Gordon Institute of Business Science
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Key drivers of employee engagement in the large platinum mines in South Africa.

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ABSTRACT

The growing importance of managing employee relations and productivity in the platinum mining industry - one of South Africa's most significant employers - has made investigating employee engagement imperative, particularly in light of the 2014 platinum strike, the longest and most expensive in the country's history. As employee engagement is viewed as crucial for business success, this study aimed to ascertain the current levels of employee engagement in the large South African platinum mines, what the key drivers of engagement are, and whether these drivers differ between management and employees.

This was a cross-sectional study where a questionnaire was utilised. Data was collected from the two largest platinum companies with operations situated in North West province of South Africa. The questionnaire was based on the literature review, particularly the theoretical employee engagement model of Rana et al., (2014), to determine the drivers of engagement and to measure the degree of employee engagement. The study was based on 301 responses which equated to 75% response rate.

The study found that the majority of the respondents were engaged at work. Job design and characteristics, supervision, relationship with co-workers, workplace environment and human resource development (HRD) practices were confirmed as being the key drivers of employee engagement on the platinum mines. The study also revealed that drivers of engagement differ between the levels of employees. Operators and middle managers were found to share a similar view of drivers of engagement compared to supervisors and junior management. Female mineworkers were found to be less engaged than their male counterparts. These findings may benefit companies to better their understanding of employee engagement and consequently strengthening their employee engagement strategies.

Keywords:

Employee engagement, supervision, workplace environment, job design and characteristics, human resource development practices

DECLARATION

I declare that this research project is my own work. It is submitted in partial fulfilment of the requirements for the degree of Master of Business Administration at the Gordon Institute of Business Science, University of Pretoria. It has not been submitted before for any degree or examination in any other University. I further declare that I have obtained the necessary authorisation and consent to carry out this research.

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Tseko Hlapho

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1.1 Introduction

The South African platinum mining sector in 2014 experienced the longest and most costly industrial action in the history of the country. This strike lasted for five months ending in June 2014 (Bohlmann, Dixon, Rimmer, & Van Heerden, 2014). The mines mainly affected by this industrial action were Anglo-American Platinum Limited (Amplats), Impala Platinum Holding Limited (Implats) and Lonmin Plc (Lonmin). These mines rank among the largest platinum producers both in South Africa and globally. It is estimated that this strike affected half of the world's platinum production in which the producers have lost ZAR23 billion in revenue and employees have lost ZAR10.7 billion in wages (Bohlmann et al., 2014).

The mining industry has been the cornerstone of the South African economy for many years. The platinum mining industry is a major employer in South Africa, both directly and indirectly, impacting on socio-economic mobility of communities and is also a major contributor to the economy (Chamber of Mines, 2015). This industry has experienced difficulties in most recent years, particularly marked by the economic downturn, the depressed platinum market and increased labour unrest and violence.

It is argued that workers exposed to uncongenial workplace interactions such as labour unrest, whether directly as a target or indirectly as a witness, are likely to be disengaged at work (Kisamore, Jawahar, Liguori, Stone, & Mharapara, 2010). Dash (2013) suggested that employee engagement positively influences the productivity of an employee. Productive employees are committed and loyal to the organisation and their outputs are highly satisfying, for both the individuals themselves and the company that they work for (Dash, 2013).

The Gallup (2013) study indicated that 91% of South African employees are disengaged and of those, 45% are actively disengaged. Given the exposure of employees in Rustenburg platinum mines to prolonged and recurring violent strike action, it is crucial to determine the key drivers of engagement amongst these employees. Understanding employee engagement has become important for the productivity of any organisation. It is believed that employees who are engaged would go the "extra mile", beyond the basic job responsibilities and display actions that drive the business (Ross & Vasantha, 2014).

Employee engagement is critical for sustainable success of the business in contemporary competitive markets and it has a potential to positively influence the productivity, loyalty and retention of employees (Muthuveloo, Basbous, Ping, & Long, 2013). Furthermore, employee engagement is advanced as a key link to company reputation and overall stakeholder value (Swarnalatha & Prasanna, 2013).

The recent violent strike action and loss of lives experienced at platinum mines in 2012 and during the 2014 platinum strike have adversely impacted the employees and the companies themselves (Bohlmann et al., 2014). These labour events have negatively impacted the share price and profitability levels of these companies, job security of employees and the economy (Financial Times, 2014). Prior to the 2014 platinum strike, National Treasury and International Monetary Fund (IMF) forecasted the real GDP growth to be 2.7% (National Treasury, 2014). Subsequent to the strike, IMF revised down this forecast to 1.4% (International Monetary Fund, 2014) . In their study which analysed the economy-wide impact of 2014 platinum strike, Bohlmann et al., (2014) asserted that the real GDP growth declined by 0.7% as a result of this strike alone.

Considering the high number of work stoppages in the last few years, it is important to comprehend the levels of employee engagement and what drives this engagement or disengagement in this very important industry, hence this study.

1.2 Research problem

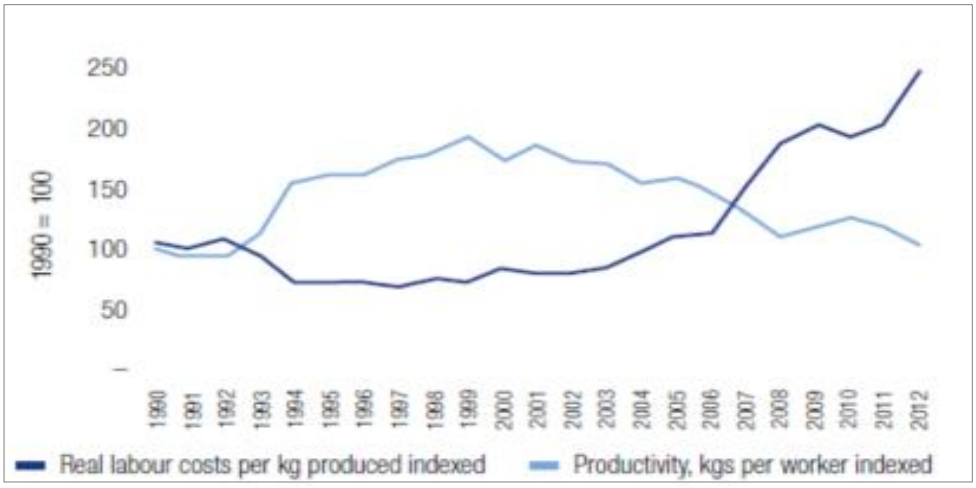
Employees passionately committed to the organisation, not because they are incentivised to be s, but rather because they choose to be committed, provide the organisation with a competitive advantage (Shuck, Rocco, & Albornoz, 2011).

The platinum producers in South Africa continue to be under both internal and external pressure to perform financially and sustainably, creating challenges for the sustainability of the industry. These challenges include difficult industrial relations, compounded by challenges associated with tough market conditions and a demanding societal context (Lane, Guzek, & van Antwerpen, 2015). It is opined that disengaged workers have a negative impact on their company's performance through higher absenteeism, lower productivity and higher turnover and those that are exposed to hostile work interactions, are likely to withdraw

from the workplace (Kisamore et al., 2010; Muthuveloo et al., 2013).

It is significant that productivity in the platinum mining industry per worker has reduced significantly during the past decade as shown in Figure 1 (Baxter, 2014). The levels of productivity have shown a sharp decline following the prolonged strikes. This indication appear to support the assertion of Kisamore et al., 2010 that employees who are exposed to hostile workplace interactions such as labour unrest, are prone to be disengaged at work, and thus affect overall productivity.

Figure 1: South African platinum mining labour productivity (kilograms produced per employee) and real labour costs per kilograms of PGM from 1990 - 2012



Source: Baxter (2014)

Figure 1 shows that productivity per employee in platinum mining has declined by 46% from 2.37kg of PGM (platinum group metal) to 1.29kg during the period of 1999 to 2012. During the same years, real labour costs per kilogram of PGMs produced increased by over 233% from ZAR40,618/kg to ZAR135,290/kg (Baxter, 2014).

Mr. Mark Cutifani, Chief Executive of Anglo American, raised concerns about the metal commodity industry in South Africa in his keynote address, “Rebuilding Trust”. He made an observation that it is critical for mining companies, investors and all other stakeholders to find a new and sustainable approach in dealing with these concerns. He termed the period 2004 to 2014 as the “lost” decade where JSE listed companies experienced a 30% destruction in value. He attributed this, among others, to: commodity pricing, cost pressures brought about by cost of labour, cost of electricity, cost of transport and an unproductive labour force (Johannesburg Mining Indaba, 8 October 2014, South Africa).

These views corresponded with the findings of Cawood (2011) study on the South African mineral sector, titled “Threads to the South African mineral sector, an independent view on the investment environment for mining”. He argued that the future of the South African mining industry, along with its significant contribution to the economy, is under threat if issues such as labour inefficiency, HIV-AIDS prevalence, quality of education, insufficient spending on research and development and nationalization are not addressed as a matter of urgency (Cawood, 2011). Muthuveloo et al., (2013) also proposed a direct relationship between employee disengagement and lower productivity.

In addition to the productivity challenges, the enduring hostile employer-employee relationship has culminated in protracted industrial actions. The years 2012 to 2014 were characterised by an unprecedented number of violent strikes in this industry (Department of Labour, 2014). The rivalry between two major trade unions, namely, the National Union of Mineworkers (NUM) and Association of Mineworkers and Construction Union (AMCU), was widely blamed for the recent strike actions.

Line managers and supervisors are regarded as pivotal in the engagement of employees. It is suggested that the manner in which they relate to and interact with employees is crucial in employee engagement (Lewis, Donaldson-Feilder, & Tharani, 2012). Lewis et al., (2012) posited that whilst supervisors positively or negatively influence the level of employee engagement in the organisation, it is equally important for them to be engaged at work as well (Lewis et al., 2012). Executives and senior management rely heavily on line management to communicate and implement the strategic decisions. If line managers responsible for operationalising strategy are not engaged, it could have a significant impact on engagement of employees and ultimately the organisational performance (Towers Watson, 2012).

This study sought to establish the drivers and the levels of engagement of line management and if what drives them to be engaged differs with what drives their subordinates to be engaged.

Platinum mines experiencing low levels of employee engagement may become exposed, not only to the high rates of absenteeism and turnover, but also lower levels of productivity (Towers Watson, 2012). The Towers Watson (2012) study further found that nearly two-thirds (65%) of more than 32,000 full time

employees across different industries that participated in the study were not highly engaged. The Gallup (2013) study made similar findings that only 13% of employees globally are engaged at work (Gallup, 2013). The study further found that an overwhelming 90% of employees in the emerging-market countries were disengaged and that labour unrest was one of the major contributors of disengaged workers in the construction and mining sector (Gallup, 2013).

The Gallup organisation had surveyed more than 25 million employees in 189 different countries since 1990s and their 2013 study indicated that South Africa has one of the highest rates of actively disengaged employees, the construction and mining sector has 89% disengaged workers with the main contributor being violent and destabilizing labour unrest (Gallup, 2013).

The platinum industry is the largest part of the mining sector in South Africa based on its contribution to the GDP, employment and overall contribution to the economy. This industry contributed 4.1% to the GDP in 2012, of which 1.9% was direct and 2.2% was indirect (including induced effects) (Statistics South Africa, 2013)., It also accounted for 9% of merchandised exports (including the value of platinum sold to the catalyst converters industry) and assisted in creating approximately 440,000 jobs in the economy, including the direct platinum mining employment of more than 197,000 workers (Statistics South Africa, 2013).

The platinum mining industry is critical for the future sustainability of South African economy. Employee engagement has a positive link to several bottom lines of a company's outcome such as profits, productivity, business growth, employee retention, job performance and lower absenteeism (Kataria, Rastogi, & Garg, 2013). It is therefore essential to determine the levels and the drivers of employee engagement in the platinum mining industry in the interest of the South African economy.

1.3 Research purpose

It is generally concluded that there is a positive link between employee engagement and the success of the organisation (Ludwig & Frazier, 2012; Swarnalatha & Prasanna, 2013; Takawira, Coetzee, & Schreuder, 2014). The purpose of this research study was to determine the key drivers of employee engagement in the platinum mines of South Africa. The fundamental premise is that employees are disengaged following the prolonged strike action, hence the

motivation for this research to unearth the levels and key drivers of employee engagement in this industry.

The knowledge and understanding gained from this research can assist the platinum mining industry and its employees, to improve levels of engagement, and consequently the mines' prosperity. This research provides insights into the current status and may present other stakeholders such as the government, through the Department of Mineral Resources, shareholders, and surrounding communities with greater understanding of the issues at hand.

1.4 Research objectives

In view of the research problem, the general aim of this study is to determine the employee engagement in the platinum mines. The objectives of this research are to determine:

- The key drivers of employee engagement in the platinum mines.
- The current levels of employee engagement in the platinum mines.
- Whether the engagement drivers differ significantly between employees depending on demographic profile (jobs levels of employees, gender, age group, area of work in the mining company).

It is the assertion of this study that employees are disengaged in the platinum mining industry and that line managers are equally disengaged. Strong leadership is required in the industry as it is considered to be notoriously difficult working environment (Mclaggan, Bezuidenhout, & Botha, 2013). It is therefore important to establish what drives line management to be engaged. The South African Mining Charter requires mining companies to ensure that 10% of their workforce is female (Department of Mineral Resources, 2015). Considering the harsh mining working conditions, it is also opined that engagement between male and female workers may differ.

The findings of this research could assist in understanding the key drivers of employee engagement and their possible impact on organisational issues such as low productivity and workplace withdrawal (strikes), which are often experienced in this industry. Understanding the key drivers of engagement of the mineworkers, and determining the levels of engagement might assist in improving and enhancing employee relations management, with regards the socio-economic and political factors in the platinum mining industry.

1.5 Scope and delimitation of the research

The scope of the research was limited to investigating the levels of engagement and determining the key drivers of employee engagement in the platinum mines in the North West province of South Africa. In order to effectively carry out this study, the two largest platinum producing companies in the world, Anglo American Platinum Limited (Amplats) and Impala Platinum Limited (Implats) were chosen. One large mining company amongst the largest platinum producers declined participation in the study as a result of the awaited Marikana investigation report to be released by President Jacob Zuma during the period of this study.

Platinum mines are mostly located in North West province of South Africa. Data was collected from employees based on the mines located in Rustenburg, North West. The rationale for conducting the research in this area was based on the geographical location of platinum mining as well as the fact that most of the mining houses are located there.

1.6 Structure of the research report

The research report is structured in seven chapters. Chapter One introduces the research problem and presents the need for the study in both the business and academic context. Chapter Two presents the literature reviewed and provides an insight into the key constructs and their relationships. These key constructs and their hypothetical relationships serve as the base for the discussion in the following chapter. In Chapter Three, the research questions derived from the existing theories and empirical studies are presented.

Chapter Four presents the research methodology and the design used, as well as the population and sampling methods employed. The details of the process followed in the collection of data and the statistical techniques used to analyse data are provided in this chapter. The research outcomes along with the statistical test derived from the research methodology applied are presented in Chapter Five.

Chapter Six discusses the research results in relation to the research questions and objectives. Chapter Seven highlights the main findings of the research, the limitations thereof, and further offer recommendations for future research and managerial implications.

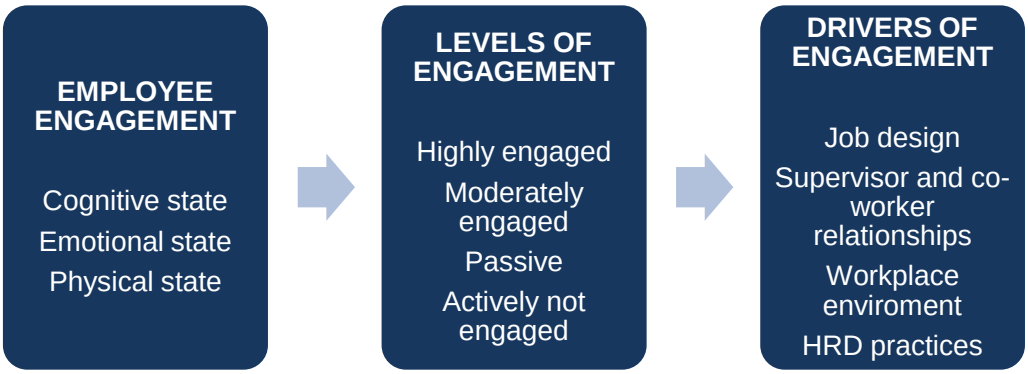
CHAPTER 2: LITERATURE REVIEW

2.1 Introduction

The literature highly advanced employee engagement as a key factor in the success of the organisation (Swarnalatha & Prasanna, 2013). This might be especially true for the South African mining industry which is still described as being labour intensive (Bezuidenhout & Schultz, 2013). Sahoo and Mishra (2012) argued that the successful employee engagement strategy assists the organisation in creating a committed community at the workplace and not just a committed workforce. In this chapter, the literature is reviewed and analysed in order to understand the concept of employee engagement and levels of engagement. The review specifically explores what many scholars identified as key drivers or determinants of employee engagement.

This chapter commences with the overview and the definition of the employee engagement followed by a presentation of engagement theory, specifically the levels of engagement and key drivers of employee engagement as it relates to the research topic. This chapter concludes by summarising the key constructs highlighting the need for this study and serves as the base for the following chapter. The structure of the literature reviewed is depicted in the Figure 2 below.

Figure 2: Structure of the literature review



Source: Adapted from Rana et al., (2014) and Aon Hewitt (2013).

2.2 Employee engagement overview

Employee engagement is identified by many scholars as “the most important concept in doing business in the modern day and there are many variables which

are considered to be the drivers or determinants of employee engagement" (Ludwig & Frazier, 2012; Rana, Ardichvili, & Tkachenko, 2014). Kahn (1990) was one of the first academics to define the term personal engagement as the "harnessing of organisation members' selves to their work roles and in an engagement, workers apply and express themselves physically, cognitively, and emotionally during the performance of their roles" (Kahn, 1990). Engagement means to be psychologically, emotionally and physically present when occupying and performing organisational roles (Saks & Gruman, 2014).

The evolution of employee engagement started a few decades ago and many researches have defined this concept from either an employee's (individual) or organisational perspective and some from both perspectives, depending on the objectives of their respective studies. Table 1, below, adapted from Welch (2011), indicates the key focus areas and their perspectives (Welch, 2011):

Table 1: The evolution of employee engagement

Author(s), date	Key focus areas and perspectives	Type of study
Kahn (1990)	• Khan (1990) conceptualised the engagement concept and defined it as harnessing of organisational members' selves to their work roles; in engagement, individuals apply and express themselves emotionally, cognitively and physically. • Study focused on employee perspective and identified safety, availability and meaningfulness as psychological conditions which are necessary for employee engagement.	Conceptual
Maslach et al., (2001)	• Characteristics of engagement included energy, involvement and efficacy. • Study focused on job burnout and job engagement concepts. • Employee perspective (EP): Study identified six areas of work-life which could lead to burnout and disengagement if there is a mismatch between employee and the job: control, workload, reward, fairness, community and values.	Conceptual
Harter et al., (2002)	• EP: Person's involvement and fulfilment with their work. • Organisational perspective (OP): Meta-analysis done on 36 companies identified positive link between engaged employee and business outcomes such as productivity, profitability, customer satisfaction, employee turnover and less accidents.	Empirical
Schaufeli and Bekker (2004)	• Focused on work/job engagement and explained it as a positive and satisfying work-related psychological state and also characterised by commitment, vigour and immersion. • EP: Asserted that job resource availability predict employee engagement, whilst lack of job resources leads to burnout.	Conceptual

Author(s), date	Key focus areas and perspectives	Type of study
May et al., (2004)	• Empirically tested Khan (1990) concept and confirmed that mental conditions such as meaningfulness, safety and availability are associated with engagement. • EP: Study found that job enrichment, work role fit, supervisor and co-worker relationships, self-consciousness, resource and outside activities leads to those three psychological conditions and therefore engagement. • OP: Study identified positive relationship between engaged employees and positive organisational outcomes.	Empirical
Saks (2006)	• Expanded Kahn (1990) definition by developing constructs to include job engagement and organisational engagement. Study found there is a meaningful difference between job and organisational engagement. • EP: 102 employees from various jobs and organisations were sampled and proposed that job characteristics, perceived supervisor support, rewards and recognition leads to employee engagement. • OP: Perceived organisational support predicts both job and organisational engagement.	Empirical
Truss et al., (2006)	• Broadly used Kahn's (1990) study, and described engaged employees as having passion for work. • EP: Motivated employees have passion for their work and therefore are highly engaged. • OP: Nationwide survey of 2,000 employees in UK was conducted and identified factors that raise the levels of employee motivation and therefore levels of employee engagement.	Empirical
Macey and Schneider (2008)	• Conceptualised engagement as the involvement of self (trait, state and behavioural) • EP: Related the constructs such as self-esteem, self-identity and self-efficacy of engagement to the individual self. • OP: Employee engagement offers organisations with competitive advantage and organisations that recognises these three aspects of individual self (trait, state and behaviour) are likely to achieve high levels of engagement.	Conceptual
Schaufeli and Bekker (2010)	• EP: Described work engagement as mental state that accompanies the emotional investment of personal energy. • OP: Work engagement is linked as an arbitrating factor between job demand and resources model of work motivation and engagement.	Conceptual
Albrecht (2010)	• EP: Engaged employees are genuinely willing to contribute to the organisational success. • OP: Employee engagement is positively associated with business success.	Conceptual

The summary provided in Table 1 highlights the importance of engagement mostly from an employee perspective. This summary also shows that engaged employees contribute positively to organisational performance. Organisational engagement is also important as employees' lives are not only affected by their individual roles but also by tasks orientated by organisational goals (Fearon, McLaughlin, & Morris, 2013).

