implies that all these five items measure team and co-worker relationship in the same direction.

Table 6.1: Item-Total Statistics

	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
My colleagues value my contribution [TR1]	0.542	0.394	0.797
Interaction with my work colleagues is beneficial [TR2]	0.643	0.522	0.762
We frequently review and improve work processes as a team [TR3]	0.627	0.533	0.768
There is mutual respect for one another with the team [TR4]	0.617	0.600	0.772
Level of trust is very high within the team [TR5]	0.593	0.488	0.778

Compensation

Based on Table 7, the items measuring compensation are internally consistent in their measurement because of the Cronbach Alpha (0.827) which exceeds the threshold value of 0.7.

Table 7: Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardised Items	Number of Items
0.825	0.827	4

Table 7.1 indicates that there is no item suggested for deletion to improve the value of Cronbach Alpha because of the good Cronbach Alpha (0.827) attained. This means that all the four items measure compensation in the same direction.

Table 7.1: Item-Total Statistics

	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
My salary is competitive compared to similar roles in other organisation [CP1]	0.641	0.413	0.784
I am satisfied with the benefits I get [CP2]	0.700	0.507	0.756
My compensation has not been affected by the Covid-19 [CP3]	0.609	0.377	0.801
I am happy with my salary [CP4]	0.656	0.461	0.777

Organisational policies

Based on Table 8, the items measuring organisational policies are internally consistent in their measurement because of the Cronbach Alpha (0.813) which is above the threshold value of 0.7.

Table 8: Reliability Statistics

Reliability Statistics		
Cronbach's Alpha	Cronbach's Alpha Based on Standardised Items	Number of Items
0.802	0.813	4

Table 8.1 indicates that there is no item suggested for deletion to improve the value of Cronbach Alpha because of the good Cronbach Alpha (0.813) attained. This means that all these four items measure organisational policies in the same direction.

Table 8.1: Item-Total Statistics

	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
Organisational policies do not encourage discrimination on race, gender, age [OP1]	0.482	0.334	0.833
Policies in place are crucial in creating an enabling working environment in the organisation [OP2]	0.787	0.625	0.667
Management takes time to explain company policies to all employees [OP3]	0.614	0.495	0.754
The company policies are clear [OP4]	0.628	0.446	0.750

Employee performance

Based on Table 9, the items measuring employee performance are internally consistent in their measurement because of the Cronbach Alpha (0.859) which is above the threshold value of 0.7.

Table 9: Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardised Items	Number of Items
0.848	0.859	4

Table 9.1 indicates that there is no item suggested for deletion to improve the value of Cronbach Alpha because of the good Cronbach Alpha (0.859) attained. This implies that all these four items measure employee performance in the same direction.

Table 9.1 Item-Total Statistics

	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
My leader provides me with adequate performance feedback [EP1]	0.626	0.464	0.842
I know what is expected of me in my job [EP2]	0.817	0.700	0.756
I am able to meet the deadlines [EP3]	0.797	0.679	0.767
I have a clear measure of each of my objectives [EP4]	0.559	0.375	0.861

Employee engagement

Based on Table 10, the items measuring employee engagement are internally consistent in their measurement because of the Cronbach Alpha (0.853) which exceeds the threshold value of 0.7.

Table 10: Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardised Items	Number of Items
0.854	0.853	4

Table 10.1 indicates that there is no item suggested for deletion to improve the value of Cronbach Alpha because of the good Cronbach Alpha (0.853) attained. Meaning all these four items measure employee engagement in the same direction.

Table 10.1: Item-Total Statistics

	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
I am able to handle the work tasks independently [EE1]	0.578	0.338	0.860
My organisation is a great company for me to make a contribution to my development [EE2]	0.676	0.459	0.823
Leaders in my organisation have shown that quality and improvement are important [EE3]	0.781	0.662	0.778
I don't see myself working for another company [EE4]	0.773	0.650	0.781

Work from home

Based on Table 11, the items measuring work from home are internally consistent in their measurement because of the Cronbach Alpha (0.733) which is above the threshold value of 0.7.

Table 11: Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardised Items	Number of Items
0.733	0.733	3

Table 11.1 indicates that there is no item suggested for deletion to improve the value of Cronbach Alpha because of the good Cronbach Alpha (0.733) attained. This means that all these four items measure work from home in the same direction.

