

# **Assessing the relationship between middle-level management trust and first- level management work engagement within the South African gold mining industry**

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## PREFACE AND ACKNOWLEDGEMENTS

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## ABSTRACT

**Motivation for the study:** The study on the trust-engagement linkage was motivated by the recent problems experienced in the SA gold mining sector specifically pertaining to management not living up to their commitments and not caring for its workers. They thus seriously doubted the trustworthiness of management.

**Research approach, design and method:** The goal was to assess the quality of a supervisor's trustworthiness as perceived by first-level management in their personal, active relationship.

Data was collected using a structured questionnaire comprising two scales, namely the WES as adapted by Rich *et al.* (2010:634) and the Mishra (1996:276-277) trustworthiness scale as adapted by Chughtai (2010:369). In total, 317 completed questionnaires were returned. Data was analysed by means of descriptive statistics and correlational analyses using SPSS version.

**Main findings:** High levels of reliability were found for all the measurement scales used. The results from the correlational analyses indicated positive relationships between the main scales, trustworthiness and employee engagement, as well as between several sub-dimensions of the trustworthiness and employee engagement constructs.

**Practical/managerial implications:** The findings emphasise the role played by middle-level managers in promoting the work engagement of first-level managers through commitment, and being caring and open in their relationships.

Future studies should replicate this study to confirm, or reject, its reliability and validity.

**Contribution/value-add:** The core of a strong, positive effect on employee engagement through the trustworthiness of superiors, lies in the visible behaviour of superiors revealing the four characteristics of trustworthiness. The SA gold mining industry faces huge challenges regarding their trustworthiness and the impact this have on employee engagement. By concentrating on the trustworthiness of their management, they most likely will improve the employees' work engagement.

**Key terms:** Trust, trustworthiness, work engagement, employee engagement, openness, affective and cognitive trustworthiness.

## LIST OF ABBREVIATIONS AND STATISTICAL SYMBOLS

BRICS:	Brazil, Russia, India, China and South Africa
ZAR:	South African Rand
BTI:	Behavioural Trust Inventory
WES:	Work Engagement Scale
UWES:	Utrecht Work Engagement Scale
OCB:	Organisational Citizenship Behaviour
GWA:	Gallup Workplace Audit
JD-R:	Job Demands-Resources
OLBI:	Oldenburg Burnout Inventory
PCA:	Principal Component Analysis
SSPS:	Statistical Package for the Social Sciences
SCO:	Short Christian Orthodoxy scale
KMO:	Kaiser-Meyer-Olkin measure of sampling adequacy
n:	Sample size
S:	Standard deviation
$\bar{x}$ :	Sample mean
$\alpha$ :	Cronbach's alpha
p:	Pearson's correlation coefficient
r:	Spearman's correlation coefficient
$\lambda$ :	Eigen value
R <sup>2</sup> :	Variance inflation factor

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# CHAPTER 1

## NATURE, SCOPE AND OUTLAY OF THE STUDY

### 1.1 INTRODUCTION

The study aimed to assess middle-level management's trustworthiness as perceived by first-level management and how it related to their employee engagement. The alarming low productivity in the South African gold mining industry pointed to deteriorating employee engagement. One of the causes for this deterioration might have been experiencing management as not being trustworthy.

This chapter provided a contextual background to the study, leading to a problem statement. It furthermore clarified the research objectives and research methodology in trying to reach the intended goal. Limitations of the study were also highlighted. It concluded with an overview of the structure of the study by briefly describing the content of each ensuing chapter.

### 1.2 BACKGROUND

The labour strikes in South Africa's mining industry caused severe economic losses. It harmed the industry, the employees, the economical welfare of the man on the street and international relationships and trust within and amongst them all (Miningreview.com, 2014). The anger actions were directed at persons of authority and in leading positions, but the innocent bystanders were often the ones who suffered. The angered ones simply didn't trust those with authority, likely with some plausible reason. It is this losing of trust in the particular incident of strikes that brought the idea of trust as a vertically related factor to mind. It pinpointed a questionable vertical trust relationship. According to Hartford (2012) trust was one of the important reasons for the conflict between mine management and employees that needed to be addressed.