More recently, Fearon et al., (2013) identified three levels of organisational interactions towards engagement, which are: a) individual, b) group and c) organisational levels. Individual engagement is associated with self-efficacy, meaning that employees (individuals) will be engaged if they feel their efforts are being valued. Group engagement is associated with collective efficacy, which explains that group members will be engaged if there is shared understanding of common beliefs in cognitive action, emotional attachment and physical engagement. Organisational engagement in turn is associated with organisational efficacy, suggesting that organisational interactions such as social communication initiatives, employee personal development programmes and teambuilding initiatives can assist in promoting effective engagement in the organisation (Fearon et al., 2013). Both individual and group engagement levels view engagement from the employee's perspective. This study also reviewed engagement from the employee perspective.

Employee engagement has also been recognised as employees' ability and willingness to contribute to the organisational success and the extent to which employees put discretionary effort into their work (Ludwig & Frazier, 2012). Kataria et al., (2013) further suggested employee engagement is an enhanced state of thinking and acting that brings both personal fulfilment and positive contributions to the organisation. Engaged employees are satisfied and committed to the organisation.

Schuck et al., (2011) further defined employee engagement from an individual perspective as an employees' emotional, cognitive and behavioural state directed towards the desired organisational outcomes. Rothmann and Baumann (2014) added to this definition by describing emotional state as an individual being highly involved in his/her work while experiencing self-importance and a sense of worth, whilst cognitive state refers to an individual being completely focused and contently immersed in his/her work. The physical state refers to having high levels of energy and being willing to go the extra mile for the benefit of the organisation (Rothmann & Baumann, 2014). Engaged employees exhibit a profound, emotional connection towards their workplace and show attentiveness and mental absorption in their work (Saks, 2006).

Anitha (2014) opined that the engaged employee is aware of his/her role and responsibilities in achieving the organisational objectives and motivates his fellow workers aboard, for the success of the organisation. Anitha (2014) further

suggested that the engaged employee goes beyond the call of duty to execute his/her roles and responsibilities with distinction. Engaged employees display commitment and dedication towards their jobs and, they invest in their work roles cognitively, behaviourally and emotionally. Employee engagement clearly matters especially considering the low levels of engagement among employees in different countries (Gallup, 2013; Rana et al., 2014).

In South Africa, the majority of the organisations have focused their efforts merely on replacing exiting staff instead of developing holistic engagement strategies that could lead to staff retention and limited turnover (Aon Hewitt, 2012). It is important for organisations to develop and implement strategies to keep employees engaged at work as it is noted that employee engagement has a positive link to the company's overall success.

2.3 Levels of employee engagement

The Gallup organisation, one of the globally recognised research-based companies specialising in performance management, classified employees in three different types:

1. Engaged employees who are those that perform their work with passion and who feel a deep connection to their company. They are innovative and drive the organisation forward.
2. Employees who are not engaged, are those that are essentially "checked out" and are sleepwalking through their workday. They are regularly present at wok but lack energy and passion for their work.
3. Employees who are actively disengaged are those that are unhappy at work and who act out their unhappiness. These employees intentionally undermine the accomplishment of their engaged co-worker on a regular basis (Gallup, 2013).

Gallup (2013) levels of employee engagement were also affirmed by Towers Watson's (2012) study of employee engagement. They classified employee engagement into four categories which are similar to those of Gallup (2013).

The Towers Watson (2012) study employed four categories of engagement:

1. Highly engaged employees are those who are emotionally connected to the organisation, believe in the organisational goals and objectives, and are willing to give an extra effort for the greater benefit of the organisation.

2. Unsupported employees are those who are engaged but lack energy or enablement.
3. Detached employees are those who have energy but are not necessarily engaged.
4. Disengaged employees are those who are emotionally disconnected to the organisational goals and objectives and are unhappy and engage in negative behaviours at work (Towers Watson, 2012)

Aon Hewitt (2011) described employee engagement as an emotional and a behavioural reaction to a particular work environment. As an emotional state, engagement includes themes such as passion, focus and motivation for the task. As a behavioural reaction, engagement goes beyond feelings and attitudes. An engaged employee can provide significantly more discretionary effort (doing whatever it takes to complete the tasks) ultimately having a positive impact on business results (Aon Hewitt, 2011; Aon Hewitt, 2013). The levels of engagement and the corresponding descriptions described by Aon Hewitt (2013) are depicted in Table 2.

Table 2: Levels of employee engagement

Engagement Category	Description
Highly engaged	Employees who strongly believe in their company's vision, goals and objectives and are willing to put in extra effort to assist their company to achieve those goals and objectives. They actively pursue opportunities to improve operations and the general work environment.
Moderately engaged	Employees who are emotionally and cognitively connected to their work and may engage in productive behaviours, but are not completely committed to the organisation.
Passive	Employees who are simply present at work and go through the motions without being interested In their work. While not as problematic as the actively disengaged, passive employees do not participate in developing a positive environment for innovation and progress.
Actively disengaged	Employees who are emotionally and psychologically disconnected from their work. They continuously express their dissatisfaction and go out of their way to negatively influence engaged employees. Their negative behaviour can result in poor performance.

Source: Aon Hewitt (2013)

The Blessing White organisation, in their 2013 study of employee engagement, further classified employee engagement into five levels, namely, engaged;

almost engaged; honeymooners and hamsters; crash and burners; and disengaged. High (full) engagement entails an alignment of maximum job satisfaction (I enjoy my work and perform it well) with maximum job contribution (I assist in achieving the goals and objectives of my company) (Blessing White, 2013). Attridge (2009) concurred with this, stating that high levels of work engagement is characterised by workers who are highly committed and involved in their work and who perform their work with passion. There are important identifiers that were reported for indicating work engagement including, meaningful work, manageable workload and job security (Attridge, 2009). Employees who consider their workload to be manageable, who are hopeful about the future of their jobs, and have positive feelings towards their work, are likely to be engaged at work (Attridge, 2009).

The 'almost' engaged workers are reasonably productive and satisfied with their jobs but they are more likely to be lured away. The 'honeymooners and hamster' are highly satisfied with their jobs and the compensation they receive but contribute less to the success of the organisation. The 'crash and burners' are highly productive and contribute more to the success of the organisation but they are unhappy with their personal success and are more likely to be vocal about their negative views which may influence other employees. Lastly, the 'disengaged' employees are highly disconnected from the organisational priorities and have contagious negativity about the company's approach (Blessing White, 2013).

According to Blessing White (2013) study, high level employees (managers) in the organisation are more engaged than lower level employees (operators). The closer employees get to the top of the organisation, the more engaged they tend to be (Blessing White, 2013). It was also found that the level of engagement differs between male and female workers (Blessing White, 2013).

Aon Hewitt (2013) study found that engaged employees say positive things about their company, are loyal to their company and strive for it by going the "extra mile" (Aon Hewitt, 2013). Engaged employees are thoroughly involved, enthusiastic about their job and behave in a positive manner that furthers the organisation's interest. On the contrary, actively disengaged employees portray negative attitudes towards the organisation which can be detrimental to the organisational well-being (Aon Hewitt, 2013; Avey, Wernsing, & Luthans, 2008).

In summary, engaged employees contribute positively towards organisational performance and success, and actively disengaged employees have the ability to negatively influence other employees which may lead to poor organisational performance (Aon Hewitt, 2013; Gallup, 2013). The Gallup (2013) study concluded that labour unrest is one of the leading manifestations of widespread disengagement. Muthuveloo et al., (2013) asserted that employees who perform job types that are physical in nature such as mining, construction and manufacturing are highly likely to be unhappy and resentful at work and, consequently becoming actively disengaged (Gallup, 2013; Muthuveloo et al., 2013).

It is important for organisations, especially platinum mining companies, to understand the levels of employee engagement and the key drivers of employee engagement, especially in the wake of the 2014 strike – the longest in South Africa's history. This understanding could assist in dealing with pertinent issues that may affect the mines' future sustainability and prosperity.

This research study adapted and employed the levels of engagement as described by Aon Hewitt (2013). Section B of the questionnaire (Appendix A) was aimed specifically at determining the levels of engagement on the platinum mines.

2.4 Drivers of employee engagement

Sahoo and Mishra (2012) identified career development, communication, empowerment, fair treatment and equal opportunities, co-operation, constructive performance feedback, salary and benefits, image, health and safety, and overall employee wellbeing as being key drivers of employee engagement. Employees form an emotional connection with the organisation when they are effectively and positively engaged with it (Sahoo & Mishra, 2012). Subrahmanin (2014) identified the following similar drivers of employee engagement, namely: performance management, organisational practices, collaborative teams, job and career satisfaction, and organisational citizenship behaviour (Subrahmanian, 2014).

Similarly, Cardus (2013) mentioned the following five drivers as key to increasing employee engagement in the workplace:

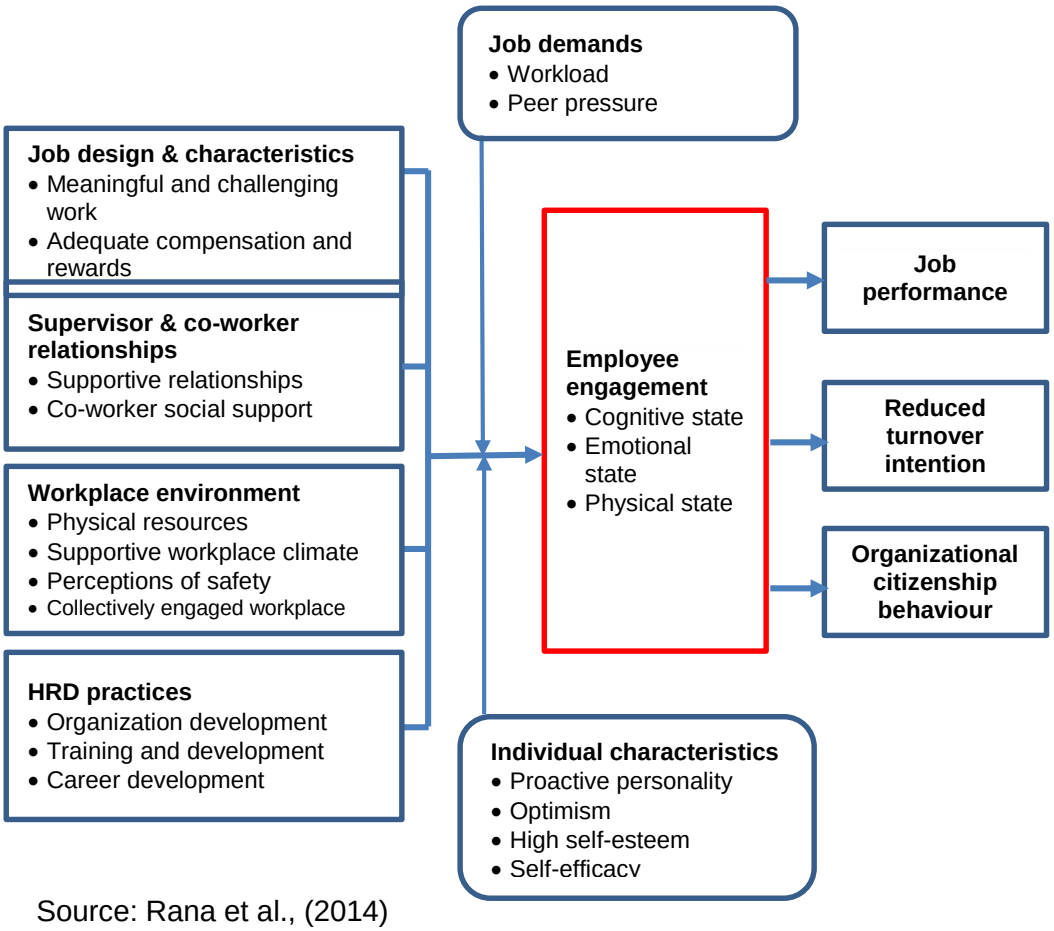
a) Competent managers who are capable of judging the effectiveness of

employees and offering them support.

b) Overarching goals that are established within the proper context.
c) Employee empowerment to objectively measure the progress or regression of their work.
d) The necessary resources for employees to perform their job well.
e) Sufficient autonomy for employees to do their best work (Cardus, 2013).

Rana et al. (2014) proposed job design and characteristics, supervisor and co-worker relationships, workplace environment and Human Resource Development (HRD) practices as being key drivers of employee engagement, which are similar to those suggested by Sahoo and Mishra (2012), Subrahmanian (2014) and Cardus (2013). Figure 3 depicts a theoretical model of antecedents and outcomes of employee engagement developed by Rana et al., (2014). This model was adopted to assist in analysing the key drivers of employee engagement. In deciding upon the components to be included in the model, Rana et al. (2014) conducted an extensive literature review and came up with the variables that recognised the positive relationship between employee engagement and organisational outcomes.

Figure 3: A theoretical model of the antecedents and outcomes of employee engagement



Source: Rana et al., (2014)

This model advocated that job design and characteristics, supervisor support, relationship with co-workers, safe and supportive workplace environment, and HRD practices are strongly related to employee engagement. Job demands and individual characteristics are advanced as moderators between these drivers and employee engagement (Rana et al., 2014). The model also declared that employee engagement leads to three major organisational outcomes: job performance, reduced turnover intentions (relationships), and organisational citizenship (Rana et al., 2014).

As such, Rana et al., (2014) theoretical study encompassed the key drivers of employee engagement as mentioned by Sahoo and Mishra (2012), Subrahmanian (2014) and Cardus (2013). In view of its theoretical nature and extensive literature reviewed, the Rana et al., (2014) model was adopted and relied on for this study. The literature reviewed in this section of the chapter is concentrated on the antecedents and moderators of employee engagement in

order to determine the key drivers of employee engagement in the platinum mining industry. The benefits of employee engagement are briefly discussed in this chapter.

2.4.1 Job design and characteristics

Job design and characteristics are described as job related attributes or factors that encompass the nature of the work and its challenges, comparable skills, autonomy, work environment, remuneration, benefits, performance feedback, job security, interpersonal relationships, knowledge learned, and career opportunities (Chen & Chiu, 2009). Most of the platinum mines in South Africa are still described as conventional, implying that underground mining remains labour-intensive and involves handling of heavy machinery and equipment (Kunda, Frantz, & Karachi, 2013). Recently the mineworkers have been vocal about their demands for a decent living wage, especially considering the type of work performed (Murwirapachena & Sibanda, 2014).

Central to the two most documented strikes, the 2012 Marikana strike and the 2014 platinum strike, was a wage demand of ZAR12,500 and better working conditions (Bohlmann et al., 2014). During the 2012 Marikana protest, mineworkers refused to be represented by their then trade union (National Union of Mineworkers) as they felt it lacked autonomy. They instead formed a workers committee to advance their demands (Chinguno, 2013). This action supported the arguments by Chen and Chiu (2009) and Rana et al., (2014) that autonomy and compensation can influence engagement in the workplace.

Workers tend to be more engaged when they perform meaningful and challenging work and are adequately compensated and rewarded (Rana et al., 2014). Employees allowed to participate in decision making processes concerning their jobs, invest more effort in their work and feel less strain (Gagné & Bhave, 2011). A study done by Fairlie (2011) suggested there is a substantial correlation between meaningful work characteristics and employee outcomes and that those characteristics predicted an essential amount of fluctuation in an employee's engagement (Fairlie, 2011). When an employee's job is considered crucial and purposeful, it leads to greater interest and engagement (Anitha, 2014).

One of the key drivers of employee engagement advanced by Gardus (2013) is the autonomous employee who understands that he/she has a choice and takes

full responsibility for choices made. However, employees who feel like they are being micromanaged, display a behaviour of “I just do what I’m told and it is not my fault if anything goes wrong”, with this behaviour leading to disengagement (Cardus, 2013). Mining in South Africa is still autocratic and therefore it is highly likely that employees, especially the operators, junior and middle management, experience the feeling of being micro-managed.

Other job characteristics which are positively linked to high engagement include task variety and on-the-job learning (Shantz, Alfes, Truss, & Soane, 2013). It is argued that task variety and on-the-job training encourages employees to be innovative (Holman et al., 2012). The platinum mining industry needs innovative employees to improve productivity, which could in turn lead to increased profitability.

2.4.2 Supervisor and co-worker relationships

Welch (2011) suggested that employee engagement is a matter of concern amongst managers and supervisors in organisations world-wide. Managers and supervisors acknowledge employee engagement as a critical factor affecting organisational effectiveness, innovation and competitiveness (Welch, 2011). With the mining industry being a notoriously difficult environment in which to achieve positive results, strong leadership is essential (Mclaggan et al., 2013). In their research study conducted at one of the South Africa’s coal mines, Mclaggan et al., (2013) found that employees were positively influenced by supportive managers and supervisors who genuinely cared about their well-being and their personal development.

In the adopted model, this dimension included supportive relationships between supervisor and employee, as well as the co-workers’ social support (Rana et al., 2014). Supervisor support includes coaching employees, assisting them with planning of their work and offering them advice and emotional support, with this behaviour promoting employee engagement in the workplace (Gruman & Saks, 2011). Supportive and trustworthy interpersonal relationships amongst co-workers undoubtedly enhance engagement (Rana et al., 2014).

Anitha (2014) declared factors such as workplace environment, leadership, team spirit, relationship with colleagues, training and development, career progression, compensation, organisational policies and safe and healthy workplaces as being key determinants of employee engagement. The workplace environment, team

spirit and relationship with colleagues were found to have a significant impact on employee engagement when compared with other factors (Anitha, 2014).

Organisations are encouraged to create a harmonious workplace environment that is conducive for employees to build good teams and co-worker relationships, as it is very important for employees to feel safe and supported in order to be completely engaged in their roles and responsibilities (Anitha, 2014). The study done by Xu and Thomas (2011) suggested that the leader or manager's support of the team, positively influences employee engagement. Employees typically react positively to leaders or managers who show genuine support, such as taking a personal interest in the team member's personal development and celebrating the success of the team (Xu & Thomas, 2011).

Managers or supervisors who consistently "walk-the-talk" and act in line with their company's values and ethics are most likely to instil confidence in employees and therefore positively influence employee engagement (Towers Watson, 2012). Managers and supervisors are required to have high degrees of people skills in order to positixvely influence employee engagement, but unfortunately many organisations promote managers for technical acumen rather than their people skills (Towers Watson, 2012).

In their study titled 'Managing employee engagement during the times of change', Aon Hewitt (2013) emphasised the importance of leaders (i.e. supervisors) and co-workers' relationships with employees, especially through the times of change such as during mergers and acquisitions, strategy transformation and restructuring (Aon Hewitt, 2013). Lane et al., (2015) argued that employers in the mining industry have been exposed to significant challenges in socio economic, political and legislative changes in recent years, which may have impacted employee engagement in this industry. Employees going through such change might have a significant need to connect with their organisational leaders as well as with their co-workers (Aon Hewitt, 2013). Aon Hewitt (2013) further suggested that employees tend to be more engaged when they see their colleagues working together, providing reliable support and making personal sacrifices during stressful times.

During the platinum strike which lasted for five months ending in June 2014, most of the management (Paterson band D) staff reported reporting for duty whilst the majority of the unskilled and skilled (Paterson bands A to C) workers were on

strike (AngloAmericanPlatinum, 2014). This was investigated to test if the level of engagement differs between unskilled, skilled workers and management and the results are presented in Chapter Five and Six.