Table 11.1 Item-Total Statistics

	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
I enjoy working from home and wishes to carry on post Covid19 [WFH1]	0.440	0.235	0.778
Working from home did not affect my work performance [WFH2]	0.550	0.405	0.653
I was able to reach my teammates regarding work matters during Covid-19 [WFH3]	0.693	0.495	0.476

Table 12: Summary of all Cronbach Alpha values of the pilot test

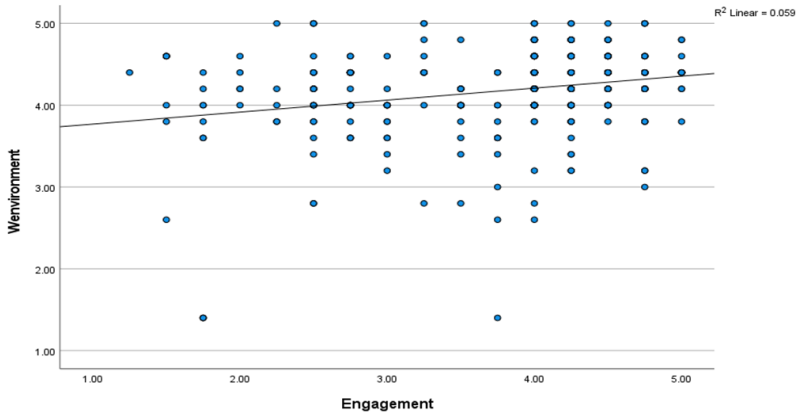
Constructs	Items	Corrected Item-Total Correlation	Cronbach's Alpha	Number of Items	Remarks
Work environment [WE]	WE1	0.653	0.853	5	
	WE2	0.708			
	WE3	0.771			
	WE4	0.659			
	WE5	0.557			
Leadership [LP]	LP1	0.736	0.882	4	
	LP2	0.761			
	LP3	0.767			
	LP4	0.711			
Team and co-worker relationship [TR]	TR1	0.542	0.816	5	
	TR2	0.643			
	TR3	0.627			
	TR4	0.617			
	TR5	0.593			
Training and career development [TC]	TC1	0.655	0.833	4	
	TC2	0.64			
	TC3	0.762			
	TC4	0.59			
Compensation [CP]	CP1	0.641	0.827	4	
	CP2	0.7			
	CP3	0.609			
	CP4	0.656			
Organisational policies [OP]	OP1	0.482	0.813	4	
	OP2	0.787			
	OP3	0.614			
	OP4	0.628			
Employee wellbeing [EW]	EW1	0.033	0.727	4	Item EW3 deleted
	EW2	0.267			
	EW4	0.406			
	EW5	0.417			
Work from home [WFH]	WFH1	0.521	0.762	3	
	WFH2	0.624			
	WFH3	0.636			
Employee Performance [EP]	EP1	0.626	0.859	4	
	EP2	0.817			
	EP3	0.797			
	EP4	0.559			

Appendix 7: Statistics of the developed constructs

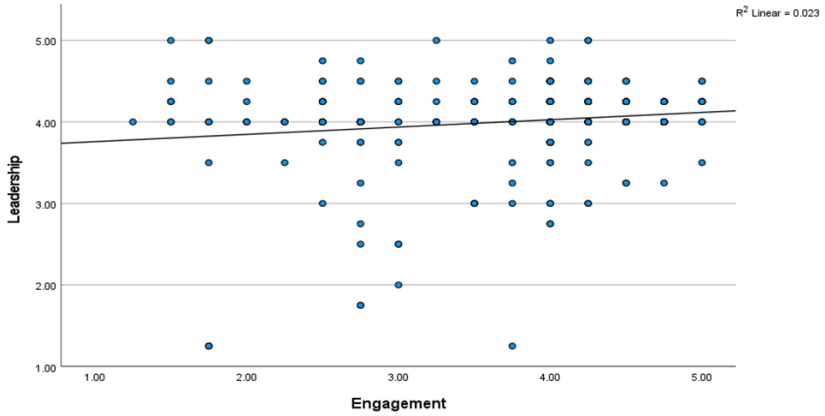
Variable	N	Min.	Max.	Mean	SD	Interpretation
Leadership	329	1.25	5	4	0.53	Majority of respondents agreed with statements of Leadership because the overall mean score of 4.00 which >3.5
Training & career development	329	1	5	4.11	0.65	Most respondents agreed with training and career development statements given the mean score of 4.11 which is >3.5
Work environment	329	1.4	5	4.17	0.55	Most respondents agreed with work environment statements given the mean score of 4.17 which is >3.5
Employee wellbeing	329	1.2	5	4.1	0.55	Most respondents agreed with employee wellbeing statements given the mean score of 4.10 which is >3.5
Team & co-worker relationship	329	1	5	4.11	0.55	Most respondents agreed with training and career development statements given the mean score of 4.11 which is >3.5
Compensation	329	1	5	3.7	0.91	Most respondents agreed with compensation statements given the mean score of 3.70 which is >3.5
Organisational policies	329	1	5	4.11	0.66	Most respondents agreed with organisational policies statements given the mean score of 4.11 which is >3.5
Employee performance	329	1	5	4.03	0.7	Most respondents agreed with employee performance statements given the mean score of 4.03 which is >3.5
Work from home	329	1	5	3.93	0.68	The results illustrate that most respondents agreed with work from home statements given the mean score of 3.93 which is >3.5
Employee engagement	329	1.25	5	3.72	0.9	The results illustrate that most respondents agreed with employee engagement statements given the mean score of 3.72 which is >3.5