Mining News presented a detailed report on the recent South African platinum mine strikes (2014) and Marikana killings (2012) that, amongst other reasons, pointed to mine management having a stake in the disastrous strikes, summarised as follows:

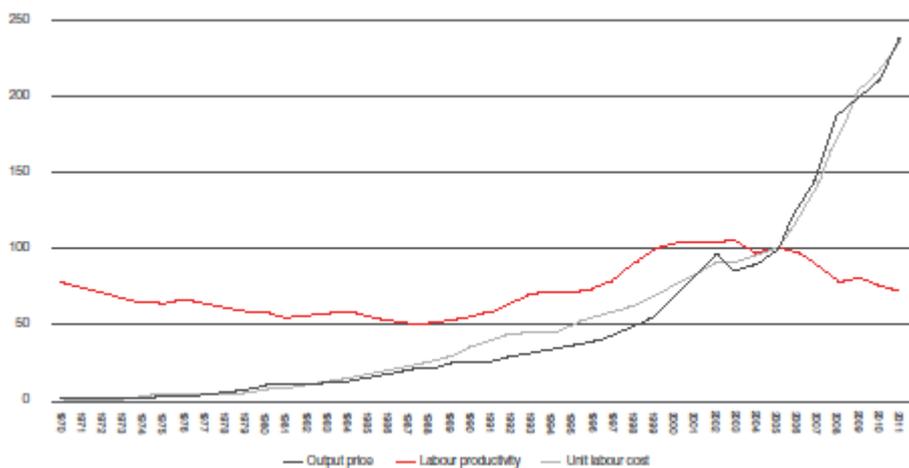
- 1) Benefits of mining did not reach the workers and growing inequalities contributed to the mess.
- 2) Owners (management) had to answer about how they treated their workers.
- 3) Workers were exploited.
- 4) Their high profits did not relate to the low wages of the workers.
- 5) The company was disinterested in the working and living conditions of workers.
- 6) Workers' aggressive actions demonstrated the insensibility and insensitivity of the company.

7) The AMCU president, Joseph Mathunjwa, said “management had reneged on commitments it had made to miners earlier in the week, claiming the shootings could have been avoided if management made good on their commitments to workers.” Mthunjwa presented two documents in evidence mine management had indeed made commitments to the miners their grievances would be dealt with, but reneged, causing the violence.

Five characteristics stand out in the grievances of the mine workers: fairness, openness, integrity, caring and commitment. Commitment is a feature related to employee engagement.

Gwatidzo and Benhura (2013:28) stated that the recent unrest in the mining sector, like the 2007 strikes and the Marikana massacre of 2012, as well as the gold mining sector’s increasingly dwindling contribution to the country’s economy indicated that the mining sector was in dire straits. Figure 1-1 (Gwatidzo & Benhura, 2013:21) clearly indicated that productivity was an increasing grave concern in the gold mining industry.

**Figure 1-1: Trends in average labour unit cost, labour productivity and output price**



(Source: Gwatidzo & Benhura, 2013:28)

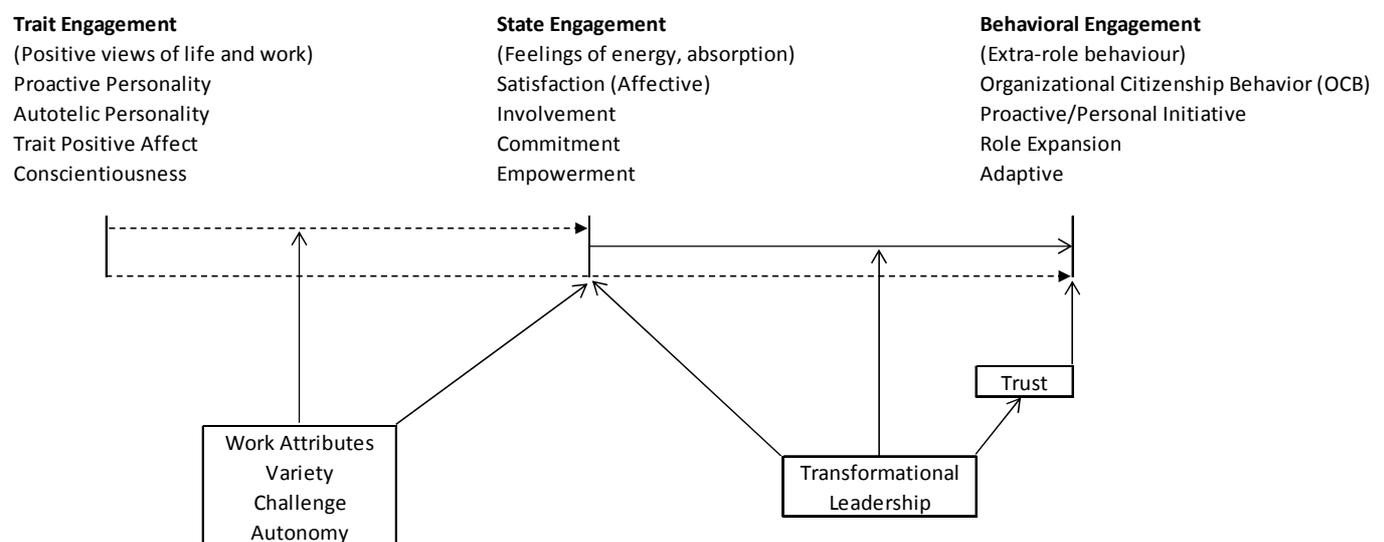
This unproductiveness was not due to wages per se. In comparison, the gold mining sector paid relatively more than other economic sectors in South Africa. In 2012, for example, the median minimum wage of the mining sector was ZAR4 743, as to the median of ZAR4 000 for all industries. They further found that the South African average minimum wage was higher than that of all African countries, even higher than that of the BRICS group of countries. They suggested that policy uncertainty, specifically the possibility of the nationalisation of mines, might in part reflect the lethargic performance of the gold mining sector.