2.4.3 Workplace environment

This dimension of the model includes physical resources, supportive workplace climate, perceived level of safety and collectively engaged workplace (Rana et al., 2014). A meaningful workplace environment that enables employees to focus on their work with harmonious interpersonal relationships is believed to be a key determinant of employee engagement (Anitha, 2014).

Mineworkers are typically exposed to working conditions that are harsh in nature, such as working underground with temperatures above 28 degrees Celsius, working longer hours and at times in unsafe conditions, highly radical unionised environments, and with extreme pressure to perform, and such conditions affect employees' levels of engagement at the workplace (Oldfield & Mostert, 2007). It is therefore important for management in the organisations to create a safe, positive and meaningful working environment (Shuck et al., 2011), in order to achieve high levels of engagement.

The findings of the study by Shuck et al., (2011) highlighted the importance of positive workplace relationships, and the role of the employee's direct supervisor in influencing the organisational culture.

2.4.4 Human resource development (HRD) practices

Human resource development practices refer to activities aimed at improving a company's performance through the development of employees' expertise, knowledge and fulfilment (Sheehan, Garavan, & Carbery, 2013) .Rana et al., (2014) suggested that HRD practices, including organisational development, formal and informal training, performance assessments, talent management programmes, career development opportunities, and other employee development programmes, are important drivers of employee engagement. HRD initiatives such as employee feedback, training and development, employee welfare schemes, and rewards and recognition programmes are also regarded as key drivers of employee engagement (Dash, 2013).

Mining industry is faced by many challenges which some of them include aging staff and constantly changing mining technology (Dickie & Dwyer, 2011). One

way of managing this potential knowledge gap created by retiring employees and changes in mining technology is through training and development of existing staff and new recruits. Dickie and Dwyer (2011) asserted that upskilling of mineworkers through training and development will need to be maintained as the industry continues to implement new technologies.

When employees undergo training and development programmes, their confidence is increased, in turn leading to greater work engagement (Anitha, 2014). Compensation is also considered to be an essential driver of employee engagement, pushing employees to achieve more, and resulting in greater focus on work and personal development (Anitha, 2014).

Training and development of mineworkers is crucial for them to perform their duties efficiently, productively and safely. The mining industry is highly regulated and employees are required to be trained regularly on regulations, standards, and company policies, according to the Government requirements in line with Mine Health and Safety Act of 1996 as amended (MHSA). Section 10 of the MHSA requires managers to provide employees with any information, instruction, training or supervision that is necessary to enable them to perform their work safely and without risk to health (Republic of South Africa, 1996).

2.4.5 Job demands

Mining is a strenuous environment with harsh working conditions (Oldfield & Mostert, 2007). Oldfield and Mostert (2007) identified job pressures and poor working conditions as major factors hindering employees from doing their work well. There is constant pressure on mineworkers to deliver on their safety and production targets (Oldfield & Mostert, 2007).

Job demands refer to organisational aspects such as work overburden (physical) or peer pressure (emotional). Job demands are considered factors that moderate the relationship between employee engagement and its antecedents as described in the model of engagement (Rana et al., 2014).

Nahrgang, Morgeson, and Hofmann (2011) opined that there are two sets of working conditions found in every organisation, including mining, which are job demands and job resources and they both have an impact on engagement and/or burnout. Job demands include unpleasant physical environment, high work pressures and emotionally demanding interaction, whilst job resources include

team support, autonomy and supervisor feedback (Nahrgang, Morgeson, & Hofmann, 2011). Physically challenging and complex jobs such as found in underground mining are likely to lead to burnout and consequently may result in withdrawal from the workplace (Nahrgang et al., 2011). Nahrgang et al., (2011) opined that managers and superiors have the ability to positively influence the outcomes of such jobs in favour of employee engagement rather than burnout.

2.4.6 Individual characteristics

Individual characteristics such as proactivity, optimism, conscientiousness, and self-efficacy, serve as important moderators in the model developed by Rana et al., (2014). In the study by Handa and Gulati (2014), personality was found to be an indicator of employee engagement, especially the personal traits such as extroversion and conscientiousness. These traits were found to be positively associated with employee engagement (Handa & Gulati, 2014). Extroverts are described as individuals who are outgoing, friendly, dynamic, optimistic and joyful, and they typically find it easy to communicate with their co-workers and supervisors. Conscientiousness relates to the individual's ability to be painstakingly thorough and put great effort into their work (Handa & Gulati, 2014).

Although companies cannot change the core personality of an individual, it is advisable that managers make an effort to understand how the employee's attitude, behaviour and personal traits are related, perhaps assisting with achieving a better fit between employee and the job (Handa & Gulati, 2014).

2.5 Benefits of employee engagement

Sahoo and Mishra (2012) proposed that some of the advantages of employee engagement were:

- A sense of loyalty is created in the workplace and employees tend to remain with the company longer,
- Employees have a greater level of trust in the organisation,
- A high energy working environment is created and business growth is boosted,
- Engaged employees are advocates of the company and contribute to bottom line and success of the business, and
- Engaged employees are motivated and perform better.

Engaged employees perform their work well, are unlikely to resign from the organisation and display positive organisational behaviour (Rana et al., 2014). Employee engagement is positively connected to organisational success (Shuck et al., 2011; Subrahmanian, 2014), and engaged employees are hard workers, patriotic and likely to go the "extra mile" for the success of the organisation (Swarnalatha & Prasanna, 2013). High levels of engagement improve the organisational performance and stakeholder value (Swarnalatha & Prasanna, 2013). Gallup (2013) found that employee engagement improves profitability and productivity and significantly reduces employee turnover, absenteeism and safety incidents – all issues that currently challenge the platinum mining industry.

Literature advanced the role and support of the supervisor as being a critical driver of employee engagement (Gruman & Saks, 2011; Rana et al., 2014; Xu & Thomas, 2011). It is suggested that employees who experience positive impressions of their company management and supervisors are unlikely to quit their jobs (Xu & Thomas, 2011). Shuck et al. (2011) also asserted that line supervisors or managers play a significant role in the development of employee engagement-encouraging cultures.

Positive managerial behaviours are likely to create a sense of meaningful work, harmonious working environment, and provide the necessary resources to perform the work (Shuck et al., 2011). Conversely, poor managerial behaviours that cause an unfriendly workplace climate have been shown to result in dissatisfaction and disengagement (Shuck et al., 2011). The platinum mining industry, especially in recent times, has been marred by hostile workplace interactions such as violent strikes and other work stoppages, revealing the importance of the role (or lack thereof) of supervisors and managers.

According to Gallup's 2013 meta-analysis where 263 research studies across 192 organisations in 49 industries and 34 countries were used, there exists a positive relationship between employee engagement and several company performance outcomes, namely: high profitability, productivity, and customer ratings, and lower employee turnovers, safety incidents, absenteeism, defects and theft (Gallup, 2013). A similar study conducted by Towers Watson (2012) where 50 global companies were sampled, evidenced that companies with high levels of engagement enjoy operating margins of approximately 27% as compare to 9.9% of those with low employee enjoyment levels (Towers Watson, 2012).

In summary, employee engagement is identified as the key driver of organisational success and it offers companies a definite and measurable competitive advantage (Gruman & Saks, 2011; Rana et al., 2014; Xu & Thomas, 2011), especially during economically tough times.

2.6 Conclusion

This chapter explored the concept of employee engagement and identified determinants and outcomes thereof, to address the objectives of the study. It is apparent from the literature review that employee engagement is critical for the success of an organisation (Ludwig & Frazier, 2012; Muthuveloo et al., 2013; Subrahmanian, 2014). Engaged employees offer organisations a competitive advantage (Swarnalatha & Prasanna, 2013). The review highlighted the importance of understanding the employee's psychological, emotional, behavioural and physical state in order to better achieve high levels of engagement (Kahn, 1990; Rothmann & Baumann, 2014; Shuck et al., 2011).

Common levels of engagement were identified, informing the study. Highly engaged employees strongly believe in their organisational goals and objectives and are likely to engage in positive activities that contribute towards the success of the organisation, whilst actively disengaged employees are emotionally disconnected with poor attitudes, and engage in negative behaviours that undermine their engaged co-workers' accomplishments (Aon Hewitt, 2013; Gallup, 2013; Towers Watson, 2012).

Employee engagement positively links to several bottom lines of a company's outcome such as profits, productivity, business growth, employee retention, job performance and lower absenteeism (Kataria et al., 2013). Consequently, factors such as perceived supervisor support, co-worker social support, workplace environment, job design and characteristics and HRD practices are deemed key drivers in achieving high levels of employee engagement in the organisation (Cardus, 2013; Rana et al., 2014; Sahoo & Mishra, 2012).

It is emphasized that measuring workforce attitudes, especially during the financial downturn, is a business imperative (Van Rooy, Whitman, Hart, & Caleo, 2011). This notion is supported by Aon Hewitt (2013) study which found that, regardless of the events taking place in the organisation (e.g. mergers and acquisitions, strategy transformation, restructuring or economic downturn), four

critical areas of importance for employee engagement exist, particularly during these times of changes: 1) *control* (employee involvement and empowerment during decision-making), 2) *career* (understanding of one's path), 3) *capability* (training and development) and 4) *connection* (employees' connection with leaders and co-workers).

Given the challenges experienced in the platinum mining industry and the significant economic implications for South Africa, it is imperative that this industry keeps levels of employee engagement as high as possible (Van Rooy et al., 2011) in order to survive these difficult times.

Despite the considerable amount of research on the concept of employee engagement, there is a necessity for empirical research, especially in the South African context and particularly in the mining industry. Aon Hewitt (2013) found that the majority of South African organisations focus their efforts on replacing exiting staff instead of developing holistic employee engagement and retention strategies.

CHAPTER 3: RESEACH QUESTIONS AND HYPHOTHESES

3.1 Introduction

This chapter details the research questions and hypotheses that the study is aiming to answer and test. This empirical research is aimed at addressing the study's research problem and objective - to determine the key drivers of employee engagement and establish the current levels of employee engagement in the platinum mining industry.

The literature clearly articulated the importance of employee engagement as a key business driver for company's success (Swarnalatha & Prasanna, 2013). Organisations with highly engaged and committed employees have a definite advantage over their competitors (Shuck et al., 2011). However, the literature does not specify whether the drivers of engagement differ between the varying levels of employees (between operators, supervisors, junior management and middles management). It also does not demonstrate the existing levels of employee engagement in the mining industry, particularly the platinum mining sector.

3.2 Research questions

The research questions which evolved from the aim and objectives of this research, are:

Research Question 1 (RQ1)

What are the levels of employee engagement on the platinum mines?

Research Question 2 (RQ2)

What are the drivers of employee engagement on the platinum mines?

Research Question 3 (RQ3)

Do the drivers of engagement differ between the levels of employees (operators, supervisors, junior management and middle management)?

3.3 Research hypotheses

The research hypotheses are the testable propositions stating that there are significant differences or relationships between two or more variables (Saunders & Lewis, 2012). The literature advanced that independent variables such as job design and characteristics, supervisors and co-worker relationships, workplace environment, and HRD practices have a positive relationship on employee engagement and that relationship is moderated by job demands and individual characteristics (Rana et al., 2014). In order to test that relationship and its moderators, and to further probe research questions two and three, the following hypotheses were proposed:

Research question two

H1: Job design and characteristics are positively related to employee engagement.

H2a: Supervision is positively related to employee engagement.

H2b: Co-worker relationship is positively related to employee engagement.

H3: Workplace environment is positively related to employee engagement.

H4: Employee perception of HRD practices is positively associated with employee engagement.

H5: The relationship between independent variables and employee engagement is moderated by job demands and individual characteristics.

Research question three

H6: The drivers of engagement differ between operators, supervisors, junior management and middle management.

CHAPTER 4: RESEARCH METHODOLOGY

4.1 Introduction

This section describes the method of research and methodology applied to resolve the research problem by answering the research questions and testing the hypotheses discussed in the previous chapter. It also outlines the relevant population, units of analysis, sampling methods and measuring techniques applied in the study, the ethical issues considered, and the potential limitations of the methods used.

4.2 Research design

To address the research questions, a questionnaire was designed to collect data in order to determine the levels of engagement and the key drivers of employee engagement in the platinum mine (Saunders & Lewis, 2012). A quantitative approach was applied in which the researcher used mostly the post positivist claims for formulating knowledge (i.e. essence of thinking, framing specific variables, propositions and questions, use of measurement and observation, and testing of theories) (Creswell, 2003). A systematic plan of inquiry such as a survey was developed, and data was collected using predetermined instruments in order to generate statistical data (Creswell, 2003).

Creswell (2013) distinguished between two quantitative research designs, namely, experimental and non-experimental designs. Experimental design is when a researcher provides a specific treatment to one group but withholds that treatment from another group and compares the scores of both groups. Non-experimental design is mainly surveys and provides a quantitative feedback on numeric trends, attitudes, or opinions of the population by analysing a sample of that population (Creswell, 2003).

A non-experimental design in the form of a survey was applied in this study. A survey is a research technique involving the structured collection of data from a large population (Saunders & Lewis, 2012). Survey research can be longitudinal or cross-sectional where questionnaires or structured interviews are used to collect data, with the intention of generalising the findings of a sample to a population (Creswell, 2013). Surveys can be conducted face-to-face, by phone or can be self-administered (Saunders & Lewis, 2012). A survey in the form of a

self-administered questionnaire was used to gather data in this study. Surveys are considered to be a less expensive, quicker and accurate way of evaluating information about the population (Saunders & Lewis, 2012; Zikmund, Babin, Carr, & Griffin, 2010).

Non-experimental design includes cross-sectional studies using questionnaires for data collection (Creswell, 2013).This study was cross-sectional, meaning that data was collected at a particular point in time from multiple groups of people (Saunders & Lewis, 2012). The cross sectional survey was considered to be sufficient for the purpose of this study.

4.3 Population

Population is defined as the complete set of group members (Saunders & Lewis, 2012). The population for this study included, and was limited to, employees who work for two mining companies based in Rustenburg, North West province of South Africa. The rationale behind including these two mining houses in the study was that they are ranked amongst the largest producers of platinum in South Africa and, indeed, the world. These companies have labour intensive mines (conventional mines) based in Rustenburg town, hence the scope. For reasons of confidentiality, the identity of the two participating mining companies is protected in this report.

During the period of this study, the two mining companies applied the Paterson grading system which classified employees into six groups as operators (band A1 to B7), supervisors (band C1 to C4); junior management (band C5 to D1), middle management (band D2 to D4), senior management (band E1 to E4) and executives (band F and up). The Paterson grading system is an analytical method of job evaluation used in many South African companies. It classifies jobs according to the levels of decision-making involved, job descriptions, and roles and responsibilities, and it groups them into six groups or grades. These six groups, also known as bands, determine the responsibilities and salary scales that are used in the organisations (Jordan, Mills, & Moyo, 1992).

According to the 2014 sustainable development reports of both respondent companies, 20,323 and 32,900 people were employed respectively in their Rustenburg operations. Operators accounted for approximately 80% of all employees, supervisors for 10%, junior management for 6%, middle

management for 3%, and senior management and executives for 1% for both respondent companies.

The study was focused on and limited to employees in the categories of operators to middle management (band A to D).

4.4 Unit of analysis

Babbie (2013) explained unit of analysis as an object that the researcher is concerned with. Five different units of analysis were identified as individuals, groups, organisations, social interactions and social artefacts (Babbie, 2013). The unit of analysis in this study is employees working at the two largest mining companies in the Rustenburg area who are on job levels A to D as described by the Paterson grading system. The variables, such as age, gender and job level were analysed at an individual level and then combined together for analysis of the group's characteristics.

4.5 Method of sampling and size

Saunders and Lewis (2012) defined a sample as being a subgroup of the total population which is often used when it is impractical to collect the data from the entire population. Random sampling was not feasible for this study as it required the researcher to have a complete list of the population and each member of the population had to have been selected at random (Saunders & Lewis, 2012).

As the researcher could not obtain a complete list of the entire possible population, convenience sampling was employed for this study. Convenience sampling is a non-probability sampling technique which is quick, economical, and simple and subjects participate willingly (Saunders & Lewis, 2012). This sampling method has limitations in that the results of the study may be biased and therefore may not necessarily be projected beyond the selected sample (Zikmund, 2003)

Employees were invited to voluntarily participate in this study from a "captive audience" of employees who were available at the time of the research. Employees gathered at the "waiting" area before the morning and afternoon work shifts were included in the study. A "waiting area" is the work area where employees wait to be taken underground. Surface employees were also invited to participate in the study via email and in person.

The total number of employees working for both mining companies in the

Rustenburg area was 53,223 as of 2014 financial year end for both companies. Therefore the recommended sample size for that population at the confidence interval of 95% and a margin of error (degree of accuracy) of 5% was 381 (Figure 4) (Chiba, 2015). A sample size of 400 was planned and 301 responses were obtained which indicated a response rate of 75%.

Figure 4: Sample size calculator

Confidence = 95.0%

Population Size	Degree of Accuracy/Margin of Error			
	0.05	0.035	0.025	0.01
45 000	381	771	1486	7915
53 223	381	773	1493	8136
60 000	382	774	1498	8279
100 000	383	778	1513	8762

Source: Chiba (2015)

Generally, a sample size should be 100 or larger in order for the researcher to perform factor analysis (Hair, Black, Babin, & Anderson, 2010). Hair et al., (2010) provided a guideline that a more acceptable sample size should be ten times the number of statements or variables to be analysed. The core section (section C) of the questionnaire (Appendix A) had 31 statements which required a sample size of 310 to be acceptable. The 400 sample size was considered acceptable as per the guidelines of Hair et al., (2010).

The process of selecting a sample was designed to ensure the sample was diverse enough to obtain a balance between all identified demographics such as gender, age and job level. As the mining industry in South Africa is still dominated by male employees, the sample included more males than females. The sample also included employees working underground and above who were found in band A up to band D as per the Paterson grading system.

4.6 Measurement instrument

The design of the data collection instrument and its method, reliability and validity are discussed here. A survey in the form of a structured questionnaire, using several pre-tested questions that were related to the concept of employee engagement, was used. A questionnaire includes all methods of collecting data

in which each respondent is required to respond to the same set of questions in the same order (Saunders & Lewis, 2012). The benefit of the questionnaire is that it can be administered face-to-face, telephonically, by hand, by post or via the web (Saunders & Lewis, 2012). In this study, majority of the questionnaires were administered face-to-face as most mineworkers have no access to computers. Respondents were assured that all necessary steps had been taken to protect their anonymity, whilst administering the survey.

4.6.1 Design of the questionnaire

The questionnaire (Appendix A) was designed to gather data in order to answer the specific research questions. The specific research questions were formulated based on the model of Rana et al., (2014). Some of the pre-tested questions such as Gallup's (2013) Q^{12}, Towers Watson's (2012) and Aon Hewitt's (2013) employee engagement survey questions were adopted for this questionnaire. The structure of the questionnaire was also adapted to include the elements of the Rana et al., (2014) model as discussed in Chapter Two.

The questionnaire consisted of the following sections:

- **Cover letter** - introduced the researcher and the purpose of the study to the participant. It explained the ethical issues, stating that the necessary permission had been obtained from both participating companies in order to carry out the research. It further explained that participation was voluntary and that the respondent could withdraw at any time.

- **Biographical information (section A)** – this section was intended to profile the respondents by obtaining information such as the company the respondents worked for, job level, age, gender and area of work (either underground or surface). This section was important as it allowed the researcher to compare groups effectively.

- **Levels of engagement (section B)** – this section was designed to determine the current levels of engagement on the platinum mines and to answer the research question one (*RQ1*). Questions in this section where adopted from the employee engagement study done by Aon Hewitt (2013). This section takes the form of a five point Likert scale where the respondents were requested to indicate to what extend they agreed or

disagreed with the statements. The five point Likert scale allows the respondents to express how much (to what degree) they agree or disagree with a statement, rather than simply answering 'yes' or 'no' which can be limiting. This scale was coded as follows: 1 = strongly disagree, 3 = neutral and 5 = strongly agree.

- **Drivers of employee engagement (section C)** – this section was designed to determine the drivers of engagement, in order to answer the research questions two and three (*RQ2 and RQ3*) and to test the hypotheses of the study. It also took the form of the five point Likert scale as explained above.