Appendix 8: Scatter Plots

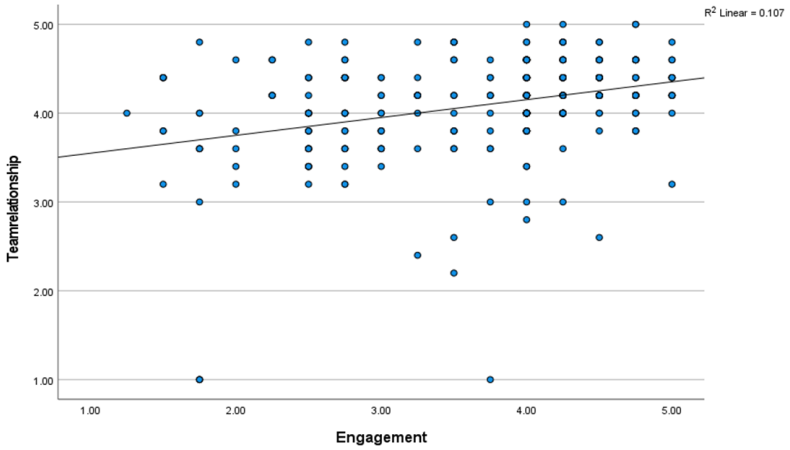
Scatter plot - Work environment and employee engagement



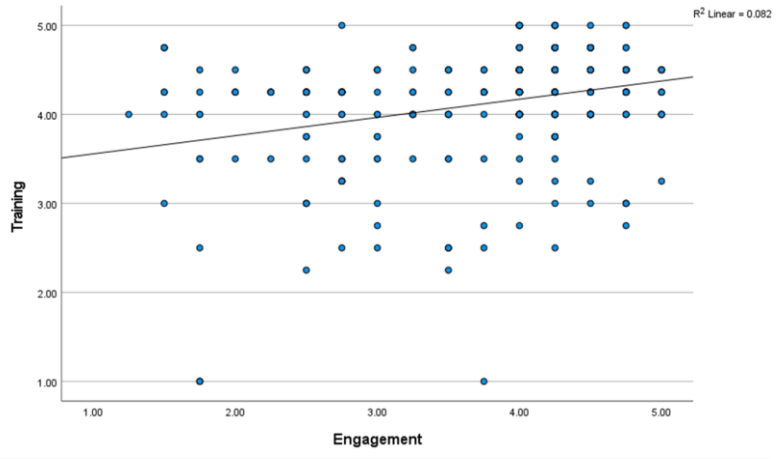
Scatter plot - Leadership and employee engagement



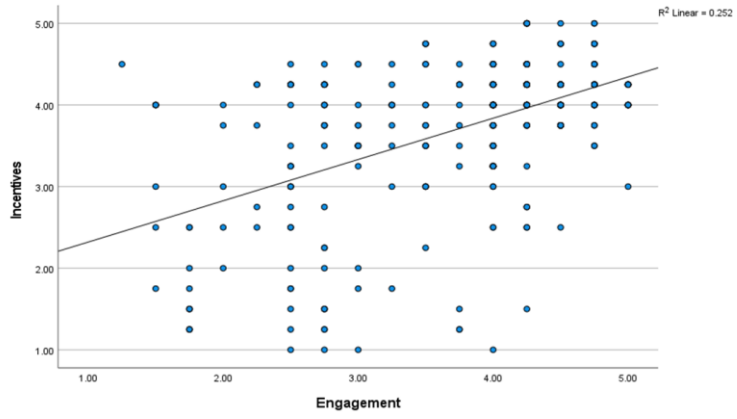
Scatter plot – Team and co-worker relationship and employee engagement