This study suggested that productivity was facilitated by, but not exclusively due to, a positive relationship between perceived trustworthiness of supervisors and the employee engagement of the direct lower reports.

The aim of this study thus was to establish whether a trustworthy work engagement link existed. This study was not able to access management’s trustworthiness as perceived by the labourers and how this might be reflected in their employee engagement, resulting in improved or worsened productivity. The employee engagement of first-level management in the workplace was one place where the level of productivity could be observed and measured. The next best thing to do, was to access first-level management employee engagement in the workplace and how it might be influenced by their perception of middle management’s trustworthiness. The five characteristics identified through the strikers’ grievance served as specific trustworthy key words that directs the literature study.

Macey and Schneider (2008:6) presented a framework in Figure 1-2 showing how trust and employee engagement was connected.

**Figure 1-2: Framework for understanding the elements of employee engagement**



(Source: Macey & Schneider, 2008:6)

This study took note of the outstanding features of transformational leadership and then assign it to the trustworthy expectancies that the employee had of his/her immediate supervisor and how it affected his/her work engagement. Trust, according to the model, connected through behavioural engagement and then might expand to engagement in general.

Proposition 7 of Macey and Schneider (2008:15) read: “Engagement behaviours include innovative behaviours, demonstrations of initiative, proactively seeking opportunities to contribute, and going beyond what is, within specific frames of reference, typically expected or required.” It seemed logical that greater effort, innovation and initiative improved productivity and the quality thereof. Thus: if trustworthiness influenced employee engagement behaviours positively it might improve productivity.

This study suggested that a poor trustworthy relationship between employer and employee would result in weakened employee ability to apply themselves fully to their work roles (i.e. being engaged) and that would ultimately lead to a drop of productivity in this sector. This argument was briefly motivated in more detail in what followed next.

Large scale, dramatic and continuous changes are a world-wide tendency. We experience change in food and petrol prices almost monthly. One has great difficulty in adapting to the use of changing technology, like cell phones. The significant and drastic changes taking place in the work place as tabled by Schaufeli (2014:16) are listed in Table 1-1.

**Table 1-1: Changes in the world of work**

<b>Traditional</b>	<b>Modern</b>
Stable organizational environment	Continuous change
Uniformity	Diversity
Life-time employment	Precarious employment
Individual work	Group work
Horizontal structure	Vertical structure
External control and supervision	Self-control and self-management
Dependence on the organization	Own responsibility and accountability
Detailed job description	Job crafting
Fixed schedules and patterns	Boundarylessness (time and place)
Physical demands	Mental and emotional demands
Experience	Continuous learning
Working hard	Working smart

(Source: Adapted from Schaufeli, 2014:16)

South Africa, a developing multi-cultural country, experiences many change complexities in the workplace.

This study took particular note of the mental and emotional demands, continuous learning, continuous change and a vertical structure relationship.

The above mentioned affected work relationships, employee engagement and productivity. This study saw an active, trusting work relationship as a strengthening influence on work engagement resulting in higher productivity.