The core section (section C) of the questionnaire was designed and tested to ensure it answered the research questions. The literature reviewed in Chapter Two outlined three main attributes of engagement, namely: cognitively, emotionally and physically (Saks & Gruman, 2014; Shuck et al., 2011). Rana et al., (2014) proposed job design and characteristics, supervisor and co-worker support, workplace environment and HRD practices as key drivers of employee engagement (Rana et al., 2014). Table 3 provides the statements used to measure the drivers of employee engagement and the source they were adapted from.

Table 3: Measurement of employee engagement drivers

Construct and description	Statement	Ref	Source
Job design and characteristics "Factors related to work-related that include nature of work itself, autonomy, better salary, benefits, rewards, and partaking in decision-making" (Chen & Chiu, 2009; Rana et al., 2014; Towers Watson, 2012)	I understand how my job contributes to the success of the Company	C1	Towers Watson (2012)
	I know what is expected of me at work.	C2	Gallup (2013)
	I am paid fairly for the work that I do.	C3	
	People who are performing their jobs very well are fairly recognised and rewarded.	C4	
	I have material and equipment that I need to do my work.	C5	

Construct and description	Statement	Ref	Source
Supervisor and co-worker relationships "Supervisor support includes coaching and offering of advice. Co-worker social support is critical in the workplace" (Aon Hewitt, 2013; Rana et al., 2014; Towers Watson, 2012)	My supervisor delivers on his or her promises	C8	Towers Watson (2012)
	My supervisor clearly communicates the goals and objectives to us as the team.	C9	
	My supervisor treats all employees with respect.	C10	
	My supervisor treats everyone fairly.	C11	Gallup (2013)
	My supervisor encourages me to develop and improve my skills.	C12	
	I trust my supervisor.	C13	Author
	I trust my co-workers	C14	
	I receive support from my co-workers and we work well together as a team	C15	
Workplace environment "Harmonious and meaningful workplace environment which include physical resources, supportive workplace climate and perceived level of safety" (Rana et al., 2014)	I get excited about going to work	C16	Author
	My workplace is safe.	C17	Rana et al., (2014)
	I'm proud of my workplace	C18	
	We have enough people in my team to get the job done on time and correctly	C19	Towers Watson (2012)
	I am encouraged to come up with new ideas to improve my workplace environment	C21	
	I would recommend my Company to other people as the best place to work for.	C22	
	I am encouraged to learn from my mistakes at work and I'm not punished for making those mistakes.	C23	Rana et al., (2014)
HRD practices "HRD practices that include training and development, career opportunities, employee welfare schemes and feedback" (Dash, 2013; Rana et at., 2014)	I feel positive about my future professional development in my Company	C24	Gallup (2013)
	I feel like the job promotions in my Company are fair	C25	
	During the last six months, someone talked to me about my progress at work.	C26	
	I received training that I need to do my job well.	C27	
	I see myself working for my company in the next three years.	C28	Towers Watson (2012)
	Training and development policies are communicated clearly to employees	C29	
	Performance issues or disciplinary matters are handled fairly	C31	Author
Job demands "Organisational aspects such as work overload (physical) or peer pressure (emotional)" (Rana et al., 2014)	We as employees work longer hours than normal	C20	Towers Watson (2012)
	My job allows me to balance between my work and personal life.	C30	
Individual characteristics "Proactivity, optimism, conscientiousness, and self-efficacy" (Rana et al., 2014)	At work, my opinion seems to count.	C6	Gallup (2013)
	I enjoy my work.	C7	

4.6.2 Data collection process

Data can be collected using questionnaires, via email, by post, face-to-face and by telephone (Saunders & Lewis, 2012). The majority of data was collected through face-to-face self-administered questionnaires as most of the mineworkers have little to no access to computers. Several studies indicated that face-to-face administration has a high response rate, as questionnaires are generally distributed, completed and collected in one process (Denscombe, 2014). Additionally, the questionnaire was distributed via email to those workers with access to computers. The participating workplaces were selected based on convenience from the two mining companies located in the Rustenburg area. Data was collected by the researcher and his assistants over a period of two weeks from 10th to 21st August 2015.

4.6.3 Reliability and validity

Saunders and Lewis (2012) defined reliability as the extent to which the methods of collecting data and analysis of that data will produce consistent results over time. Validity is the extent to which the methods of collecting data accurately assess whether the findings are really what they appear to be about or claim to be about (Saunders & Lewis, 2012). There are four most frequently used reliability tests, namely: 1) test-retest reliability test which is applied to test reliability over time; 2) parallel forms of reliability which is used to test similarities between two different forms of the same test; 3) interrater reliability test which is used to test consistency of ratings and, 4) internal consistency reliability test which is used to test consistency of items with one another in that they represent only one area of interest throughout the test (Salkind, 2012).

As mentioned before, this study was a cross-sectional study using only one form of data collection (i.e. questionnaire), therefore the internal consistency reliability test was considered appropriate. To test internal consistency reliability, Cronbach alpha was computed. Cronbach alpha is widely used as the measure of reliability (Tavakol & Dennick, 2011).

Reliable and valid questionnaires are critical to enhance the accuracy of their measurement and evaluation (Tavakol & Dennick, 2011). To ensure the reliability and validity, a pilot study was carried out on a small group of employees who were similar to those in the sample to ensure the targeted respondents had no problems in answering the questions. Any problems that aroused or questions

that were misunderstood by the pilot test participants were corrected and the changes were incorporated into the final questionnaire before it was distributed. This approach was applied as recommended by Saunders and Lewis (2012).

Considering the low levels of functional literacy in the mining industry, the questionnaire was translated during the survey to ensure accurate response to the statements. A group of respondents was asked to read the statements and check if they were relevant and clear. Their recommendations were incorporated into the final questionnaire. The construct validity was achieved through the pre-testing of the measuring instrument.

4.7 Data analysis

Data collected from self-administered questionnaires was captured manually on Microsoft Excel. A cut-off point of 5% (i.e. 95% completed) for the missing data was employed to determine whether a question was included in the analysis (Schafer, 1999). Data was coded, uploaded and analysed using the Statistical Package for Social Science (SPSS) computer software version 22. The coding for constructs was done in Table 3. The biographical variables coding is depicted in Table 4.

Table 4: Biographical data coding

A2: Company	Code	A2: Job Level	Code
Company A	1	Operators	1
Company B	2	Supervisors	2
		Junior management	3
		Middle management	4
A3: Age	**Code**	**A4: Gender**	**Code**
20 years and younger	1	Male	1
21 to 30 years	2	Female	2
31 to 40 years	3	**A5: Area of work**	**Code**
41 to 50 years	4	Underground	1
51 to 60 years	5	Surface	2
61 years and older	6		

4.7.1 Descriptive statistics

Descriptive statistics are used to describe and summarise features of a large data (Zikmund et al., 2010). Data is summarised using frequency distributions, measurements of central tendency and dispersions, and standard deviation, mean and frequency results are produced (Zikmund et al., 2010). This was the first test conducted in this study. The frequencies were used to give the profile of the biographic information, while the questionnaire with constructs under investigation was dissected using the mean and standard deviations.

4.7.2 Factor analysis

Factor analysis is an interdependent technique used to investigate concepts that are difficult to measure, by reducing a large number of variables into fewer explainable factors (Hair et al., 2010). The variables were reduced using factor analysis and key constructs were extracted for the study. The study employed Kaiser-Meyer-Olkin's (KMO) test and Bartlett's test for sphericity to ascertain the suitability of factor analysis (DiStefano, Zhu, & Mîndrilă, 2009). Both these tests indicated data was suitable for structure detection.

The KMO test is helpful as it measures the suitability of data for factor analysis. In this measurement, values between 0.5 and 1.0 are generally indicative of factor analysis as a useful instrument for the data. It is a norm that factor analysis results are considered unacceptable when the value is less than 0.5. In Bartlett's test of sphericity, the significance of the study is demonstrated when the value is less than 0.05 (Williams, Brown, & Onsman, 2010). In this study the sample of 301 allowed for an effective factor analysis; the results of which are discussed in Chapter Five.

Exploratory factor analysis was employed to measure the outcomes using the principal component extraction with the Varimax Rotation method. Varimax Rotation is the most preferred orthogonal factor in attaining a simplified factor structure due to its simplicity and superiority amongst other orthogonal rotation methods (Hair et al., 2010). Only the factors with eigenvalue of more than one were considered. Hair et al., (2010) recommended that a factor should account for variance of at least one variable in order to be retained. Loadings above 0.4 only were considered and six factors were extracted. These factors were classified as supervision, workplace environment, HRD practices, job-design and characteristics, relationship with co-workers and job demands.

4.7.3 Reliability of constructs

The Cronbach alpha was utilised to assess the information's internal consistency and the reliability of the formulated constructs from the factor analysis. This is a critical test as it gives a sign if the information is satisfactory for use in further investigation. The Cronbach's alpha coefficient is widely used to measure internal consistency of constructs (Gliem & Gliem, 2003). As a rule of thumb, George and Mallery (2003) offered the guidelines shown in Table 5. These guidelines were adopted to decide the status of the data, which shows that the Cronbach's alpha coefficient must be higher than 0.7 (George & Mallery, 2003). The cut-off for the acceptable data was made 0.6, taking into account the suggestion of Hair et al., (2010).

Table 5: Internal consistency guidelines

Cronbach's alpha	Internal consistency
$\alpha \geq 0.9$	Excellent
$0.8 \leq \alpha \leq 0.9$	Good
$0.7 \leq \alpha \leq 0.8$	Acceptable
$0.6 \leq \alpha \leq 0.7$	Questionable*
$0.5 \leq \alpha \leq 0.6$	Poor
$\alpha \leq 0.5$	Unacceptable

* Acceptable based on Hair et al. (2010)

4.7.4 Relationship analysis

The Pearson Product Correlation was employed to dissect the information and perform hypotheses testing for the presence of a relationship between the variables of ordinal data. These variables include employee engagement (dependent variable) and drivers of engagement (independent variables). Interpretation of correlation coefficients was conducted based on the guidelines of (Pallant, 2010) as given in Table 6.

Table 6: Relationship strength interpretation

Correlation strength	Correlation coefficient
Small	0.10 to 0.29
Medium	0.30 to 0.49
Large	0.50 to 1.0

4.7.5 Analysis of variance (ANOVA)

The analysis of variance (ANOVA) test was used to analyse the variance between, and within, the job levels (operators, supervisors, junior and middle management) in this study. The analysis used a *p-value* of 0.05 for significance, with the *p-value* lower than 0.05 deemed as significant. The variables that were found to be significant were further analysed using a post-hoc test. The post-hoc test by Bonferroni, due to its simplicity and versatility, was employed to get the details of the differences (Hair et al., 2010).

4.7.6 Mann-Whitney U test and Kruskal Wallis test

Given that the research questions focussed on different groups of employees, the Mann Whitney U test and Kruskal Wallis test were performed. The Mann-Whitney U test is widely used to test for contrasts between two groups on a single, ordinal variable with no particular distribution (McKnight & Najab, 2010). The differences between three or more groups are tested using the Kruskal Wallis test (McKnight & Najab, 2010). Gender and job levels were tested using the Mann-Whitney U test and the Kruskal Wallis test respectively. The outcomes of these tests indicated the variables, which were significant using the *p-value* of less than 0.05 as significant differences were confirmed by a high negative z-value.

4.8 Ethical consideration

Permission was sought and obtained from both the respondent companies in the form of an approved written letter by both company's representatives. The ethical clearance (Appendix B) was also granted by the Gordon Institute of Business Science (GIBS) Ethical Clearance Committee which paved the way for the research to be undertaken. Furthermore, it was clearly stipulated in the consent letter (Appendix A) which accompanied the questionnaire that participation in the study was voluntary and participants could opt out without penalty.

Assurance was also given to the participants regarding confidentiality and anonymity. Confidentiality was conferred on the participating mines particularly in view of the very strong political views and labour economy environment. The country was awaiting the Marikana investigation report by the President at the time of the research which raised specific ethical considerations regarding the identification of the specific respondents' mines. The two mining companies are

referred to as Companies A and B in report findings.

4.9 Research methodology limitations

The limitations were recognised when designing the research methodology and were taken into consideration. Only two companies in the platinum mining industry were selected, and although they are the top producers of platinum globally, the findings might not be applicable to other companies or industries. The use of a questionnaire might have denied the respondents an opportunity to give in-depth responses to the questions, as it was only quantitative in nature. However, the analysis of more than 300 responses ensured the most widely represented views were given.

Notwithstanding the efforts made to ensure the reliability and validity of the study, there were some internal validity issues that could not be completely avoided. The following are worth mentioning:

- Considering the low level of functional literacy in the mining industry, some of the questions needed to be translated which may have led to some translation errors, and consequently to some failures to respond to the actual statement.
- Respondents who participated in the survey might have had a direct interest in the issues raised or have felt particularly aggrieved at the time of the study.
- Work events taking place at the time of the study could have influenced the responses.

While taking the mentioned limitations into account, the knowledge gained from the research will still contribute towards a better understanding of the key drivers of employee engagement in the platinum mines of South Africa.

4.10 Conclusion

The research methodology applied was quantitative in nature. The population of the study included employees who were working for the top two largest platinum mining companies with operations located in Rustenburg, North West province of South Africa. The study was a survey in the form of a questionnaire and 301 responses were received, translating to a 75% response rate. The ethical issues and research methodology limitations were discussed.

Data was collected from the sample within the targeted population and was coded in IBM SPSS for statistical analysis. Validity was measured through factor analysis of independent variables. Cronbach alpha was used to test reliability. Data was examined, and the relationship between variables were hyphotehtically tested using the Pearson Product Correlation. The results are presented in Chapter Five.

CHAPTER 5: RESEARCH RESULTS

5.1 Introduction

The study aimed to gain a deeper understanding into employee engagement in the platinum mines. The objectives of the study, as outlined in Chapter Three, were three-fold. Firstly, to establish the current levels of engagement in the platinum mines. Secondly, to establish the drivers of employee engagement in the platinum mines, and lastly, to establish whether the engagement drivers differed significantly between the various job levels. The findings of the study are conferred in this chapter. Descriptive analysis, factor analysis, correlation and inferential statistics were used to analyse the data. The Cronbach alpha coefficient was used to assess the internal consistency reliability of the measuring instrument. The results were used either to reject, or not, the null hypothesis of no association.

There were 400 targeted respondents from the sample that was drawn from subjects who were conveniently and easily accessible and whom were willing to participate. Of the 400, 301 employees completed the questionnaire resulting in a response rate of 75% when using Zikmund et al., (2010) method of calculating the response rate. All 301 completed questionnaires had response rate per question above 95%. This meant that all the questionnaires satisfied the cut-off of 5% and were thus all considered during analysis.

5.2 Descriptive statistics

There were elements of descriptive statistics provided, those of the demographic profile of the respondents, the levels of engagement (dependent variable) and drivers of engagement (independent variables).

5.2.1 Respondents profile

Five demographic information variables were evaluated to obtain the respondents' profiles. These were the company the respondents worked for, the job level of the respondens, the age group, the gender of the respondents, and the area of work within the company. The demographic profiles are provided in Figures 5 to 9.

Figure 5 shows the details of the mining company the respondents worked for during the time of the survey. Two main companies were evaluated during this study. These companies were referred to as Company A and Company B, being the two largest producers of platinum in South Africa. About 71.8% of the respondents (N=216) were working at Company A, while 28.2% (N=85) of the respondents worked at Company B.

Figure 5: The company distribution profile

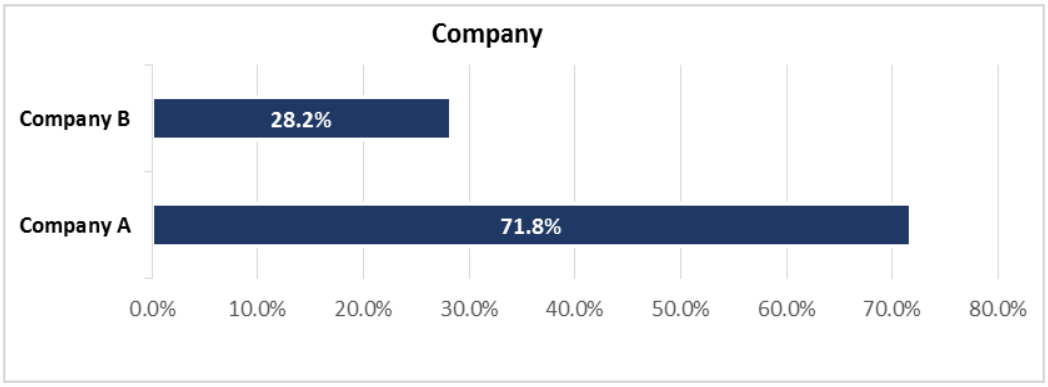


Figure 6 depicts the role profile of the respondents. The results pointed that most of the respondents were operators with 55.5% (N = 167); followed by 18.3% of the respondents (N = 55) being supervisors. There were about 17.3% (N = 52) and 9.0% (N = 27) belonging to the respondents with management roles categorised as junior and middle management.

Figure 6: Job level distribution profile

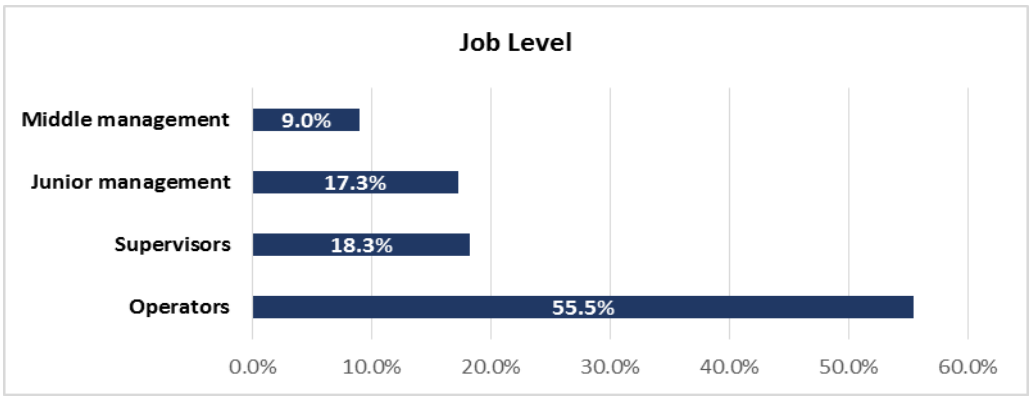


Figure 7 illustrates the profile of the age group of the respondents. Data indicated that there were very few respondents in the age group of 20 years or younger (0.3%) and 61 years or older with 1.7% (N =5). This category was dominated by the respondents in the age group of 31 to 40 years (40.0%). This group was

followed by 21 to 30 year olds, which comprised on 28.7% (N = 86).

Figure 7: The age group distribution profile

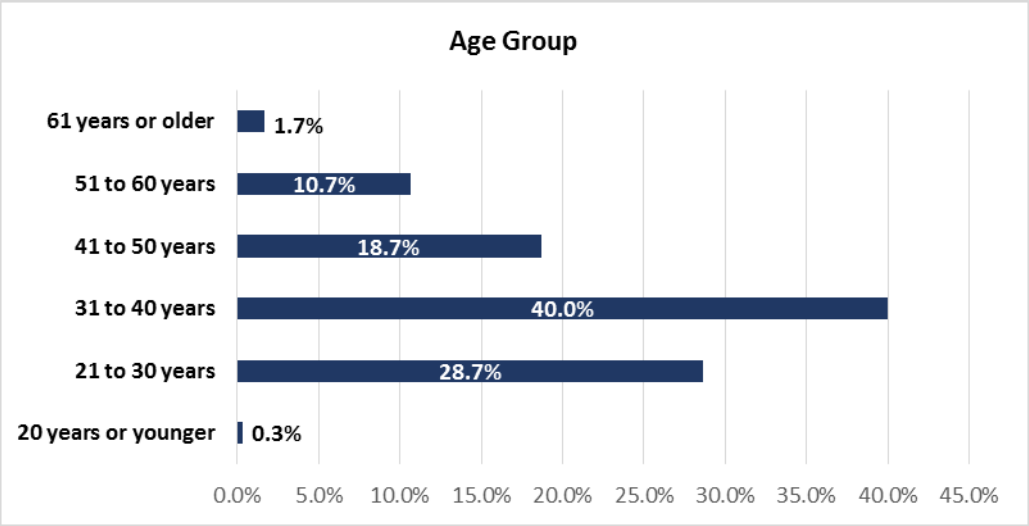


Figure 8 depicts the gender of the respondents from the two companies. The majority of the respondents were males with 58.1% (N = 175), while females comprised 41.9% (N = 126).