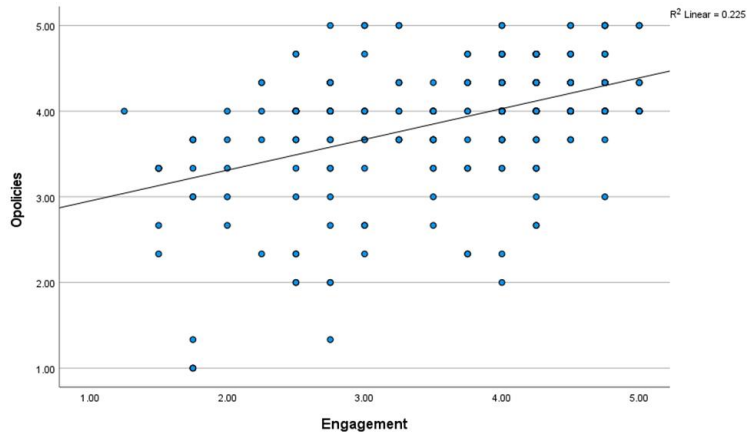
Scatter plot – Training and career development and employee engagement



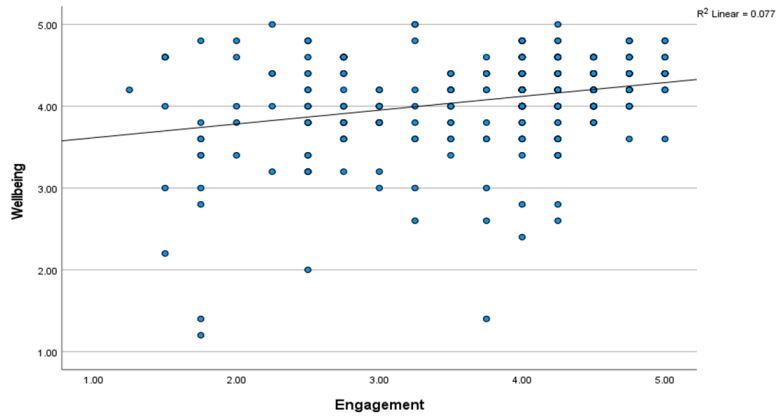
Scatter plot – Compensation and employee engagement



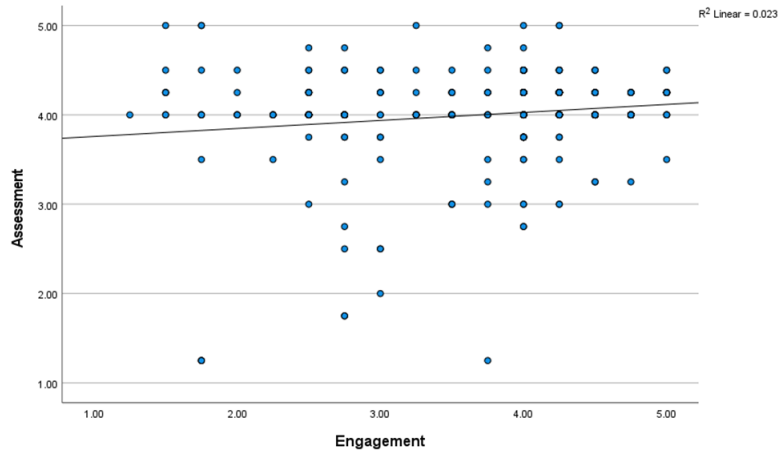
Scatter plot – Organisational policies and employee engagement