Employee engagement required engaging management. Alimo-Metcalfe and Alban-Metcalfe (2009:12) presented a structure for “engaging management” based on a transformational Leadership questionnaire. A manager (leader) engages in employees by showing genuine concern, enabling employees, being accessible and by encouraging questioning (openness).

His personal qualities and core values are to act with integrity, being honest and act consistently. These are all trustworthy features.

An understanding and caring based management probably plays a crucial part in realizing, sustaining and strengthening employee engagement. A vertical relationship involves constructs like reliance, dependency and/or cohesion that can develop or change in a “nearby” or close relationship. Work demands and continuous change often need increasing effort and the necessity to adapt. An engaged manager must lead and guide his/her followers through this demanding work situation with relevant ability and skill set in an employee work engagement atmosphere.

The mentioned challenging and change factors ask of the company to be flexible and to be able to adjust.

Literature reveals three theories and models often used to trust related issues:

- 1) Mayer *et al.* (1995) look at trustworthiness with ability, benevolence and integrity as the three basic constructs.
- 2) Gilstrap and Collins (2012) look at a just orientated trust approach. A core dimension of transformational leadership represents ability, informational justice denotes benevolence and procedural justice signals integrity. Several studies confirm the resemblance between these two approaches.
- 3) McAllister (1995), as well as Gillespie (2012) look at cognitive- and affective-based trust. Cognitive trust, affective trust and behavioural trust are the three basic constructs.

This study accepted that trustworthiness best suits engaging management in a nearby work situation stimulating to employee engagement.

A trustworthy superior worker relationship might provide employees with the confidence to exert more effort in their work, which might result in greater employee engagement.

In assessing the functioning of trust and employee engagement within an organisation's work situation it became more than simply measuring it, as the results could be put to use (Kanjee, 2004:288).

Facilitating decision making, making adjustments and or use applications regarding any or all of the trustworthy and employee engagement components might prove to be a likely necessity to help to increase productivity in an engaging working environment and ease or resolve specific or overall conflict. With the background information at hand, the setting of a problem field and a problem statement was established.

### **1.3 PROBLEM STATEMENT**

From what had been said this far, it could be argued that productivity in the gold mining industry has been alarmingly low in relation to escalating job demands and increasing wages. Underlying this relatively low productivity might be unsatisfactory employee engagement. One plausible reason for this alarming state is a scarred trust relationship between employer and employee. Trustworthy commitment, integrity, openness, guidance and caring in an engaged work relationship are necessities for stability, security in business to prosper, grow and have happy, satisfied and productive workers. Labour strikes within the South African mining industry might indicate that these relationships are lacking, failing or inefficient. Trusted mine management as leading visionaries and missionaries plays the leading and guiding role in an employee understanding, caring manner. They provide a stable and safe, engaged work relationship and environment that encourage productivity. Not understanding, not valuing or not applying trust essentials and creating a trusting atmosphere could be cause for unhappiness, employee disengagement, unproductivity, job changing and conflict.

The South African gold mining sector is an important productive sector of economy, as like the agricultural sector. South Africa is one of the world's leading and largest gold mining countries. It has been the prime economical driver in the history and development of Africa's most advanced and richest economy of the developing countries. Conflict in this sector obviously influences the economy directly and significantly so.

The mining ground (operational) level management leadership issues between first-level and middle-level might to a large extent be laid to the door of gaps in an understanding and concerned trustworthy relationship causing mediocre employee engagement and amongst others, resulting in low productivity levels.

Forthcoming questions: "What is the role of trust worthiness in the goals of the business? What is the role of trustworthiness in employee engagement? How does trustworthiness influence employee engagement?"

How does all of this take place between different management levels and their work force? How do we create an atmosphere of trustworthiness and employee engagement?”

The problem statement is thus whether management in the gold mining sector understands the important role of trustworthiness and how it might affect and influence employee engagement in their organisation, and ultimately productivity. And: whether, or how effective, it (trustworthiness) is functionally applied in their company. This became the objective to be researched and might just as well become the goal for the organisation researched.

#### **1.4 RESEARCH OBJECTIVE**

The objective of this research was to establish how middle-level management’s trustworthiness as perceived by first-level management affected first-level management’s employee engagement. Trustworthiness contains characteristics that describes the mine workers’ complaints directed at mine management. The relation with the trustor’s employee engagement was made as this might reflect and/or influence the trustor’s productivity

The research objectives were divided into primary and secondary objectives.