Figure 8: The gender distribution profile

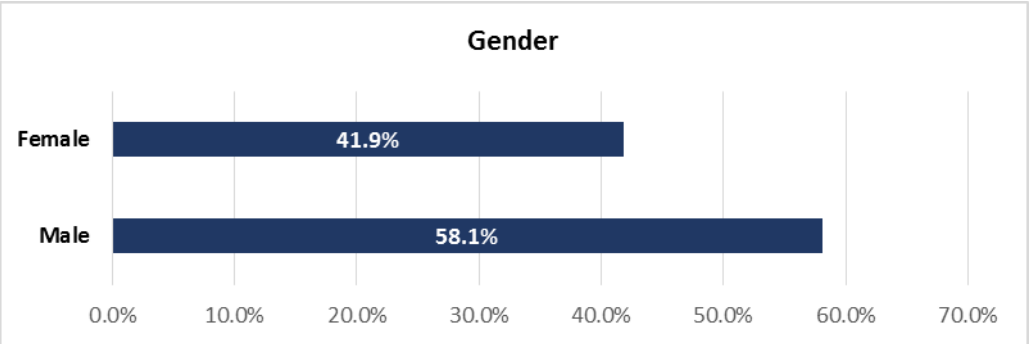
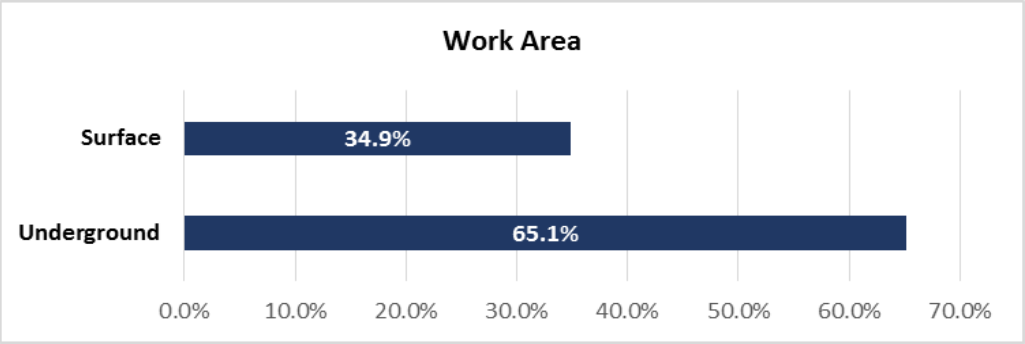


Figure 9 presents the results according to the area of the company in which the respondents worked. A total of 65.1% (N = 196) of respondents worked underground and the rest 34.9% (N = 105) worked on the surface.

Figure 9: The area of work distribution profile



In summary, most of the respondents were men, between the ages of 31 and 40 years who worked at Company A as underground operators in the mine.

5.2.2 Levels of engagement

This section (section B of questionnaire) was meant to address research question one which stated:

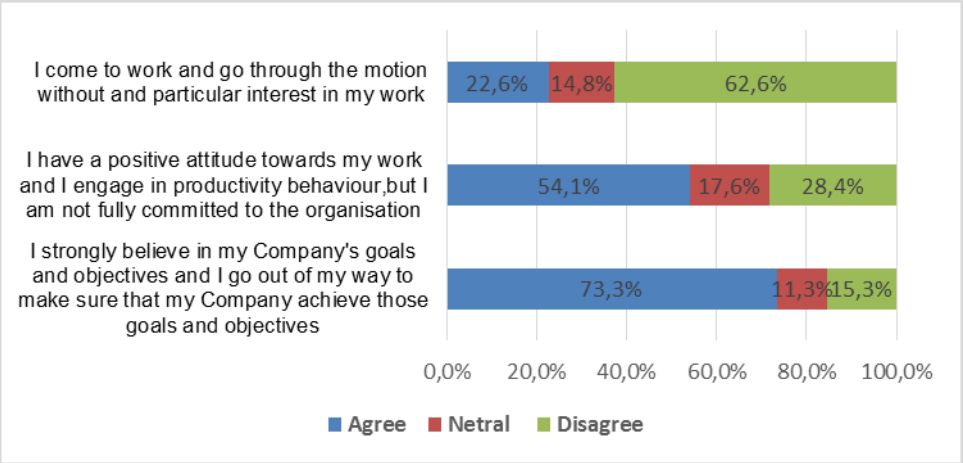
RQ1: What are the levels of employee engagement in the platinum mines?

Three statements underpinning the level of engagement were given to the employees to assess their engagement levels. These were:

- I strongly believe in my company's goals and objectives and I go out of my way to make sure that my company achieves those goals and objectives.
- I have a positive attitude towards my work and I engage in productive behaviour, but I am not fully committed to the company.
- I come to work and go through the motions without any particular interest in my work.

Almost three quarters (73.3%) of the respondents "agreed" with the statement, indicating they believed in the company's goals and objectives and were going out of their way to ensure that those goals were achieved. Less than a quarter (22.6%) of the respondents "agreed" with the statement that they were physically present at work but have no particular interest in their work (Figure 10).

Figure 10: Level of engagement of the respondents



5.2.3 Drivers of employee engagement

This section (section C of questionnaire) was meant to address research question two which stated:

RQ2: What are the drivers of employee engagement in the platinum mines?

A total of 31 questions were evaluated under the drivers of employee engagement (section C of questionnaire) using a 5 point Likert Scale (Table 7):

The top five statements evaluated with their frequency, means and standard deviations (SD), and which the respondents mostly agreed with were:

- I understand how my job contributes to the success of the company - there were 300 respondents with a mean score of 4.3867 and standard deviation of 0.7741.
- I know what is expected of me at work - N = 298; Mean = 4.3423 (SD = 0.7937).
- I enjoy my work - N=289; Mean = 3.7612 (SD = 1.1189)
- I receive support from my co-workers and we work well together as a team - N= 288; Mean = 3.7569 (SD =0.9717)
- I received the training that I need to do my job well - N = 296; Mean = 3.7162 (SD = 0.9952)

These top five statements had a mean score range of 3.72 to 4.39, which indicated they were in the “agree” range. The mean score of between 3 and 4 indicated that respondents were in the range of “neutral” to “agree”. Neutral

response indicate that the respondents were neither agreeing nor disagreeing with the statements.

Table 7: Descriptive statistics of the drivers of employee engagement

	N	Min.	Max.	Mean	Std. Deviation
1. I understand how my job contributes to the success of the Company	300	1,00	5,00	4,3867	,77405
C2. I know what is expected of me at work	298	1,00	5,00	4,3423	,79368
C3. I am paid fairly for the work that I do	287	1,00	5,00	2,9408	1,28193
C4. People who are performing their jobs very well are fairly recognised and rewarded	297	1,00	5,00	2,9764	1,24504
C5. I have material and equipment that I need to do my work	296	1,00	5,00	3,5101	1,19031
C6. At work, my opinion seems to count	290	1,00	5,00	3,3966	1,12135
C7. I enjoy my work	289	1,00	5,00	3,7612	1,11885
C8. My supervisor delivers on his or her promises	299	1,00	5,00	3,3244	1,10449
C9. My supervisor clearly communicates the goals and objectives to us as the team	298	1,00	5,00	3,5839	1,10768
C10. My supervisor treat all employees with respect	296	1,00	5,00	3,4595	1,17821
C11. My supervisor treats everyone fairly	298	1,00	5,00	3,2685	1,16417
C12. My supervisor encourages me to develop and improve my skills	299	1,00	5,00	3,1839	1,36456
C13. I trust my supervisor	298	1,00	5,00	3,4161	1,22873
C14. I trust my co-workers	296	1,00	5,00	3,4527	,99718
C15. I receive support from my co-workers and we work well together as a team	288	1,00	5,00	3,7569	,97170
C16. I get excited about going to work	301	1,00	5,00	3,4651	1,15309
C17. My workplace is safe	299	1,00	5,00	3,7124	1,02529
C18. I'm proud of my workplace	298	1,00	5,00	3,6946	1,02365
C19.We have enough people in my team to get the job done on time and correctly	299	1,00	5,00	3,2274	1,23230
C20.We as employees work long hours than normal	296	1,00	5,00	3,1757	1,15987
C21. I am encouraged to come up with new ideas to improve my workplace environment	301	1,00	5,00	3,2791	1,16126
C22. I would recommend my company to other people as the best place to work for	299	1,00	5,00	3,4950	1,03422
C23. I am encouraged to learn from my mistakes at work and I'm not punished for making those mistakes	291	1,00	5,00	3,2990	1,15518
C24. I feel positive about my future professional development in my company	300	1,00	5,00	3,1967	1,15576
C25. I feel like the job promotions in my Company are fair	300	1,00	5,00	2,7533	1,20721

	N	Min.	Max.	Mean	Std. Deviation
C26. During the last six months, someone talked to me about my progress at work	298	1,00	5,00	2,9463	1,22700
C27. I received training that I need to do my job well	296	1,00	5,00	3,7162	,99518
C28. I see myself working for my company in the next three years	300	1,00	5,00	3,5600	1,11829
C29. Training and development policies are communicated clearly to employees	298	1,00	5,00	3,2081	1,20479
C30. My job allows me to balance between my work and personal life	299	1,00	5,00	3,5284	1,01418
C31. Performance issues or disciplinary matters are handled fair	300	1,00	5,00	3,1067	1,15748

Five statements with which the respondents least “agreed” were as:

- I feel like the job promotions in my company are fair - there were 300 respondents with mean score of 2.7533 and standard deviation of 1.2072.
- I am paid fairly for the work that I do - N = 287; Mean = 2.9408 (SD = 1.2819)
- During the last six months, someone talked to me about my progress at work - N = 298; Mean = 2.9463 (SD = 1.2270)
- People who perform their jobs very well are fairly recognised and rewarded - N=297 Mean =2.9764 (SD =1.2450).
- Performance issues or disciplinary matters are handled fairly - N = 300; Mean = 3.1067 (SD = 1.1575).

The frequency tables of all the statement of section C (drivers of engagement) of the questionnaire are in Appendix C.

5.3 Validity

The application of factor analysis was employed to classify variables that were closely related into groups. One of the main functions of factor analysis is to provide construct validity evidence of a self-reporting scale (Williams *et al.*, 2010). Exploratory factor analysis was applied to determine aspects that were regarded as drivers of employee engagement on platinum Mines. The Kaiser-Meyer-Olkin (KMO) criterion to retain factors resulted in six factors that explained 65.63% of the variance. The KMO measure of sampling adequacy was 0.928, indicating that the correlations were adequate for factor analysis. The Bartlett’s test was used to indicate sufficiency of the correlations. The test gave a *p-value* of 0.000 (<0.05), consequently the null hypothesis was rejected due to lack of sufficient

correlation. Thus the results of both tests performed well, allowing the factor analysis to proceed.

5.3.1 Factor analysis

The study applied exploratory factor analysis to measure the results using the Principal Component Extraction and Varimax Rotation methods. Only the factors with eigenvalue of more than one were considered. Hair et al., (2010) proposed that a factor should account for variance of at least one variable in order to be retained. Only loadings above 0.4 were considered. Other items had more than one factor or component loading. The six factors were extracted and were classified as supervision (factor 1); work environment (factor 2); HRD practices (factor 3); job-design and characteristics (factor 4); relationship with co-workers (factor 5) and job demands (factor 6). Table 8 indicates the loadings of each factor.

Table 8: Rotated component matrix

	Factor					
	1	2	3	4	5	6
C13. I trust my supervisor	,808	,226	,220	,040	,243	,011
C10. My supervisor treat all employees with respect	,803	,275	,188	,179	,168	-,066
C11. My supervisor treats everyone fairly	,801	,299	,165	,099	,139	-,023
C8. My supervisor delivers on his or her promises	,778	,122	,203	,137	,038	,238
C9. My supervisor clearly communicates the goals and objectives to us as the team	,752	,069	,162	,175	,203	,089
C12. My supervisor encourages me to develop and improve my skills	,723	,312	,258	,227	-,023	,018
C5. I have material and equipment that I need to do my work	,460	,323	,017	,423	,110	,295
C17. My workplace is safe	,203	,783	,119	,005	,260	,125
C18. I'm proud of my workplace	,111	,767	,141	,133	,226	,161
C19. We have enough people in my team to get the job done on time and correctly	,264	,546	,060	,053	,009	,356
C21. I am encouraged to come up with new ideas to improve my workplace environment	,301	,541	,310	,270	,153	-,247
C22. I would recommend my company to other people as the best place to work for	,168	,528	,382	,168	,241	,026
C31. Performance issues or disciplinary matters are handled fairly	,307	,499	,362	,166	,145	,236
C6. At work, my opinion seems to count	,428	,471	,105	,409	-,084	-,028
C23. I am encouraged to learn from my mistakes at work and I'm not punished for making those mistakes	,230	,470	,259	,152	-,061	-,080
C27. I received training that I need to do my job well	,037	-,081	,802	,007	,122	,200
C28. I see myself working for my company in the next three years	,259	,270	,651	,197	,208	,030
C29. Training and development policies are communicated clearly to employees	,295	,340	,602	,147	,080	,053
26. During the last six months, someone talked to me about my progress at work	,286	,274	,595	,150	,084	-,088

	Factor					
	1	2	3	4	5	6
24. I feel positive about my future professional development in my company	,252	,410	,590	,230	-,138	,093
25. I feel like the job promotions in my Company are fair	,399	,484	,507	,149	-,097	,062
C2. I know what is expected of me at work	,116	,004	,122	,814	,261	-,057
C1. understand how my job contributes to the success of the Company	,043	,052	,116	,803	,080	,079
C7. I enjoy my work	,342	,399	,183	,551	,133	,019
C3. I am paid fairly for the work that I do	,317	,413	,117	,526	-,180	,228
C16. I get excited about going to work	,313	,457	,235	,476	,106	,057
C4. People who are performing their jobs very well are fairly recognised and rewarded	,331	,322	,222	,452	-,266	,322
C14. I trust my co-workers	,356	,200	,166	,157	,667	,136
C15. I receive support from my co-workers and we work well together as a team	,366	,282	,144	,259	,646	,133
C20. We as employees work long hours than normal	,027	,043	,038	,056	,059	,796
C30. My job allows me to balance between my work and personal life	,061	,275	,319	,083	,372	,544
Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization.						
a. Rotation converged in 7 iterations.						

5.4 Reliability

Based on the rotated component matrix depicted in Table 8, new constructs were developed. A Cronbach‘s alpha was then performed on the constructs to measure the reliability of the items identified to measure the latent variables (Table 9).

Table 9: Cronbach's alpha reliability coefficient of constructs

Construct	Number of Items	Contributing items	Cronbach’s alpha reliability coefficient	Acceptable level*
Supervision	7	C13, C10, C11, C8, C9, C12, C5	0.915	Excellent
Work environment	8	C17, C18, C19, C21, C22, C31, C6, Q23	0.855	Good
HRD practices	6	C27, C28, C29, C26, C24, C25	0.837	Good
Job design and characteristics	6	C2, C1, C7, C3, C16, C4	0.857	Good
Relationship with co-workers	2	C14, C15	0.852	Good
Job demands	2	C20, C30	0.416	Poor

* Based on Rule of Thumb by George and Mallery (2003)

Five out of six constructs showed internal consistency reliability with a Cronbach’s alpha of more than 0.7. The generally accepted lower limit of Cronbach’s alpha is 0.7. In exploratory studies, Cronbach’s alpha can fall to 0.6

(Hair *et al*., 2010).

Based on the Cronbach's alpha results, supervision was discovered to be excellent with Cronbach's alpha coefficient of more than 0.9. Workplace environment, HRD practices, job design and characteristics, and relationship with co-workers were found to be good with the Cronbach's alpha coefficient of more than 0.8 but less than 0.9. Internal consistency reliability of job demands was ascertained to be unacceptable at the Cronbach's alpha of less than 0.5, therefore no further analysis was done with the data from the job demand construct. However, the items were not deleted in the job demand construct as there were only two variables.

5.5 Developed constructs statistical analysis

Statistics of the five remaining constructs was computed and the results are shown in Table 10.

Table 10: Statistics of developed constructs

	N	Min.	Max.	Mean	Std. Deviation
Relationship with co-workers	298	1.00	5.00	3.5973	.92146
Job design and characteristics	301	1.00	5.00	3.5295	.80626
Workplace environment	301	1.00	5.00	3.3997	.77812
Supervision	301	1.00	5.00	3.3898	.98117
HRD Practices	301	1.00	5.00	3.2272	.87237

The results depicted in Table 10 indicated that the mean score range between 3.2 and 3.6 for the five constructs and standard deviation was approximately 0.9. Relationship with co-workers and job design and characteristics constructs had the highest means scores of 3.6 and 3.5 respectively. This indicated that most of the respondents agreed that they relate very well with their colleagues and they understand what was expected from them at work and how their jobs contributed to the success of the organisation. However, the majority of the respondents where neutral (mean score of 3.2) when it came to human resource development (HRD) practices such as job promotions, formal and informal training, performance assessment procedures and career development programmes.

5.6 Hypotheses testing results

The Pearson Product Correlation was used to analyse the data and conduct hypotheses testing for the existence of a relationship between the independent and dependent variables. The dependent variable was employee engagement represented by the statement "I strongly believe in my company's goal and objectives and I go out of my way to make sure that my company achieves those goals and objectives" which implied high engagement according to Aon Hewitt (2013). Independent variables were job design and characteristics, supervisor and co-worker relationships, workplace environment and HRD practices.

There were six hypotheses tested in this study. A null hypothesis was rejected if *p-value* was less than 0.05 and it was concluded that there is a significant relationship. A *p-value* of less than 0.01 signified a significant relationship. The results are presented below.

5.6.1 Relationship between job design and characteristics and employee engagement

$H1_0$: Job design and characteristics are positively related to employee engagement

$H1_1$: Job design and characteristics are not positively related to employee engagement

Table 11 demonstrates that there is a relationship (r = 0.77, p = 0.000) between job design and characteristics and employee engagement. This also indicated a significant ($p<0.01$) relationship between job design and characteristics and employee engagement.

Table 11: Pearson product correlation of job design and characteristics with employee engagement

		Job design and Characteristics
I strongly believe in my company's goals and objectives and I go out of my way to make sure that my company achieves those goals and objectives	Pearson Correlation	.773**
	Sig. (2-tailed)	,000
	N	300
Job design and Characteristics	Pearson Correlation	1
	Sig. (2-tailed)	
	N	301

5.6.2 Relationship between supervisor and co-worker relationship and employee engagement

There were two sub-variables investigated while testing this hypothesis. Firstly it was supervision and the secondly the co-workers.

$H2a_0$: Supervision is positively related to employee engagement

$H2a_1$: Supervision is not positively related to employee engagement

Table 12 indicates employee engagement and supervision are substantially related. The Pearson correlation value for the relationship was found to be 0.582 ($p < 0.01$).

Table 12: Pearson product correlation of supervision with employee engagement

		Supervision
I strongly believe in my company's goals and objectives and I go out of my way to make sure that my company achieves those goals and objectives	Pearson Correlation	.582**
	Sig. (2-tailed)	.000
	N	300
Supervision	Pearson Correlation	1
	Sig. (2-tailed)	
	N	301

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

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

Table 13 shows the co-worker relationship had medium positive relationship ($r = 0.395, p < 0.01$) with employee engagement.

$H2b_0$: Co-worker relationship is positively related to employee engagement

$H2b_1$: Co-worker relationship is not positively related to employee engagement

Table 13: Pearson product correlation of co-worker relationship with employee engagement

		Relationship with co-workers
I strongly believe in my company's goals and objectives and I go out of my way to make sure that my company achieves those goals and objectives	Pearson Correlation Sig. (2-tailed) N	.395** ,000 297
Relationship with co-workers	Pearson Correlation Sig. (2-tailed) N	1 298

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

5.6.3 Relationship between workplace environment and employee engagement

$H3_0$: Workplace environment is positively related to employee engagement

$H3_1$: Workplace environment is not positively related to employee engagement

Work environment exhibited a strong correlation ($r = 0.570$, $p < 0.01$) with employee engagement as depicted in Table 14.

Table 14: Pearson product correlation of workplace environment and employee engagement

		Workplace environment
I strongly believe in my company's goals and objectives and I go out of my way to make sure that my company achieves those goals and objectives	Pearson Correlation Sig. (2-tailed) N	.570** ,000 300
Workplace environment	Pearson Correlation Sig. (2-tailed) N	1 301

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

5.6.4 Relationship between employee perception of HRD practices and employee engagement.

$H4_0$: Employee perception of HRD practices is positively associated with employee engagement

$H4_1$: Employee perception is not positively associated with employee engagement

Table 15 depicts a satisfying correlation ($r = 0.512$, $p < 0.01$) between employee perception of HRD practices and employee engagement.