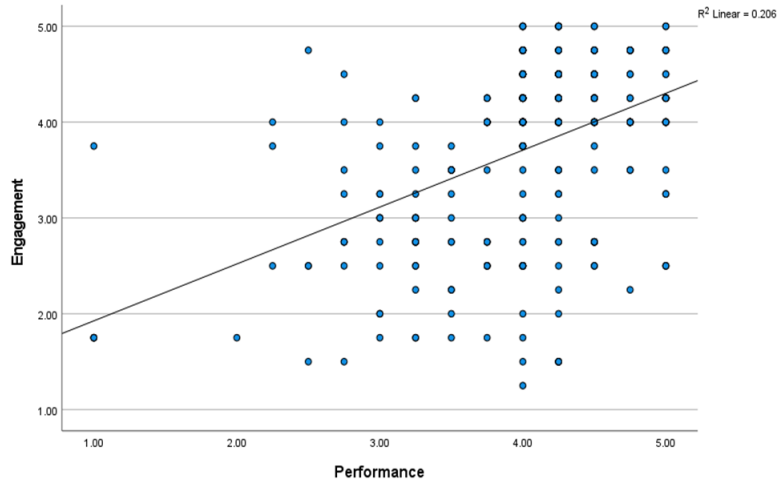
Scatter plot – Employee wellbeing and employee engagement



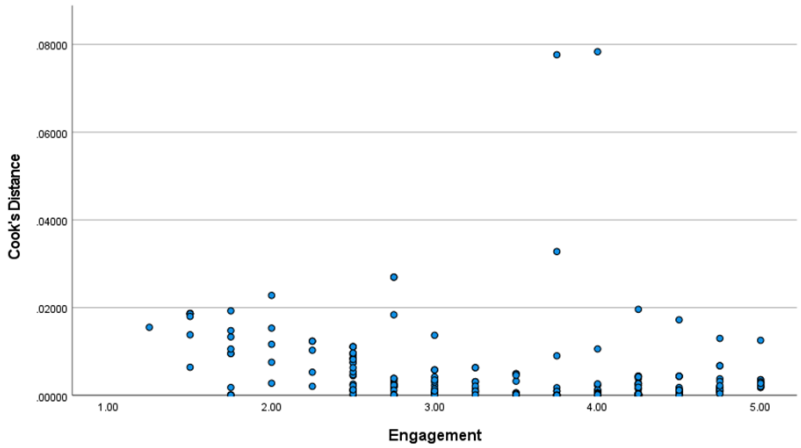
Scatter plot – Work from home and employee engagement



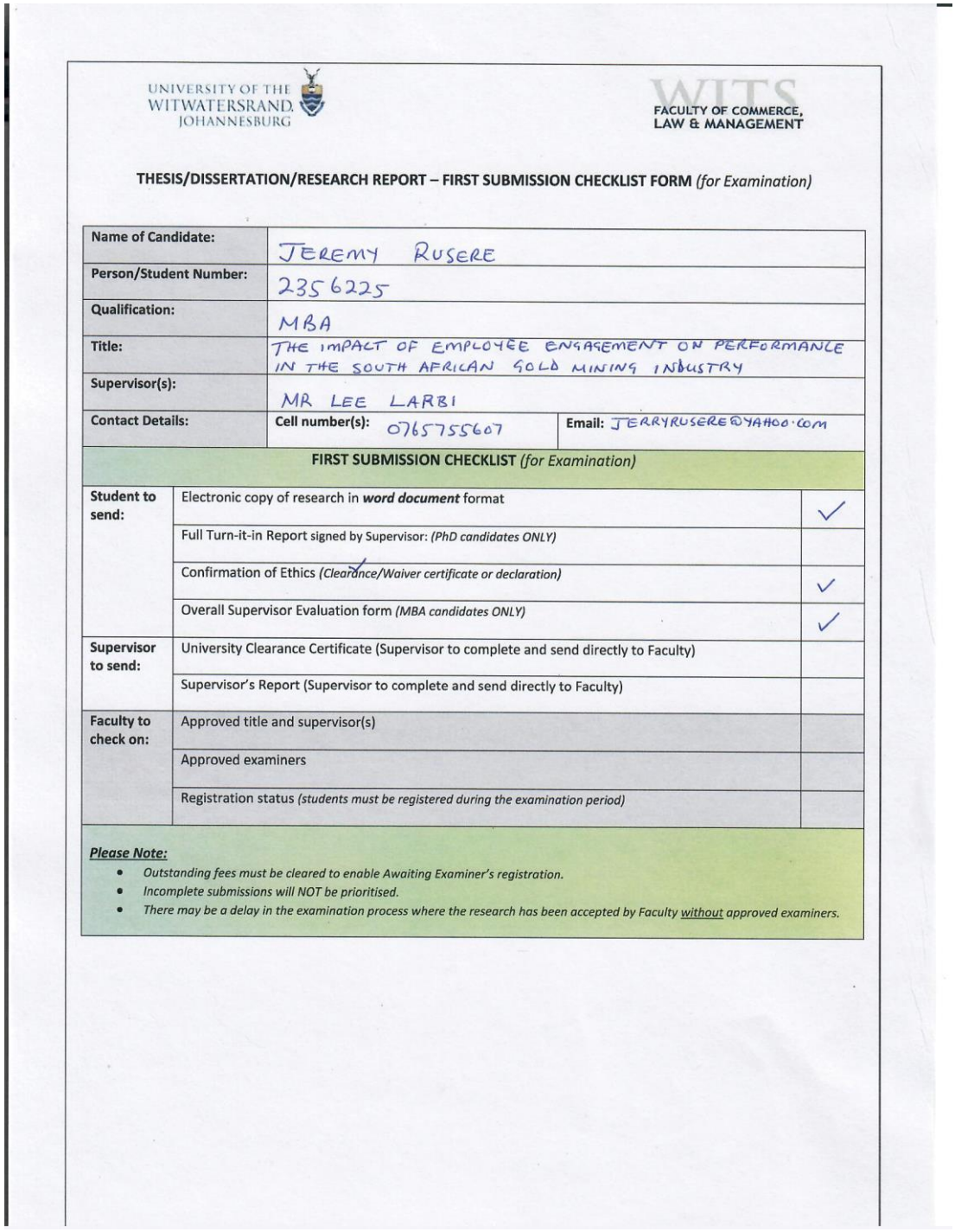
Scatter plot – Engagement and performance