##### **1.4.1 Primary Objective**

The principal aim of the research was to determine whether there was a relationship between trust and work engagement within a specific dyadic relational context. To be more precise, the primary objective was trustworthiness beliefs as the bases for trust, and its relation to employee engagement as the specific form of work engagement. The fairness - (integrity), affective – and openness trustworthiness characteristics bare specific significance as they were the issues that mine workers raised concerning management. The dyadic relational context involved first-level managers as the trusting parties (i.e. trustors) and middle-level managers as the foci of trustworthiness assessment (i.e. the trusted parties of trustees). The broader context was the SA gold mining industry. In view of the explicit unpacking of the components implicated by the primary objective, the following research question was formulated:

Does middle-level management’s trustworthiness as perceived by first-level management relate to employee engagement of first-level managers within the South African gold mining industry?

##### **1.4.2 Secondary Objectives**

In achieving this primary objective of the study, the secondary objectives that could be realised were related to the link between the sub-dimensions of the trustworthiness and engagement constructs, thus confirming the external reliability of either or both measuring instruments.

The secondary objectives relate primarily to the following:

- a) To explore the status of previous research regarding the relationship between trustworthiness and employee engagement;
- b) To analyse the demographic characteristics of the sample group
- c) To verify the reliability of the main constructs
- d) To determine the strength of the intra-relationships between the sub-dimensions of the trustworthiness construct
- e) To determine the strength of the intra-relationships between the sub-dimensions of the engagement construct
- f) If trustworthiness and employee engagement are significantly positively related, then determine the strength of inter-relationships between the sub-dimensions of the main constructs.

The following secondary research questions came to the forth:

- 1) Are there previous research theorising the trustworthiness and employee engagement relationship and/or are there any empirical research to this regard?
- 2) Are there any demographic characteristics that may explain the relationship or parts of it?
- 3) Are both main constructs reliable and being supported by previous research?
- 4) Are there enough and distinguishable relevant strength between sub-dimensions of either or both main measure instruments?
- 5) What are the strength of inter-relationships between the sub-dimensions of the main constructs?

These questions determined the hypothesis set later on.

## **1.5 SCOPE**

The study's main discipline under investigation was organisational behaviour. The focus was on how the trustworthiness of middle-level management as perceived by first-level management effected employee engagement that might lead to productivity. The study excluded ground (operational) level employees and top-level management.

This research was conducted on a diversified workforce within the South African gold mining industry.

Data from sources relevant to the constructs trustworthiness and employee engagement was collected by means of a questionnaire. The manner in which the research objectives were achieved are discussed in greater detail.

## 1.6 RESEARCH METHODOLOGY

### 1.6.1 Research Approach

A feature of research is that it can be descriptive, explanatory or exploratory. Any combination of these features is also possible.

According to Shields (2006:318) the aim of descriptive research is to determine the “what” of a phenomenon as conceptual framework. It thus predicts regardless of the relationship or causality (how/when/why). Statistical calculations are made on nominal classification, mostly making use of frequencies, averages, distribution and percentages. This is the usual aim of qualitative research and it can then be followed up by seeking relationships (quantitative) or answering to why it is so (explanatory). Mirzaee (2014) described three ways of using descriptive information effectively in a quantitative approach: Define characteristics of your respondents; measure trends in the data; compare groups and issues.

Explanatory research answers to how constructs of a phenomenon are related. It has nominal features, but is mainly directed at relationships. Ordinal ratings are in play and correlation statistical calculations are necessary. This is the customary field of quantitative research.

Exploratory research answers to why the constructs are caused or why they relate as they do. More than relying on secondary research such as reviewing available literature, they use more formal approaches through case studies, in-depth interviews, focus groups, projective methods or pilot studies. This research has descriptive elements but is also explanatory in seeking relationships.

There are predominantly two research approaches: Quantitative and qualitative. In a quantitative approach the nature of the reality is external, law-like and descriptive, as to a qualitative approach where it is internal, subjective and interpretive.

In a quantitative approach the relationship between the researcher and what can be known is a distant, detached observation and objective whilst in a qualitative approach it is an empathetic, intersubjective observation (Terre Blanche & Durrheim, 2004:6).

The comparisons between quantitative and qualitative research approaches, according to De Vos *et al.* (2005:75) are listed in Table 1-2.