Table 15: Pearson product correlation of employee perception of HRD practices and employee engagement

		HRD Practices
I strongly believe in my company's goals and objectives and I go out of my way to make sure that my company achieves those goals and objectives	Pearson Correlation	.512**
	Sig. (2-tailed)	,000
	N	300
HRD Practices	Pearson Correlation	1
	Sig. (2-tailed)	
	N	301

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

5.6.5 Relationship between independent variables and employee engagement as moderated by job demands and individual characteristics

The hypothesis to test job demands and individual characteristics as mediators of the relationship between independent variables and employee engagement could not be fully computed as the job demand variable did not show internal consistency and individual characteristics were not extracted in the factor analysis.

5.6.6 Drivers of engagement differs between level of employees

This section (also section C of questionnaire) was intended to address research question three which states:

RQ3: Do the drivers of engagement differ between the level of employees (operators, supervisors, junior management and middle management)?

The sixth hypothesis of the study was formulated as:

> *$H6_0$: Drivers of engagement differ between operators, supervisors, junior management and middle management.*
>
> *$H6_1$: Drivers of engagement do not differ between operators, supervisors, junior management and middle management.*

To investigate this hypothesis on whether there was a difference in drivers of engagement at different employee levels in the company, an analysis of variance (ANOVA) was performed, with the outcomes tabulated in Table 16.

Table 16: ANOVA for drivers of engagement at different employee levels

ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
Supervision	Between Groups	29.201	3	9.734	11.136	.000
	Within Groups	259.608	297	.874		
	Total	288.808	300			
Workplace environment	Between Groups	14.474	3	4.825	8.572	.000
	Within Groups	167.165	297	.563		
	Total	181.639	300			
HRD Practices	Between Groups	12.369	3	4.123	5.671	.001
	Within Groups	215.941	297	.727		
	Total	228.310	300			
Job design and Characteristic	Between Groups	9.008	3	3.003	4.794	.003
	Within Groups	186.010	297	.626		
	Total	195.018	300			
Relationship with co-workers	Between Groups	11.714	3	3.905	4.774	.003
	Within Groups	240.464	294	.818		
	Total	252.178	297			

The results demonstrated a measurable distinction between the groups for all five drivers of engagement, with all *p –values* less than 0.05 as shown in the following results:

- Supervision : F(3, 297) = 11.136, p = 0.000
- Workplace Environment: F(3,297) = 8.572, p = 0.000
- HRD practices: F(3, 297) = 5.671, p = 0.001
- Job design and characteristics: F(3,297) = 4.794, p = 0.003
- Relationship with co-workers: F(3,294) = 4.774, p = 0.003

Although the results indicated there was a statistical difference, this difference was for the groups as a whole and did not provide the specific details about the actual groups (i.e. operator, supervisor, junior management and middle management). To ascertain these details, a post-hoc test of Bonferroni was performed as being the most simple and versatile test for this scenario.

5.6.6.1 Supervision differs between level of employees

Table 17 provides the multiple comparisons of the mean differences, standard error and significance between the groups.

Table 17: Bonferroni post-hoc test for multiple comparisons of groups with supervision

(I) Please indicate your current job level	(J) Please indicate your current job level	Mean Difference (I-J)	Std. Error	Sig.
Operator	Supervisor	-.50804*	.14535	.003
	Junior Management	-.78145*	.14847	.000
	Middle Management	-.38005	.19393	.306
Supervisor	Operator	.50804*	.14535	.003
	Junior Management	-.27341	.18084	.790
	Middle Management	.12799	.21970	1.000
Junior Management	Operator	.78145*	.14847	.000
	Supervisor	.27341	.18084	.790
	Middle Management	.40140	.22177	.428
Middle Management	Operator	.38005	.19393	.306
	Supervisor	-.12799	.21970	1.000
	Junior Management	-.40140	.22177	.428

*. The mean difference is significant at the 0.05 level.

There was a variance between the views of the operators and supervisors (p = 0.003) and there was also a difference between the operators and junior management (p = 0.00). However, there was no difference between the operators

and middle management in their views or perception (p = 0.306). In addition, there was no difference between the supervisors and junior management (p = 0.790), or between the supervisors and middle management (p = 1.000). There was also no difference between junior management and middle management (p = 0.428).

5.6.6.2 Workplace environment differs between level of employees

Table 18 indicates the multiple comparisons of the mean differences, standard error and significance between the groups for workplace environment.

Table 18: Bonferroni post-hoc test for multiple comparisons of groups with workplace environment

(I) Please indicate your current job level	(J) Please indicate your current job level	Mean Difference (I-J)	Std. Error	Sig.
Operator	Supervisor	-.45031*	.11664	.001
	Junior Management	-.48667*	.11914	.000
	Middle Management	-.26246	.15562	.556
Supervisor	Operator	.45031*	.11664	.001
	Junior Management	-.03636	.14511	1.000
	Middle Management	.18784	.17629	1.000
Junior Management	Operator	.48667*	.11914	.000
	Supervisor	.03636	.14511	1.000
	Middle Management	.22421	.17796	1.000
Middle Management	Operator	.26246	.15562	.556
	Supervisor	-.18784	.17629	1.000
	Junior Management	-.22421	.17796	1.000

*. The mean difference is significant at the 0.05 level.

There was a difference between the views of the operators and supervisors (p = 0.001) and there was also a difference between the operators and junior management (p = 0.000). However, there was no difference between the operators and middle management in their views or perception (p = 0.556). Additionally, there was no difference between the views of supervisors and junior management (p = 1.000) and between supervisors and middle management (p = 1.000).

5.6.6.3 HRD practices differs between level of employees

The multiple comparisons of the mean differences, standard error and significance between the groups for HRD practices are provided in Table 19.

Table 19: Bonferroni post-hoc test for multiple comparisons of groups with HRD practices

(I) Please indicate your current job level	(J) Please indicate your current job level	Mean Difference (I-J)	Std. Error	Sig.
Operator	Supervisor	-.35631*	.13256	.046
	Junior Management	-.49906*	.13541	.002
	Middle Management	-.14987	.17687	1.000
Supervisor	Operator	.35631*	.13256	.046
	Junior Management	-.14275	.16493	1.000
	Middle Management	.20644	.20037	1.000
Junior Management	Operator	.49906*	.13541	.002
	Supervisor	.14275	.16493	1.000
	Middle Management	.34919	.20226	.512
Middle Management	Operator	.14987	.17687	1.000
	Supervisor	-.20644	.20037	1.000
	Junior Management	-.34919	.20226	.512

*. The mean difference is significant at the 0.05 level.

There was a difference between the views of the operators and supervisors (p = 0.046) and there was also a difference between the operators and junior management (p = 0.002). However there was no difference between the operators and the middle management in their view of perception (p = 1.000). Furthermore, no difference was found between the supervisors and junior management and between the supervisor and middle management. There was also no difference between junior management and middle management.

5.6.6.4 Job design and characteristics differs between level of employees

The multiple comparisons of the mean differences, standard error and significance between the groups for workplace environment are provided in Table 20. There was no difference between the different group except between the operators and junior management (p = 0.005).

Table 20: Bonferroni post-hoc test for multiple comparisons of groups with job design and characteristics

(I) Please indicate your current job level	(J) Please indicate your current job level	Mean Difference (I-J)	Std. Error	Sig.
Operator	Supervisor	-.30888	.12303	.076
	Junior Management	-.42170*	.12568	.005
	Middle Management	-.10147	.16415	1.000
Supervisor	Operator	.30888	.12303	.076
	Junior Management	-.11282	.15307	1.000
	Middle Management	.20741	.18597	1.000
Junior Management	Operator	.42170*	.12568	.005
	Supervisor	.11282	.15307	1.000
	Middle Management	.32023	.18772	.534
Middle Management	Operator	.10147	.16415	1.000
	Supervisor	-.20741	.18597	1.000
	Junior Management	-.32023	.18772	.534

*. The mean difference is significant at the 0.05 level.

5.6.6.5 Relationship with co-workers differs between level of employees

The multiple comparisons of the mean differences, standard error and significance between the groups for workplace environment are provided in Table 21. There were no differences in views between the different groups, except between junior and middle management (p = 0.039).

Table 21: Bonferroni post-hoc test for multiple comparisons of groups with relationship with co-workers

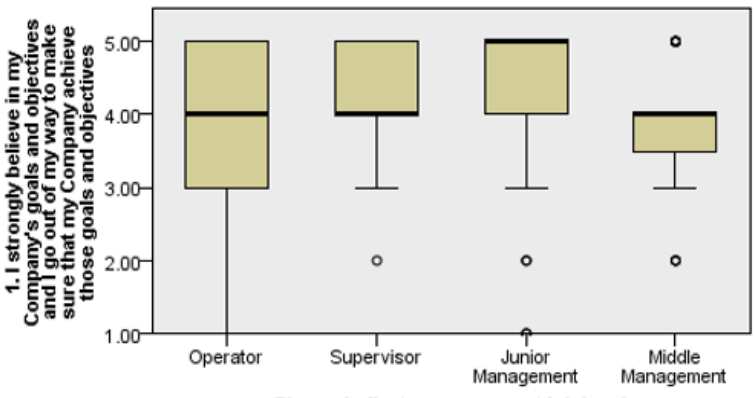
(I) Please indicate your current job level	(J) Please indicate your current job level	Mean Difference (I-J)	Std. Error	Sig.
Operator	Supervisor	-.35161	.14092	.079
	Junior Management	-.38063	.14393	.052
	Middle Management	.20698	.18783	1.000
Supervisor	Operator	.35161	.14092	.079
	Junior Management	-.02902	.17493	1.000
	Middle Management	.55859	.21252	.054
Junior Management	Operator	.38063	.14393	.052
	Supervisor	.02902	.17493	1.000
	Middle Management	.58761*	.21453	.039
Middle Management	Operator	-.20698	.18783	1.000
	Supervisor	-.55859	.21252	.054
	Junior Management	-.58761*	.21453	.039

*. The mean difference is significant at the 0.05 level.

5.7 Emerging insights

The results in Figure 10 show a high level of employee engagement among the respondents, but this was for the whole group. To ascertain the specific details of the groups which were, gender and level of employees, the Mann-Whitney U test and Kruskal Wallis test were used to test the differences between these groups.

Figure 11: The Kruskal Wallis test

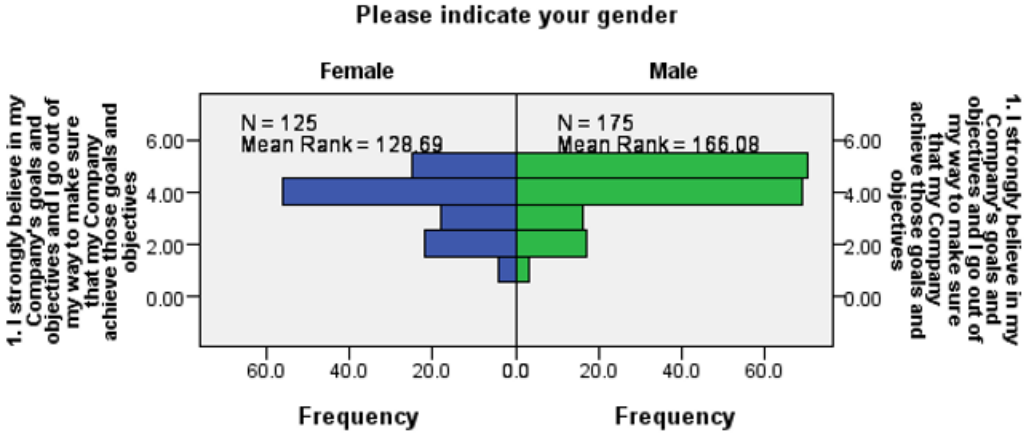


Total N	Test Statistic	Degrees of freedom	Asymptotic Sig. (2-sided test)
300	22.145	3	.000

Figure 11 indicated a significant difference (*p = 0.000*) between the levels of employees in the Platinum mines. The results also showed that operators (mean ranking = 133.23) and middle management (mean rank = 142.78) were less engaged compared to junior management (mean rank = 178.88) and supervisors (mean rank = 170.22).

The level of engagement also differs significantly (p = 0.000) between males and females as shown in Figure 12. Males are more engaged (mean rank = 166.08) than females (mean rank = 128.69).

Figure 12: Mann-Whitney U test



Total N	Mann-Whitney U	Wilcoxon W	Test Statistic	Standard Error	Standardized Test Statistic	Asymptotic Sig. (2-sided test)
300	8,211.000	16,086.000	8,211.000	699.698	-3.897	.000

5.8 Summary of results

The study had a response rate of approximately 75%. Factor analysis was done to reduce the factors, resulting in six factors, of which five demonstrating acceptable internal consistency and reliability and thus used during the hypothesis testing. The relationship was tested with Pearson Product Correlation and the association with Pearson Chi squared. Although the job demand (poor internal consistency) and individual characteristics could not be used, the regression analysis was done to evaluate the influence of the five independent variables (supervision, relationship with co-workers, workplace environment, HRD practices and job design and characteristics). The Mann-Whitney U test and Kruskal Wallis test were used to test the differences between the gender and level of employee groups. Table 22 provides the summary and decisions regarding the tested hypotheses.

Table 22 Summary of the hypotheses results

Hypothesis number	Outcome	Conclusion
Hypothesis 1 Job design and characteristics are positively related to employee engagement	Correlation: $r = 0.773$; $p = 0.000$	Strong positive relationship Decision: **Accept Null hypothesis**
Hypothesis 2 Supervision and Co-workers relationship is positively related to employee engagement	Supervision: Correlation: $r = 0.395$; $p = 0.000$ Co-worker relationship: Correlation: $r = 0.395$; $p = 0.000$	Medium positive relationship Decision: **Accept Null hypothesis**
Hypothesis 3 Workplace environment is positively related to employee engagement	Correlation: $r = 0.570$; $p = 0.000$	Strong positive relationship Decision: **Accept Null hypothesis**
Hypothesis 4 Employee perception of HRD is positively related to employee engagement	Correlation: $r = 0.512$; $p = 0.000$	Strong positive relationship Decision: **Accept Null hypothesis**
Hypothesis 5 Moderators are positively associated with employee engagement	Not computed	Full hypothesis could not be tested Decision: **No Decision**
Hypothesis 6 Drivers of engagement differs between supervisors, junior management, middle management and senior management staff.	ANOVA: The *p*- values all five variables were less than 0.05 Bonferroni Post Hoc: Difference between 1. Supervision: Operator and Supervisor; Operator and Junior Management 2. Co-worker relationship: Junior and Middle management 3. Workplace environment: Operator and Supervisor; Operator and Junior Management 4. HRD Practices: Operator and Supervisor; Operator and Junior Management 5. Job design and Characteristics: Operators and Junior Management	ANOVA indicated that there are differences between groups, with Post Hoc test showing main difference between Operators and Supervisor, and Operators and Junior Management Decision: **Accept Null hypothesis**

5.9 Conclusion

The summary of descriptive statistics performed to test levels of engagement (*RQ1*) and drivers of engagement *(RQ2*) were presented in this chapter. Additionally, the hypotheses testing (*RQ3*) results were also provided. The results indicated high levels of engagement amongst the respondents which was in contradiction with the literature reviewed. This contradiction is dealt with in the following chapter. The results supported the drivers of engagement as advanced by Rana et al., (2014) model which were; job design and characteristics, supervisors and co-worker relationships, workplace environment and HRD practices. The results also supported all six hypotheses tested with the exception of one.

Of the six hypotheses that were tested, four relationship hypotheses were accepted. No decision could be made on the fifth hypothesis which deals with moderation as the job demand variable could not be utilised and the individual characteristics variable was not extracted with factor analysis. The last hypothesis on the difference between the level of employment in the organisation and the five extracted drivers of engagement was accepted. A summary of the results was shown in Table 22. These results are discussed in Chapter Six as well as their connection to the literature as previously discussed in Chapter Two.

CHAPTER 6: DISCUSSION OF THE RESEARCH RESULTS

6.1 Introduction

This section discusses the research results presented in Chapter Five, in order to answer the research questions and test the hypotheses as outlined in Chapter Three. This section demonstrates how the research objectives were achieved as outlined in Chapter One. The three research questions were:

- **RQ1:** What are the levels of employee engagement in the platinum mines?
- **RQ2:** What are the drivers of employee engagement in the platinum mines?
- **RQ3:** Do the drivers of engagement differ between the level of employees (operators, supervisors, junior management and middle management)?

These research questions are discussed in conjunction with the relevant hypotheses tested. These results are also discussed in light of the literature reviewed in Chapter Two. Firstly, the demographic profile of the respondents is discussed.

6.2 Sufficiency of the data

6.2.1 Relevance of the respondents

The demographic profile of the sampled employees who were working for Company A and Company B at the time of the study was presented in Figures 5 to 9. The analysis of this demographic profiles showed that out of 301 respondents, the majority were males (58.1%, N = 175). It was noted that 58.1% was low when compared to the 88% male workforce in the mining industry according to Statistics South Africa (2015), however this was in line with the entire South African male workforce at 56.2% (Statistics South Africa, 2015). On that basis, the gender distribution was found to be relevant and appropriate for analysis.

Over two-thirds of the respondents were between the ages of 21 and 40 years (68.4%, N = 206), which was also in line with the South African workforce (Statistics South Africa, 2015). The majority of the respondents were working for

Company A (71.8%, N = 216) as operators (55.5%, N = 167) and working underground (65.1%, N = 196). It was expected that the majority would be operators working underground as they form the largest part of the mining industry population. It was concluded that the demographic profiles of the respondents were relevant and appropriate for performing statistical analysis to answer the research questions.

6.2.2 Sufficiency of sample

The population size of this study was just over 53,000 and applying a 95% confidence interval and an error margin of 5%, resulted in 381 recommended sample size (Figure 4) (Chiba, 2015). Hair et al., (2010) provided a guideline that a more acceptable sample size should be ten times the number of statements or variables to be analysed. The core section (section C) of the questionnaire (Appendix A) had 31 statements requiring a sample size of 310 to be acceptable.

This research study employed face-to-face survey administration which has a high response rate, as questionnaires are generally distributed, completed and collected in one process (Denscombe, 2014). A sample size of 400 was targeted and 301 responses were received which indicated a 75% response rate. This sample and the responses received were considered sufficient for data analysis. The targeted sample size was also in line with the guidelines of Hair et al., (2015).

6.3 Research question one: Levels of engagement

RQ1: What are the levels of employee engagement in the platinum mines?

The results presented in Figure 10 indicated a high level of engagement (73%) amongst the respondents. The majority of the respondents (73%) agreed with the statement saying “I strongly believe in my company’s goals and objectives and I go out of my way to make sure that my company achieves those goals and objectives”. This statement was used in the study of Aon Hewitt (2013) to describe high employee engagement. The results also showed that 54.1% of respondents agreed with the statement that claimed “I have a positive attitude towards my work and I engage in productive behaviour, but I am not fully committed to the company”. Aon Hewitt (2013) used this statement to describe moderate engagement behaviour. The studies of Gallup (2013) and Towers Watson (2012) described high employee engagement similarly to that of Aon Hewitt (2013) study.

The majority of the respondents “agreed” with both these statements, which implied they were engaged at work according to Aon Hewitt (2013). This was in contradiction to the study done by Gallup (2013) which found that only 9% of employees in South Africa were highly engaged.

The findings in Figure 10 were for the whole group, and therefore a further analysis was done between groups. To further understand if the levels of engagement differ between gender and job level groups, the Mann-Whitney U test and Kruskal Wallis test were performed. The Kruskal Wallis test (Figure 11) revealed that the level of engagement between job levels (operators, supervisors, junior management and middle management) differs significantly ($p = 0.000$).

It was interesting to note that operators (mean rank = 133.23) and middle management (mean rank = 142.78) were less engaged than supervisors (mean rank = 170.22) and junior management (mean rank = 178.88). This finding contradicted the findings of Blessing White (2013) which suggested that high level employees (managers) are more engaged than low level employees (operators). The closer the employee gets to the top management level in the organisation, the more engaged they are at work (Blessing White, 2013). Line managers are responsible for operationalising strategy, and if they are less engaged, this could significantly affect the organisational performance (Towers Watson, 2012).