Scatter plot - Cook's distance



Appendix 9: Submission checklist and other forms



UNIVERSITY OF THE WITWATERSRAND, JOHANNESBURG

WITS FACULTY OF COMMERCE, LAW & MANAGEMENT

THESIS/DISSERTATION/RESEARCH REPORT – FIRST SUBMISSION CHECKLIST FORM *(for Examination)*

Name of Candidate:	JEREMY RUSERE	
Person/Student Number:	2356225	
Qualification:	MBA	
Title:	THE IMPACT OF EMPLOYEE ENGAGEMENT ON PERFORMANCE IN THE SOUTH AFRICAN GOLD MINING INDUSTRY	
Supervisor(s):	MR LEE LARBI	
Contact Details:	**Cell number(s):** 0765755607	**Email:** JERRYRUSERE@YAHOO.COM

FIRST SUBMISSION CHECKLIST *(for Examination)*

Student to send:	Electronic copy of research in ***word document*** format	✓
	Full Turn-it-in Report signed by Supervisor: *(PhD candidates ONLY)*	
	Confirmation of Ethics *(Clearance/Waiver certificate or declaration)*	✓
	Overall Supervisor Evaluation form *(MBA candidates ONLY)*	✓
Supervisor to send:	University Clearance Certificate (Supervisor to complete and send directly to Faculty)	
	Supervisor's Report (Supervisor to complete and send directly to Faculty)	
Faculty to check on:	Approved title and supervisor(s)	
	Approved examiners	
	Registration status *(students must be registered during the examination period)*	

Please Note:

- *Outstanding fees must be cleared to enable Awaiting Examiner's registration.*
- *Incomplete submissions will NOT be prioritised.*
- *There may be a delay in the examination process where the research has been accepted by Faculty without approved examiners.*

MBA candidates only

Overall Supervisor Evaluation

Name of Supervisor: MR LEE LARBI

Name of Student: JEREMY RUSERE

Student Number: 2356225

Topic of Research / Project Report: THE IMPACT OF EMPLOYEE ENGAGEMENT ON PERFORMANCE IN THE SOUTH AFRICAN GOLD MINING INDUSTRY

The aim of this questionnaire is to evaluate the overall supervision you received. It would be appreciated if your comments could reflect your honest opinion as improvements can only be undertaken as a result of the questionnaire. **Please note that this form will be treated confidentially and no details will be given to the Supervisor.**