**Table 1-2: Comparison between quantitative and qualitative research approaches**

<b>Quantitative approach</b>	<b>Qualitative approach</b>
Epistemological roots in positivism	Epistemological roots in phenomenology
Purpose is testing predictive and cause-effect hypothesis about social reality	Purpose is constructing detailed descriptions of social reality
Deductive logic is used in the method	Inductive logic is used in the method
Suitable for a study of phenomena which are conceptually and theoretically well developed; seeks to control the phenomena	Suitable for a study of a relatively unknown terrain; seeks to understand phenomena
Concepts are developed into operational definitions; results appear in numeric form and are eventually reported in statistical language	Participants' natural language is used in order to come to a genuine understanding of their world
The research design is standardised according to a fixed procedure and can be replicated	The research design is flexible and unique and evolves throughout the research process. There are no fixed steps that should be followed and design cannot be exactly replicated
Data are obtained systematically and in a standardised manner	Data resources are determined by information richness of settings; types of observation are modified to enrich understanding
The unit of analysis is variables which are atomistic (elements form part of a whole)	The unit of analysis is holistic, concentrating on the relationships between elements, contexts, etc. The whole is always more than the sum

(Source: Adapted from Vos *et al.*, 2005:75)

It is possible to apply both approaches in a research, depending on the nature of the reality to be studied and the purpose of the study. Lin (1998:162) explains why absolutist's claim for either approach is not correct, and reasons that the combination of both makes more sense.

Quantitative research goes beyond description in seeking and confirming relationships between constructs. A well-known and proven theory is used as model. Relationships hypothesis of reality can be tested. Constructs and units are defined and results appear in numerical form. The research design follows a fixed procedure and it can be replicated. Data is obtained in a systematic, prescribed manner. Variables relevant to the main constructs are the units of analysis. This study opted for a quantitative approach.

The research purpose was to explore the influence of trustworthiness in middle-level management resulting in first-level management employee engagement. Secondly a stable, conceptual pattern was developed to construct the research design. The constructs, variables and their items had to be determined and honed so as to be able to execute the research. A literature review was done to accomplish this. The research specific to the objectives of this qualitative approach consisted of an empirical literature review (Terre Blanche & Durrheim, 2004:19) and hence an empirical study.

### **1.6.2 Phase 1: Literature Review**

The aim of a literary review is to contribute towards a clearer understanding of the characteristics and significance of the problem that has been identified (De Vos *et al.*, 2005:123). According to Shields, 206: 316) literature review allows the researcher to acquaint himself with the topic and connecting it to his work experience. The literature may also reveal where previous inquiry had stopped. Importantly it serves as a conceptual framework. Terre Blanche and Durrheim (2004:19) also states that literature reviews provide focused, original literature that are pertinent and relevant to what is to be researched. They further describe four types of literature reviews, namely historical, thematic, theoretical and empirical reviews.

Another type of literature review that was exploited in this study, are those that summarise the primary and significant findings and pertinent knowledge from previous, relevant research (Werkmeister & Klein, 2010:394-395).

Consulted sources must be scientifically sound (De Vos *et al.*, 2005:127). The sources that were consulted for the literature review of this study include:

- Scientific books
- Research articles in academic journals
- Credible computerised databases such as EBSCO HOST, J STOR, Emerald, etc.

In Chapter 2 an intensive thematic and theoretical literature review was undertaken.

### **1.6.3 Phase 2: Empirical Study**

#### **1.6.3.1 Research Design**

Research design is the all-embracing plan to connect the conceptual research problems to the pertinent (and reachable) empirical research (Van Wyk, 2013:4). It further ensures that obtained evidence in answering the initial question will be as unambiguous as possible (University of Bradford, School of Management, 2014:9). The research question/problem directs the type of research design to be followed.

The objectives of this study was realised with a relevant empirical research based on a quantitative approach already motivated. It was further based on a descriptive approach because the research problem was clear and the information needs were detailed (Malhorta, 2007:82).

The specific design that was used, was a cross-sectional design, because the problem addressed was current. In what follows, a brief outline is given of the research design concerning the participants, measurement instruments, procedure and statistical analysis. These aspects are however discussed in more detail in chapter 3.

### **1.6.3.2 Participants**

According to Mayer and Davis (1999:124), for a theory to hold water, "the trustee must be specific, identifiable and perceived to act with volition". The problem of respondents being expected to bundle their opinions of a large group of people into one composite view, wasn't a problem of this study. The respondent primarily assesses one person, namely his immediate superior. There was no ambiguity as to who the referent was. In some cases, the identity of the referent is not consistent throughout the items (Dietz & Den Hartog, 2006:56). In this study the referent was consistent throughout all items of the measuring instrument.