The Mann-Whitney U test (Figure 12) showed there was a significant ($p < 0.05$) difference between male and female mineworkers. The study revealed that female mineworkers were less engaged (mean rank = 128.69) than their male (mean rank 166.08) counterparts. This emerging insight was in line with observations made by (Schutte, Edwards, & Milanzi, 2012)) in their study titled: “How hard do mineworkers work? An assessment of workplace stress associated with routine mining activities”. They found that female mineworkers experience significantly more physiological strain than male mineworkers when performing mining tasks (Schutte et al., 2012). Gagné and Bhave (2011) asserted that employees who experience strain at work are less likely to be engaged. This outcome was further supported by the employee engagement study of Blessing White (2013), which found that men are more likely to be engaged than their female counter parts.

In summary, the data showed that engagement levels differs between levels of employees. The results also indicated that gender and job level have a significant impact on employee engagement in the platinum mining industry.

6.4 Research question two: Drivers of employee engagement

RQ2: What are the drivers of employee engagement in the platinum mines?

The literature advanced job design and characteristics, supervisor and co-worker relationships, workplace environment and HRD practices as drivers of employee engagement (Rana et al., 2014; Sahoo & Mishra, 2012; Subrahmanian, 2014). Rana et al., (2014) suggested that the relationship between these drivers of engagement (independent variables) and employee engagement (dependent variable) was moderated by job demands and individual characteristics. The theory also highlighted the importance of engagement mainly from the employees' perspective (individuals and groups) (Kahn, 1990; Welch, 2011). Engagement from organisational perspective is also important as employees' lives are affected by organisational culture, goals and objectives (Fearon et al., 2013).

Pearson product correlation was performed to conduct hypotheses testing of the existence of a relationship between the drivers of engagement and employee engagement and their moderating factors. The results are discussed below.

6.4.1 Hypothesis one

The results showed that hypothesis one, which states; "Job design and characteristics are positively related to employee engagement", was supported (r = 0.773; p = 0.000). Job design and characteristics had six contributing statements (Table 8) following the factor analysis. Two statements had the highest level of agreement (Table 7) from the respondents. Firstly; "I understand how my job contributes to the success of the company" had a mean score of 4.3867 (SD = 0.77405), and secondly, respondents agreed with the statement that said "I know what is expected of me at work", which had a mean score of 4.3423 (SD = 0.79368).

The results indicated that the respondents had a good understanding of how their job contributed to the objectives and the success of their organisation. This finding is supported by the study of Towers Watson (2012) which found that

engaged employees believes in their company's goals and objectives and are willing to put in extra effort for the benefit of the company.

There were also two statements that the respondents agreed with less, which were " I am paid fairly for the work that I do" and "People who are performing their jobs very well are fairly recognised and rewarded". This finding indicated that some of the mineworkers feel underpaid and unrewarded for the work they are doing. This may relate to the wage demands of ZAR12,500 which were at the heart of the 2012 Marikana and 2014 platinum industry strikes (Bohlmann et al., 2014).

Overall the job design and characteristics had a mean score of 3.5295 (SD = 0.80626) (Table 10) which was close to 4. This indicated that this driver was important for employee engagement and it was concluded that job design and characteristics is one of the drivers of engagement in the platinum mines.

6.4.2 Hypothesis two (a) and (b)

Hypothesis two had two sub-variables that were tested, namely, supervision (a) and relationship with co-workers (b).

The results indicated that hypothesis two (a), which states; "Supervision is positively related to employee engagement" was confirmed. The Pearson correlation in Table 12 indicated a significant relationship (r = 0.582, p = 0.000) between supervision and employee engagement. This outcome indicated that supervision is critical for employee engagement in the platinum mines. This finding also supports the theory which suggests that perceived supervisor support is positively related to employee engagement (Anitha, 2014; Rana et al., 2014). This outcome was also consistent with the findings of Towers Watson (2012) study which found that supervisors who act in line with their company values and ethics are more likely to positively influence employee engagement.

The results also indicated that hypothesis two (b), stating; "Co-worker relationship is positively related to employee engagement" was supported. Table 13 revealed a medium relationship (r = 0.395, p = 0.000) between co-worker relationship and employee engagement. This outcome supports the finding of Aon Hewitt (2013) study titled "Managing employee engagement during times of change", which found that employees who perceive their co-workers working together, providing reliable support and making personal sacrifices, are more

likely to be engaged. Table 10 indicated that co-worker relationship had the highest mean score of 3.5973 (SD = 0.92146) compared to other drivers of engagement, which signalled that most of respondents had a good relationship with their colleagues. This finding affirmed the findings of Anitha (2014) study which found that work environment, and team and co-worker relationships had a significant relationship with employee engagement as compared to other factors (Anitha, 2014).

6.4.3 Hypothesis three

The results presented in Table 14 for hypothesis three, which states; "Work environment is positively related to employee engagement", shown that there is a strong relationship (r = 0.570, p = 0.000) between work environment and employee engagement. Anitha (2014) proposed that a workplace environment that encourages employees to focus on their work and interpersonal relationships is positively related to employee engagement.

Working conditions at the mines are typically harsh in nature with high temperatures underground, extreme pressure to perform and a highly radical unionised environment (Oldfield & Mostert, 2007). Managers' and supervisors' roles are critical in creating a harmonious workplace environment that encourages employees to build interpersonal relationships (Shuck et al., 2011). Despite the harsh conditions at the mines, the positive outcome of this hypothesis could be linked to the findings of hypothesis (a) and (b) which indicated that the majority of the respondents had a good perceived relationship with their supervisors and co-workers.

6.4.4 Hypothesis four

The results in Table 15 indicated that hypothesis four, which states; "Employee perception of HRD practices is positively associated with employee engagement", was supported. Employees' perception of human resource development (HRD) practices had a strong relationship with employee engagement. This finding supports the literature that HRD practices such as training and development, employee feedback, career development opportunities, employee welfare schemes, and reward and recognition schemes are key drivers of employee engagement (Dash, 2013; Jose & Mampilly, 2012).

Training and development of mineworkers is continuously maintained as the

mining industry continues to introduce and implement new technologies (Dickie & Dwyer, 2011). Anitha (2014) argued that employees who undergo training and development programmes are more confident in their work and this leads them to be engaged at work. The results presented in Tables 7, 8 and 9 showed that there were six statements linked to HRD practices as drivers of engagement. The statement reading, “I received training that I need to do my job well” had the highest mean score of 3.7162 (SD = 0.99518) which indicated that the majority of the respondents felt they received training for the work that they were doing. This finding was not surprising as the Mine Health and Safety Act compels mining companies to provide mineworkers with the training and development that is necessary to perform their work safely and without risk to health (Republic of South Africa, 1996).

6.4.5 Hypothesis five

No decision could be made for hypothesis five, which states; “The relationship between independent variables and employee engagement is moderated by job demands and individual characteristics”. Based on the results presented in Table 9, an internal consistency reliability of job demand was found to be unacceptable ($\alpha = 0.416$) at the Cronbach’s alpha of less than 0.5, and therefore no further analysis was done with the data from the job demand construct. Individual characteristics could not be extracted in the factor analysis.

6.5 Research question three: Drivers of engagement differs between levels of employees

RQ3: Do the drivers of engagement differ between the level of employees (operators, supervisors, junior management and middle management)?

6.5.1 Hypothesis six

The Rana et al., (2014) model indicated four drivers which were positively linked to employee engagement. Blessing White (2013) study found that engagement levels differ between job levels. High level employees (executives and managers) in the organisation are more engaged that low level employees (operators) (Blessing White, 2013). Considering these assertions, it was important to establish the perception of each driver of engagement amongst the level of employees. To perform these tests, analysis of variance (ANOVA) was used.

The results of ANOVA shown in Table 16 supported hypothesis six, which states; "The drivers of engagement differ between operators, supervisors, junior management and middle management". The outcome indicated that there was a statistical difference between, and within, the groups for all five drivers of employee engagement, with all the *p-values* less than 0.05. These significant differences were at the group level. Therefore, to ascertain how these levels of employees differ per driver of employee engagement, the Bonferroni post-hoc test was performed as it is a simple and most versatile test for this scenario.

Supervision perception differs between levels of employees

The Bonferroni post-hoc test results presented in Table 17 showed that there was a significant difference between operators and supervisors (p = 0.003); and between operators and junior management (p = 0.000) with regards their perception of supervision. It was noted that there was no significant difference between operators and middle management in their views of perception (p = 0.306). This alignment between operators and middle management was also noted when the Kruskal Wallis test (Figure 11) revealed that both operators and middle management were less engaged compared to supervisors and junior management.

The results showed there was no significant difference of supervision perception between supervisors and junior management (p = 0.790) and between supervisors and middle management (p = 1.000). There was also no significant difference of perception between junior management and middle management (p = 0.428). Perceived supervisor support is vital for employee engagement especially in the mining industry (Mclaggan et al., 2013).

It can be concluded that supervisors, junior management and middle management have a similar perception of supervision. However, operators differ from supervisors and junior management in their perception of supervision.

Workplace environment differs between levels of employees

The outcome in Table 18 revealed a substantial difference between operators and supervisors (p = 0.001) and between operators and junior manager (p = 0.000) in their view of workplace environment. However, there was no significant difference between operators and middle management (p = 0.556) in their perceptions of the workplace environment.

There was no substantial difference between supervisors and junior management (p = 1.000) and between supervisors and middle management (p = 1.000) in their views of workplace environment as indicated in Table 18. The results also pointed there was no significant difference between junior management and middle management (p = 1.000) in their perception of their workplace environment.

HRD practices differ between levels of employees

The Bonferroni post hoc test results in Table 19 indicated similar perceptions of HRD practices amongst the levels of employees as those of perceived supervision and workplace environment. The results showed there was a statistical difference between operators and supervisors (p = 0.046) and between operators and junior management (p = 0.002) in their view of HRD practices in the organisation. However, operators had a similar view of HRD practices to that of middle management (p = 1.000).

Table 19 results also revealed that supervisors had similar views to those of junior management (p = 1.000) and middle management (p = 1.000). Similarly, there was no statistical difference between junior management and middle management (p = 0.512) in their perception of HRD practices.

Job design and characteristics differs between levels of employees

There results depicted in Table 20 indicated that there is no substantial difference in their view of job design and characteristics between all the levels of employees as the *p-values* were more than 0.05 except between operators and junior management. The results shown that there is a statistical difference between operators and junior management (p = 0.005).

Relationship with co-workers differ between levels of employees

There results depicted in Table 21 revealed there was no significant difference of perception of co-worker relationship between operators and supervisors (p = 0.079); or between operators and between junior management (p = 0.052). However, there was a significant difference between junior management and middle management (p = 0.039) in their perception of co-worker relationships.

In summary, the perception of drivers of employee engagement as advanced by Rana et al., (2014) differs significantly between operators, supervisors, junior

management and middle management. Therefore, hypothesis six is statistically supported.

6.6 Revised model of employee engagement

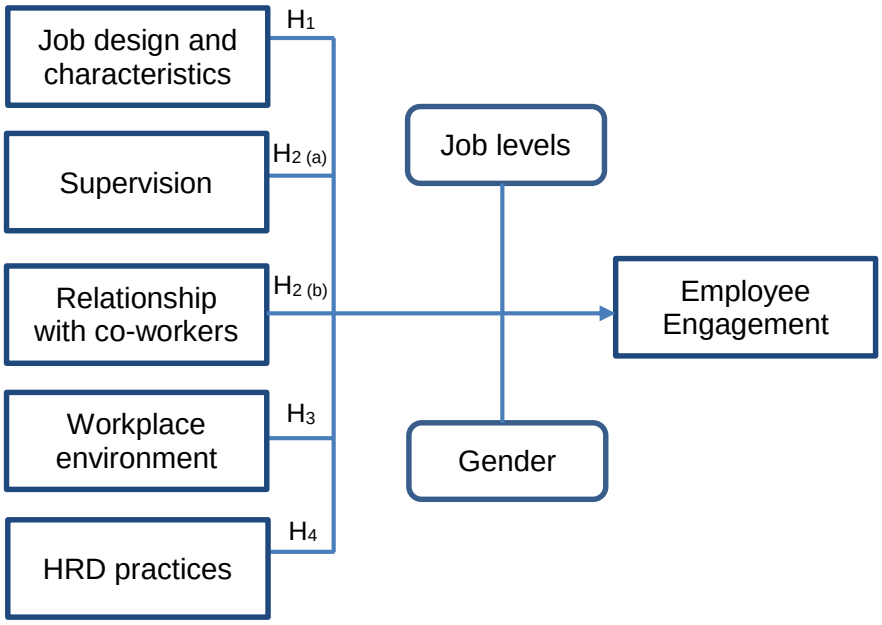
The results discussed above for the research questions and their hypotheses tested, supported job design and characteristics, supervision, relationship with co-workers, workplace environment and HRD practices as key drivers of employee engagement as proposed by Rana et al., (2014). However, the job demands and individual characteristics as moderators of independent variables and dependent variable could not be supported. The Pearson correlation coefficients of all constructs as depicted in Table 23 were significant at the 0.05 level of significant except for job demands and individual characteristics.

Table 23: Pearson product correlation coefficients of constructs

Construct	Engagement	
	R	*P - value*
Job design and characteristics	.773	0.000
Supervision	.582	0.000
Relationship with co-workers	.395	0.000
Workplace environment	.570	0.000
HDR practices	.512	0.000
Job demands (JD) and individual characteristics (IC) as moderators of independent and dependent variables	Cronbach's alpha of 0.416 not acceptable for JD and ID could not be extracted for factor analysis	

The results of the Mann-Whitney U test and Kruskal Wallis test strongly suggested that gender and job levels have significant impact on employee engagement. Consequently, gender and job levels were proposed as moderators of employee engagement in the platinum mines. The revised model of employee engagement is shown in Figure 13 below:

Figure 13: Revised employee engagement model



6.7 Conclusion

The results were discussed in line with the research objectives, research questions and hypotheses as presented in Chapters One and Three. The majority of the findings supported the literature presented in Chapter Two, however some of the findings were contradictory, resulting in interesting insights. The results indicated there was a high level of engagement amongst the respondents which was in contradiction to the study of Gallup (2013) which found a low level of employee engagement in South Africa.

The results supported job design and characteristics, supervision, co-worker relationships, workplace environment and HRD practices as key drivers of engagement as proposed by Rana et al., (2014), which were similar to those of Sahoo and Mishra (2012), Subrahmanian (2014) and Cardus (2013). The results indicated that job demands and individual characteristics were not suitable moderating variables between dependent variable (employee engagement) and independent variables (drivers of engagement). Alternatively, the results showed gender and job level as being suitable moderators. Consequently the employee engagement model was revised to include the new insights (Figure 13).

All the research questions were addressed by the findings and the objectives were met. The results established the levels of engagement and the key drivers of employee engagement in the platinum mines of South Africa. An important

finding was that the results confirmed that the drivers of employee engagement differ significantly between the levels of employees (operators, supervisors, junior management and middle management).

CHAPTER 7: CONCLUSION AND RECOMMENDATIONS

The platinum mining industry of South Africa has experienced difficulties in recent years, including strained industrial relations, compounded by challenges associated with tough market conditions and a demanding societal context (Lane et al., 2015). Employee engagement is advanced as an essential driver of business success in contemporary competitive markets and may positively influence company reputation and overall stakeholder value (Muthuveloo et al., 2013; Swarnalatha & Prasanna, 2013). Shuck et al., (2011) and Kataria et al., (2013) asserted that employee engagement has a positive link to several bottom lines of a company's outcome such as profits, productivity, business growth, employee retention, job performance and lower absenteeism.

The principal objective of the research was to determine the current levels and key drivers of employee engagement in the platinum mines. To accomplish the objective, the study focused on measuring the variables identified as antecedents of employee engagement as guided by the literature. The study further sought to establish if those drivers of engagement differed between levels of employees in the organisation.

The literature reviewed, and particularly the Rana et al., (2014) model of employee engagement, was used to develop the hypotheses required to determine and measure the drivers of employee engagement. The survey in the form of a structured questionnaire was employed to collect data for statistical analysis.

The sample size of 400 was considered appropriate and acceptable according to the guidelines provided by Hair et al., (2010). The demographic profile of the 301 respondents showed a good distribution across the categories of job level, age, gender and area of work (underground or surface), and therefore it was considered suitable for analysis.

The main findings, limitations of the study and recommendations for future studies are summarised below.

7.1 Key findings

Overall, the research objectives were met with regards the levels of engagement in the platinum mines, key drivers of employee engagement and whether those drivers of engagement differed between the levels of employees. With due cognisance to the practical significance of the statistical differences between the respective groups of employees, the overall results of this study, explained through the engagement theories as discussed in Chapter Two, could broadly be summarised as follows:

- The study found there were high levels of engagement amongst the respondents. The study also found that operators and middle management were less engaged compared to supervisors and junior management. The results further indicated that the female mineworkers were less engaged at work.

- The hypotheses tests were performed to test the drivers of employee engagement as purported by Rana et al., (2014). The findings indicated that job design and characteristics, supervision, relationship with co-workers, workplace environment and human resource development (HRD) practices were positively connected with employee engagement. The findings further showed that gender and job level significantly influenced the relationship between key drivers of employee engagement (independent variables) and employee engagement (dependent variable) as opposed to job demands and individual characteristics suggested by Rana et al., (2014). This indicates that management should consider the different levels of employees and in particular, female workers, when developing engagement strategies. As the results showed, these employees were engaged by different factors.

- The results showed a statistical difference between the levels of employees in their view of identified drivers of employee engagement. Bonferroni post-hoc tests were executed to further analyse these differences. The results revealed that operators statistically differ with supervisors and junior management in their view of drivers of engagement. There was no significant difference between operators and middle management in their view of drivers of engagement. Supervisors, junior and middle management had no significant difference in their view

of drivers of employee engagement except in their perception of co-worker relationships. This finding indicates that the platinum mining industry should take cognisance of these differences in engagement patterns. A great amount of effort needs to be spent in engaging supervisors and operational management as they are responsible for operationalising company strategy.

7.2 Academic contribution of the study

The results of the study have a practical implication and contributes theoretically to the academic discussion regarding the employee engagement concept, particularly in the platinum mining industry. Literature reviewed on employee engagement did not clarify what drives employee engagement specifically in the mining industry of South Africa. This study represents a positive step in determining and better understanding some of the drivers of employee engagement in the platinum mining industry.

The study emphasises the importance of supervision, relationships with co-workers, job design and characteristics, workplace environment and HRD practices as key drivers of employee engagement (Rana et al., 2014).The findings of this research study identified gender and job level as key moderators between drivers of engagement and the employee engagement concept. Female mineworkers were found to be less engaged than their male counterparts. The model was revised to show gender and job levels having significant impact on the relationship between drivers of engagement and employee engagement. This presents a platform for further studies. There should be a focus on understanding the difference in female workers' engagement.

The study also made the assertion that high ranking employees are not necessarily more engaged simply because they occupy managerial positions as purported by the Blessing White (2013) study. Middle management was found to be less engaged compared to junior management and supervisors. Middle management is relied upon by executives and senior management to implement the company strategy (Towers Watson, 2012), and it is thus vital to understand what discourages them from being engaged and what can be done to engage them.

7.3 Implications for management

The study highlights the important of engaged employees in relation to an organisation's success. Engaged employees apply themselves cognitively, physically and emotionally while performing their roles in the organisation (Saks & Gruman, 2014). The study emphasises the significance of supervision in achieving high levels of employee engagement. Executives and senior management needs to be aware of the levels of engagement across all levels of employees.

The study found that middle management was less engaged when compared to supervisors and junior management. The Towers Watson (2012) study found that executives and senior management rely heavily on middle management for operationalising company strategy. It is therefore important for this level of management to be highly engaged for the success of the company. To achieve positive outcomes, strong engaged leadership is required (Mclaggan et al., 2013). Passively engaged line management could jeopardise the successful implementation of strategy and consequently, the success of an organisation. Line management play a vital role in creating a safe, positive and meaningful working environment which in turn leads to employee engagement (Shuck et al., 2011). The study found that a harmonious, meaningful workplace environment is positively linked to employee engagement.

Management needs to invest more in the training and development of employees. The study found that human resource development practices such as external and on-the-job training, regular performance feedback, succession planning and rewards and recognition schemes are positively associated with employee engagement (Dash, 2013).

Job design and characteristics including attributes such as compensation and the nature of the work itself, was found to be one of the drivers of employee engagement. Mining working conditions are harsh in nature and involve the handling of heavy equipment and machinery (Kunda et al., 2013). Accordingly, management needs to develop a sound strategy on how to keep employees engaged under such working conditions, particularly the female workers. The study discovered that female workers were less engaged compared to male workers, but as mining companies in South Africa are compelled by law to hire more women (Department of Mineral Resources, 2015), it is therefore imperative

that women are considered when designing and allocating jobs.