1. Was your Supervisor readily available to help you at any time? YES, HE GAVE ME TIME SLOTS TO CHOOSE FROM WHENEVER I NEEDED HELP
2. Approximately how many times during the course of the year did you meet with your Supervisor? ON TEAMS WE MET ONCE, THE REST WAS ON WHATSAPP
3. Approximately how many times did you contact your Supervisor during the year? MORE THAN 10 TIMES
4. Approximately how many times did your Supervisor contact you during the year? MORE THAN 10 TIMES
5. Did your Supervisor keep you informed of how to contact him/her at all times? YES, HE NEVER CHANGED HIS CONTACT DETAILS
6. Did you keep your Supervisor up to date with your contact details? YES, I NEVER CHANGED MY CONTACT DETAILS
7. Do you feel that the supervision you received was adequate for your needs? YES
8. Would you recommend your Supervisor to other students in next year's class of students? MR LEE LARBI PROVIDED AQUATE SUPPORT SO I WOULD RECOMMEND OTHER STUDENTS TO WORK WITH HIM

This form is to be handed in to the Faculty Office on completion of your Research / Project Report.

Signed: JR Dated: 22/3/2022

Handed to:

2022 REGISTRATION DECLARATION

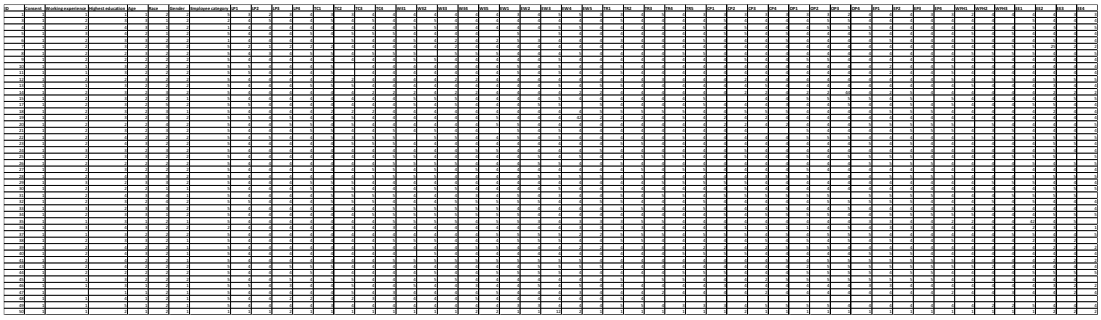
(PLEASE READ BEFORE SIGNING)

1. I must
   a. Perform such work as may be assigned to me by members of the staff.
   b. Conform to the University's rules, regulations, policies, procedures and standing orders ("the Rules") as approved and amended from time to time by the Council of the University.
   c. In accordance with the Rules notify the Faculty Registrar, in writing through the Faculty Office and before the specified deadlines, of my intention to cancel my registration or any part of my registration with the University, failing which I admit liability for all fees or any part thereof which have or may become due in terms of the Rules.
2. I hereby acknowledge that:
   a. I understand the provisions of the limitation of liability in the application form and that I am bound by all provisions in the application form;
   b. the information furnished by me on this form is accurate and complete;
   c. no change in my curriculum may be made without the consent of the Senate;
   d. in accordance with the Rules I must immediately notify the Faculty Registrar through the Faculty Office of any change whatsoever of my contact details including my address/es. My term residential address/es serve as my *domicillium citandi et executandi*;
   e. I have received or been referred to the University's website as well as the office of the Faculty Registrar where the Rules including the General Rules for Student Conduct are available and acknowledge further that I must acquaint myself with them and am bound by the contents thereof.
   Use the following link to access the CLM Rules and Syllabuses book:
   https://www.wits.ac.za/students/academic-matters/rules-and-syllabuses/
3. I further acknowledge that:
   a. I am aware that the University follows a particular procedure for determining whether a student is qualified to present himself/herself for an examination/assessment.
   b. I undertake to acquaint myself with the procedure and acknowledge that I am bound thereby.

COURSE **CODES** REGISTERING FOR	BUSA7417A	
SCHOOL APPROVAL: **NAME** AND **SIGNATURE**		
STUDENT'S NAME	JEREMY RUSERE	
STUDENT/PERSON NUMBER	2356225	
CONTACT NUMBERS	0765755607	
STUDENT'S SIGNATURE		
DATE:	12/04/2022	
FACULTY OFFICER 'S SIGNATURE		
DATE:		

Registration is approved subject to compliance with the Rules and Regulations of the University

Appendix 10: Data set – Pilot Study



Appendix 11: Complete data set used for analysis