### **1.6.3.3 Measuring Instrument**

For the purpose of this study two standardised measuring instruments measuring the key constructs were used to collect data, namely trustworthiness (Chughtai, 2010:36) and employee engagement (Rich *et al.*, 2010:634). Both these measurement instruments have been tested for reliability and validity. All the units of the constructs were scaled. The rationale for using scales was to make comparisons and to make relationships measurable.

### **1.6.3.4 Procedure**

The instrument for gathering the data, the questionnaire, was appropriate because of the quantitative approach (Roodt & Fouché, 2004:159).

This study utilized a self-administered questionnaire. Such a questionnaire could be delivered and retrieved by mail, web, internet or by hand.

### **1.6.3.5 Statistical Analysis**

The statistical method requires the specification of the epistemistic relationships of the constructs used in the structural model as either reflective or formative.

The demographic information (gender, age, race and qualifications) render discrete, nominal (dichotomous) and ordinal (categorical) types of information to be related to the trustworthy and employee engagement constructs.

Formal statistical analysis was performed by the statistical consultation services of the North-West University to investigate relationships between variables.

#### **1.6.3.6 Added value of this study**

This study added value in that a strong, positive relationship between trustworthiness and employee engagement was found. The reliability and validity of both measurement instruments were confirmed.

### **1.7 LIMITATIONS / ANTICIPATED PROBLEMS**

That respondents may be self-biased, subjective or even defensive or suspicious is a given when completing a questionnaire. Interviews as a measuring instrument would have been more ideal but for the purpose of this research study which is restricted in available resources. This was not deemed feasible.

The study only focused on the layered trustworthy structure between first-level and middle-level management. Top and middle management, as well as the general workers were excluded. No middle-level manager was requested to evaluate any of his/her subordinates. Subsequently, generalisations are questionable and mostly based on assumptions.

Another limitation is that the study was done using a sample of first-level managers working within the South African gold mining industry and this might not represent the South African mining industry as a whole.

### **1.8 CHAPTER DIVISION**

The chapters in this mini-dissertation are presented as follows:

Chapter 1: Introduction and problem statement.

Chapter 2: Literature Review.

Chapter 3: Description of the implementation phase

Chapter 4: Discussion of results

Chapter 5: Conclusions and Recommendations.

## **1.9 CHAPTER SUMMARY**

Chapter one provided a problem statement derived from a background and literature study. It was refined to primary and secondary objectives, leading to research questions. This led to the utilisation of a research methodology, divided into an empirical literature review and a resultant empirical study.

The latter comprises of a research design, target participants, measuring instruments and statistical analysis. This was concluded by limitations of this research and a lay out of the chapter divisions.

## CHAPTER 2

### LITERATURE REVIEW

#### 2.1 INTRODUCTION

Key words: trust, trustworthiness, employee engagement, first-level management, middle-level management, gold mining industry.

The purpose of this chapter was to perform a theoretical, thematic literature research directed at trustworthiness and employee engagement and how they are related to the problem identified by this study.

The nature, definitions, antecedents, consequences and measurement of trustworthiness and employee engagement were researched, directed at the possible relationship between these two.

#### 2.2 TRUST

##### 2.2.1 Function of trust

Trust is inherent in employer employee relationships and in doing business. The statements, "...without trust, business as we know it is impossible" (Audi, 2008:97) and "...trust is of paramount importance to drive economic agents towards mutually satisfactory, fair and ethically compliant behaviours" (Castaldo *et al.*, 2010:665), emphasize the centrality of trust.

Morgan and Zeffane (2003:70) state that the development of trust in the workplace is crucial to organizational performance. Trust reduces conflict and then influence performance positively (Zaheer *et al.*, 1998:145). It plays an important mediating and moderating role in employee motivation and resolving relationship conflict between supervisors and workers (Kacmar *et al.*, 2012:43; Podsakoff *et al.*, 1990:109).

##### 2.2.2 Categories of trust

Colquitt *et al.* (2007:909) note that trust literature discerns trustworthiness and trust propensity from trust defined as an intention to accept vulnerability positive expectations of the trustee.

### **2.2.2.1 Propensity to trust**

Propensity to trust goes by many names, like general trust, disposition to trust and trait trust.