7.4 Limitations of the study

The study was limited to only the platinum mining industry and the findings might not be applicable to other mining sectors and other industries. Only two companies were selected, and so, despite these companies being the largest producers of platinum in the world, the findings may not be applicable to other mining companies.

The research methodology used in this study was quantitative in nature which has its own limitations. The use of the Likert scale questionnaire might have denied respondents the chance of providing in-depth responses. The survey was self-reporting in nature and respondents could have reported their opinions which they hold to be true. However, the respondents could have also provided responses they believed the researcher wanted to hear.

The survey was conducted at a particular point in time. The respondents might have had a direct interest in the issues raised or have felt particularly aggrieved, possibly leading to some inaccurate responses being given. Some of the questions needed to be translated due to low level of functional literacy, which may have led to some translation errors, and consequently to some failures to respond to the actual statements.

7.5 Suggestions for future studies

It is recommended that the findings of this study be analysed to further understand the key drivers of employee engagement in the platinum mines. Future studies should establish if these findings can be applied to other industries. Other data collection methods such as interviews should be explored in order to gain in-depth responses regarding drivers of engagement. Additionally, data should be collected from more companies in different industries.

The study confirmed the Rana et al., (2014) model that supervision, co-worker relationships, workplace environment and HRD practices are key drivers of employee engagement. The findings further indicated that gender and job levels were significantly influencing the relationship between independent and dependent variables. Future studies should investigate the revised model of

engagement presented in this study, to test if gender and job levels can act as moderators between the drivers of engagement and employee engagement in other industries. It is important to understand what drives female workers to be engaged in the mining industry as more women than before are being employed in the industry.

The findings indicated that middle managers were less engaged compared to supervisors and junior management. The study highlighted that high ranking employees are not necessarily engaged simply because they occupy high level positons. Further research is needed to investigate why middle management staff is not as highly engaged as supervisors and middle management.

The study revealed an interesting observation that statistically there was no difference between operators and middle managers in their view of drivers of engagement. Future research should be done to ascertaine the strength of this correlation.

7.6 Final remarks

The aim of the study was to establish the key drivers of employee engagement in the platinum mines in South Africa. This objective was met were job design and characteristics, supervision, co-worker relationships, workplace environment and HRD practices were confirmed as drivers of employee engagement. The study found that gender and job levels have an impact on the relationship between drivers of engagement and engagement of employees. Accordingly, the study presented a revised engagement model where gender and job levels were suggested as moderators between independent and dependent variables. The study revealed that the drivers of engagement differs between the levels of employees.

The knowledge gained from this study may assist management in developing strategies on how to sustainably engage employees. This knowledge also contributes theoretically to the concept of employee engagement. Academic and managerial implications are highlighted in this study. Furthermore, recommendations for future studies are advanced.

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APPENDICES

APPENDIX A – Survey Questionnaire

Gordon Institute of Business Science
University of Pretoria

DETERMINING THE KEY DRIVERS OF EMPLOYEE ENGAGEMENT IN THE PLATINUM MINES IN SOUTH AFRICA

CONSENT LETTER

Dear Sir/Madam

My name is Tseko Hlapho and I am studying MBA with the Gordon Institute of Business Science (GIBS), University of Pretoria. As part of my studies, I'm conducting the research to determine what makes employees to be engaged at work in the Platinum Mines. Your participation in this study will be highly appreciated as it will help us to understand what drives employees to be engaged in their work, particularly in the platinum mines.

The attached questionnaire should not take more than 10 minutes of your time. **Your participation is voluntary and you can withdraw at any time without penalty**. All data will be kept confidential and used in an aggregated format to protect your identity and that of the other people participating in this study. The permission has been provided by your company for you and other employees to participate in this study.

By completing the survey, you indicate that you voluntarily participate in this research. If you have any concerns, please contact my supervisor or myself. Our details are provided below.

Researcher Name: Tseko Hlapho
Email: Tseko.hlapho@angloamerican.com
Phone: 083 259 0171

Research Supervisor: Dr. Annelie Gildenhuys
Email: annelie.gildenhuys@standardbank.co.za
Phone: 083 251 1326

QUESTIONNAIRE

SECTION A – BIOGRAPHICAL INFORMATION

We understand the sensitivity of the questions in this section, however this information will help us to compare groups. We assure you that your response will remain confidential and anonymous and therefore you do not need to provide us with your name, ID number or company number. Your participation is highly appreciated.
Please indicate your choice by marking with an **X**

1. Please indicate the Company you are working for.

Anglo American Platinum	
Impala Platinum	

2. Please indicate your current job level.

Operators (A1 – B7)	
Supervisor (C1 – C4)	
Junior Management (C5 – D1)	
Middle Management (D2 – D4)	

3. Please indicate your age range.

20 years or younger	
21 to 30 years	
31 to 40 years	
41 to 50 years	
51 to 60 years	
61 years or older	

4. Please indicate your gender

Male	
Female	

5. Please indicate the area of work

Underground	
Surface	

SECTION B: LEVELS OF ENGAGEMENT

Please read the following statements carefully and select **one (1)** option per statement, which best describes your opinion by marking it with an **X:**

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Scale	**5**	**4**	**3**	**2**	**1**
I strongly believe in my Company's goals and objectives and I go out of my way to make sure that my Company achieve those goals and objectives.					
I have a positive attitude towards my work and I engage in productive behaviour, but I am not fully committed to the organisation					
I come to work and go through the motions without any particular interest in my work					
I feel connected to my job and am very happy at work					

SECTION C: DRIVERS OF EMPLOYEE ENGAGEMENT

Please read the following statements carefully and select **one (1)** option per statement, which best describes your opinion by marking it with an **X:**

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Scale	**5**	**4**	**3**	**2**	**1**
1. I understand how my job contributes to the success of the Company					
2. I know what is expected of me at work.					
3. I am paid fairly for the work that I do.					
4. People who are performing their jobs very well are fairly recognised and rewarded.					
5. I have material and equipment that I need to do my work.					
6. At work, my opinion seems to count.					
7. I enjoy my work.					
8. My supervisor delivers on his or her promises					
9. My supervisor clearly communicates the goals and objectives to us as the team.					
10. My supervisor treats all employees with respect.					
11. My supervisor treats everyone fairly.					
12. My supervisor encourages me to develop and improve my skills.					
13. I trust my supervisor.					

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Scale	**5**	**4**	**3**	**2**	**1**
14. I trust my co-workers					
15. I receive support from my co-workers and we work well together as a team					
16. I get excited about going to work					
17. My workplace is safe.					
18. I'm proud of my workplace.					
19. We have enough people in my team to get the job done on time and correctly.					
20. We as employees work long hours than normal					
21. I am encouraged to come up with new ideas to improve my workplace environment					
22. I would recommend my Company to other people as the best place to work for.					
23. I am encouraged to learn from my mistakes at work and I'm not punished for making those mistakes.					
24. I feel positive about my future professional development in my Company					
25. I feel like the job promotions in my Company are fair					
26. During the last six months, someone talked to me about my progress at work					
27. I received training that I need to do my job well					
28. I see myself working for my company in the next three years.					
29. Training and development policies are communicated clearly to employees					
30. My job allows me to balance between my work and personal life.					
31. Performance issues or disciplinary matters are handled fairly.					

This is the end of the survey and we would like to repeat that your participation will be kept confidential and anonymous.

Your participation in this research is highly appreciated. Thank you very much!

APPENDIX B – Ethical clearance letter

Gordon Institute of Business Science
University of Pretoria

Dear Tseko Hlapho

Protocol Number: **Temp2015-01314**

Title: **Determining the key drivers of employee engagement in the large Platinum Mines in South Africa**

Please be advised that your application for Ethical Clearance has been APPROVED.

You are therefore allowed to continue collecting your data.

We wish you everything of the best for the rest of the project.

Kind Regards,

GIBS Ethics Administrator

APPENDIX C – Frequency tables

1. I strongly believe in my Company's goals and objectives and I go out of my way to make sure that my Company achieve those goals and objectives

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	7	2.3	2.3	2.3
	2.00	39	13.0	13.0	15.3
	3.00	34	11.3	11.3	26.7
	4.00	125	41.5	41.7	68.3
	5.00	95	31.6	31.7	100.0
	Total	300	99.7	100.0	
Missing	System	1	.3		
Total		301	100.0		

2.I have a positive attitude towards my work and I engage in productivity behaviour, but I am not fully committed to the organisation

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	15	5.0	5.1	5.1
	2.00	69	22.9	23.3	28.4
	3.00	52	17.3	17.6	45.9
	4.00	109	36.2	36.8	82.8
	5.00	51	16.9	17.2	100.0
	Total	296	98.3	100.0	
Missing	System	5	1.7		
Total		301	100.0		

3.I come to work and go through the motion without and particular interest in my work

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	66	21.9	22.2	22.2
	2.00	120	39.9	40.4	62.6
	3.00	44	14.6	14.8	77.4
	4.00	41	13.6	13.8	91.2
	5.00	26	8.6	8.8	100.0
	Total	297	98.7	100.0	
Missing	System	4	1.3		
Total		301	100.0		

4.I feel connected to my job and am very happy at work

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	10	3.3	3.3	3.3
	2.00	44	14.6	14.6	17.9
	3.00	50	16.6	16.6	34.6
	4.00	111	36.9	36.9	71.4
	5.00	86	28.6	28.6	100.0
	Total	301	100.0	100.0	

1.I understand how my job contributes to the success of the Company

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	1	.3	.3	.3
	2.00	9	3.0	3.0	3.3
	3.00	21	7.0	7.0	10.3
	4.00	111	36.9	37.0	47.3
	5.00	158	52.5	52.7	100.0
	Total	300	99.7	100.0	
Missing	System	1	.3		
Total		301	100.0		

2.I know what is expected of me at work

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	1	.3	.3	.3
	2.00	11	3.7	3.7	4.0
	3.00	21	7.0	7.0	11.1
	4.00	117	38.9	39.3	50.3
	5.00	148	49.2	49.7	100.0
	Total	298	99.0	100.0	
Missing	System	3	1.0		
Total		301	100.0		

3. I am paid fairly for the work that I do

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	47	15.6	16.4	16.4
	2.00	70	23.3	24.4	40.8
	3.00	56	18.6	19.5	60.3
	4.00	81	26.9	28.2	88.5
	5.00	33	11.0	11.5	100.0
	Total	287	95.3	100.0	
Missing	System	14	4.7		
Total		301	100.0		

4.People who are performing their jobs very well are fairly recognised and rewarded

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	43	14.3	14.5	14.5
	2.00	72	23.9	24.2	38.7
	3.00	63	20.9	21.2	59.9
	4.00	87	28.9	29.3	89.2
	5.00	32	10.6	10.8	100.0
	Total	297	98.7	100.0	
Missing	System	4	1.3		
Total		301	100.0		

5.I have material and equipment that I need to do my work

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	19	6.3	6.4	6.4
	2.00	52	17.3	17.6	24.0
	3.00	47	15.6	15.9	39.9
	4.00	115	38.2	38.9	78.7
	5.00	63	20.9	21.3	100.0
	Total	296	98.3	100.0	
Missing	System	5	1.7		
Total		301	100.0		

6. At work, my opinion seems to count

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	22	7.3	7.6	7.6
	2.00	41	13.6	14.1	21.7
	3.00	67	22.3	23.1	44.8
	4.00	120	39.9	41.4	86.2
	5.00	40	13.3	13.8	100.0
	Total	290	96.3	100.0	
Missing	System	11	3.7		
Total		301	100.0		

7.I enjoy my work

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	14	4.7	4.8	4.8
	2.00	32	10.6	11.1	15.9
	3.00	43	14.3	14.9	30.8
	4.00	120	39.9	41.5	72.3
	5.00	80	26.6	27.7	100.0
	Total	289	96.0	100.0	
Missing	System	12	4.0		
Total		301	100.0		

8.My supervisor delivers on his or her promises

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	21	7.0	7.0	7.0
	2.00	50	16.6	16.7	23.7
	3.00	75	24.9	25.1	48.8
	4.00	117	38.9	39.1	88.0
	5.00	36	12.0	12.0	100.0
	Total	299	99.3	100.0	
Missing	System	2	.7		
Total		301	100.0		

9.My supervisor clearly communicates the goals and objectives to us as the team

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	16	5.3	5.4	5.4
	2.00	41	13.6	13.8	19.1
	3.00	51	16.9	17.1	36.2
	4.00	133	44.2	44.6	80.9
	5.00	57	18.9	19.1	100.0
	Total	298	99.0	100.0	
Missing	System	3	1.0		
Total		301	100.0		

10. My supervisor treat all employees with respect

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	21	7.0	7.1	7.1
	2.00	50	16.6	16.9	24.0
	3.00	52	17.3	17.6	41.6
	4.00	118	39.2	39.9	81.4
	5.00	55	18.3	18.6	100.0
	Total	296	98.3	100.0	
Missing	System	5	1.7		
Total		301	100.0		

11.My supervisor treats everyone fairly

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	24	8.0	8.1	8.1
	2.00	58	19.3	19.5	27.5
	3.00	72	23.9	24.2	51.7
	4.00	102	33.9	34.2	85.9
	5.00	42	14.0	14.1	100.0
	Total	298	99.0	100.0	
Missing	System	3	1.0		
Total		301	100.0		

12.My supervisor encourages me to develop and improve my skills

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	51	16.9	17.1	17.1
	2.00	46	15.3	15.4	32.4
	3.00	55	18.3	18.4	50.8
	4.00	91	30.2	30.4	81.3
	5.00	56	18.6	18.7	100.0
	Total	299	99.3	100.0	
Missing	System	2	.7		
Total		301	100.0		

13.I trust my supervisor

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	25	8.3	8.4	8.4
	2.00	51	16.9	17.1	25.5
	3.00	59	19.6	19.8	45.3
	4.00	101	33.6	33.9	79.2
	5.00	62	20.6	20.8	100.0
	Total	298	99.0	100.0	
Missing	System	3	1.0		
Total		301	100.0		

14.I trust my co-workers

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	13	4.3	4.4	4.4
	2.00	34	11.3	11.5	15.9
	3.00	92	30.6	31.1	47.0
	4.00	120	39.9	40.5	87.5
	5.00	37	12.3	12.5	100.0
	Total	296	98.3	100.0	
Missing	System	5	1.7		
Total		301	100.0		

15.I receive support from my co-workers and we work well together as a team

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	8	2.7	2.8	2.8
	2.00	21	7.0	7.3	10.1
	3.00	68	22.6	23.6	33.7
	4.00	127	42.2	44.1	77.8
	5.00	64	21.3	22.2	100.0
	Total	288	95.7	100.0	
Missing	System	13	4.3		
Total		301	100.0		

16.I get excited about going to work

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	18	6.0	6.0	6.0
	2.00	53	17.6	17.6	23.6
	3.00	56	18.6	18.6	42.2
	4.00	119	39.5	39.5	81.7
	5.00	55	18.3	18.3	100.0
	Total	301	100.0	100.0	

17.My workplace is safe

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	12	4.0	4.0	4.0
	2.00	31	10.3	10.4	14.4
	3.00	47	15.6	15.7	30.1
	4.00	150	49.8	50.2	80.3
	5.00	59	19.6	19.7	100.0
	Total	299	99.3	100.0	
Missing	System	2	.7		
Total		301	100.0		

18. I'm proud of my workplace

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	10	3.3	3.4	3.4
	2.00	33	11.0	11.1	14.4
	3.00	56	18.6	18.8	33.2
	4.00	138	45.8	46.3	79.5
	5.00	61	20.3	20.5	100.0
	Total	298	99.0	100.0	
Missing	System	3	1.0		
Total		301	100.0		

19.We have enough people in my team to get the job done on time and correctly

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	29	9.6	9.7	9.7
	2.00	70	23.3	23.4	33.1
	3.00	47	15.6	15.7	48.8
	4.00	110	36.5	36.8	85.6
	5.00	43	14.3	14.4	100.0
	Total	299	99.3	100.0	
Missing	System	2	.7		
Total		301	100.0		

20.We as employees work long hours than normal

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	10	3.3	3.4	3.4
	2.00	101	33.6	34.1	37.5
	3.00	58	19.3	19.6	57.1
	4.00	81	26.9	27.4	84.5
	5.00	46	15.3	15.5	100.0
	Total	296	98.3	100.0	
Missing	System	5	1.7		
Total		301	100.0		

21. I am encouraged to come up with new ideas to improve my workplace environment

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	21	7.0	7.0	7.0
	2.00	69	22.9	22.9	29.9
	3.00	56	18.6	18.6	48.5
	4.00	115	38.2	38.2	86.7
	5.00	40	13.3	13.3	100.0
	Total	301	100.0	100.0	

22.I would recommend my company to other people as the best place to work for

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	12	4.0	4.0	4.0
	2.00	42	14.0	14.0	18.1
	3.00	75	24.9	25.1	43.1
	4.00	126	41.9	42.1	85.3
	5.00	44	14.6	14.7	100.0
	Total	299	99.3	100.0	
Missing	System	2	.7		
Total		301	100.0		

23.I am encouraged to learn from my mistakes at work and I'm not punished for making those mistakes

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	20	6.6	6.9	6.9
	2.00	62	20.6	21.3	28.2
	3.00	61	20.3	21.0	49.1
	4.00	107	35.5	36.8	85.9
	5.00	41	13.6	14.1	100.0
	Total	291	96.7	100.0	
Missing	System	10	3.3		
Total		301	100.0		

24.I feel positive about my future professional development in my company

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	21	7.0	7.0	7.0
	2.00	74	24.6	24.7	31.7
	3.00	69	22.9	23.0	54.7
	4.00	97	32.2	32.3	87.0
	5.00	39	13.0	13.0	100.0
	Total	300	99.7	100.0	
Missing	System	1	.3		
Total		301	100.0		

25.I feel like the job promotions in my Company are fair

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	50	16.6	16.7	16.7
	2.00	88	29.2	29.3	46.0
	3.00	74	24.6	24.7	70.7
	4.00	62	20.6	20.7	91.3
	5.00	26	8.6	8.7	100.0
	Total	300	99.7	100.0	
Missing	System	1	.3		
Total		301	100.0		

26.During the last six months, someone talked to me about my progress at work

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	35	11.6	11.7	11.7
	2.00	97	32.2	32.6	44.3
	3.00	45	15.0	15.1	59.4
	4.00	91	30.2	30.5	89.9
	5.00	30	10.0	10.1	100.0
	Total	298	99.0	100.0	
Missing	System	3	1.0		
Total		301	100.0		

27.I received training that I need to do my job well

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	11	3.7	3.7	3.7
	2.00	30	10.0	10.1	13.9
	3.00	44	14.6	14.9	28.7
	4.00	158	52.5	53.4	82.1
	5.00	53	17.6	17.9	100.0
	Total	296	98.3	100.0	
Missing	System	5	1.7		
Total		301	100.0		

28.I see myself working for my company in the next tree years

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	14	4.7	4.7	4.7
	2.00	48	15.9	16.0	20.7
	3.00	54	17.9	18.0	38.7
	4.00	124	41.2	41.3	80.0
	5.00	60	19.9	20.0	100.0
	Total	300	99.7	100.0	
Missing	System	1	.3		
Total		301	100.0		

29.Training and development policies are communicated clearly to employees

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	22	7.3	7.4	7.4
	2.00	80	26.6	26.8	34.2
	3.00	55	18.3	18.5	52.7
	4.00	96	31.9	32.2	84.9
	5.00	45	15.0	15.1	100.0
	Total	298	99.0	100.0	
Missing	System	3	1.0		
Total		301	100.0		

30.My job allows me to balance between my work and personal life

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	15	5.0	5.0	5.0
	2.00	31	10.3	10.4	15.4
	3.00	74	24.6	24.7	40.1
	4.00	139	46.2	46.5	86.6
	5.00	40	13.3	13.4	100.0
	Total	299	99.3	100.0	
Missing	System	2	.7		
Total		301	100.0		

31.Performance issues or disciplinary matters are handled fairly

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	35	11.6	11.7	11.7
	2.00	50	16.6	16.7	28.3
	3.00	94	31.2	31.3	59.7
	4.00	90	29.9	30.0	89.7
	5.00	31	10.3	10.3	100.0
	Total	300	99.7	100.0	
Missing	System	1	.3		
Total		301	100.0		