According to Mayer *et al.* (1995:715-716) intention to trust is also determined by the personal disposition of the trustor. In their model, intention to trust is influenced by a trustor's propensity to trust, which refers to an individual's general willingness to trust others.

McKnight *et al.* (1998:477) distinguish between two types of disposition to trust: (1) faith in humanity, a personality feature, which means that people believe that others are generally well intentioned and reliable; and (2) trusting stance, which is sort of a personal strategy. This means that one assumes that, irrespective of the fact whether people are honest and reliable, one will achieve better outcomes by dealing with people as though they were well-intentioned and dependable. The latter being a conscious choice, it is cognitive based.

Mooradian *et al.* (2006:525) conclude that trust propensity is not specifically directed to others or influenced by qualified contexts, nor life experiences, but by temperament and subsequently genetics and bio-physiological structure. It is thus seen as a trait.

Gill *et al.* (2005:288) postulate that propensity to trust may be more accurately conceptualized as a precursor rather than as a dimension of trust. A number of studies empirically proved that trust propensity is an important precursor of state trust (Colquitt *et al.*, 2007:915; Mooradian *et al.*, 2006:533).

It is admitted that propensity to trust is a precursor of state trust, general willingness to trust others and traits do influence trust. However, this study followed a trustworthiness perspective, while seriously considering trust relations and trusting behaviour. Therefor measuring propensity to trust was not considered.

### **2.2.2.2 Trustworthiness**

Trustors try to draw inferences about the trustee's characteristics they deem trustworthy, such as ability, benevolence, integrity, dependability and fairness that will have consequences for work behaviour and attitudes. Mayer *et al.* (1995:717-720) found that, as a set, integrity, benevolence and ability occur most frequently. Ability has synonyms like cognitive, competence and perceived expertise.

Benevolence has affective, truthful, altruism and loyalty connotations. Integrity has just and consistency connotations and is often associated and even at times equated with fairness. Colquitt *et al.* (2007:910) thus presents fairness as a synonym of integrity.

This character-based trust approach is basically a bottom to top vertical relation and thus more personal than social by nature.

To make conclusions, though, a worker will compare himself with other workers to determine whether the trustee's words, actions and appraisal can be considered as fair. The cognitive connotation tends to carry more weight than the affective connotation. This study applied a character-based trust approach.

The characteristics are discussed in more detail in the section 2.2.4: Antecedents of trust.

Dirks and Ferrin (2002:612) state correctly that trustworthiness is a belief or perception of the trustor and thus measured accordingly. It is not a feature of the relationship of the middle-level management per se. Whitener (1998:513) states that trust is an attitude that the trustor ignites and develops through what he perceives, believes and attributes about the trustee based upon observations of the trustee's behaviour.

A second perspective that focuses on the nature of the leader-follower relationship as the follower understands it, needed some consideration. This approach is dyadic in nature due to its unequal bases of power between the role incumbents and has a stronger affective connotation than the former.

McAllister (1995:27) developed a conceptual framework, distinguishing cognitive-based and affect-based trust. Strong support was found for the distinction between cognition-based and affect-based trust. Cognitive-based trust refers to trust that is based on performance-relevant cognitions like competence, responsibility, reliability, and dependability (McAllister, 1995:47). Affect-based trust refers to the "emotional bonds between individuals" that are grounded upon expressions of "genuine care and concern for the welfare" of the other party (McAllister, 1995:26). Affect-based trust thus emphasizes empathy, affiliation and rapport on the basis of shared regard for the other person. Finally, McAllister (1995:30) suggests that cognition-based trust positively influences and develops affect-based trust.

According to Ng and Chua (2006:46), affect-based trust theory results in actions like care and concern for the relationship, rather than actions that focus on task outcomes. Based on those findings, they expect cognition- and affect-based trust to influence cooperative behaviours in a social dilemma differently.

The referent in McAllister's (1995) study was managerial peers. Peer-related trustworthiness perceptions differ to that of bottom to top relationships and thus does not suit the vertical approach of this study. The possible different effects of cognitive trustworthiness and affective trustworthiness were investigated.

In the trustworthiness approach the cognitive connotation tends to carry more weight than the affective connotation. This study agrees with Dirks and Ferrin (2002:612) that trust is not an exclusive property of the characteristics of and/ or relationship with the manager. Only when the trustor finds it beneficial and/or not harmful to him and then acts positively in a contributing manner, it bears relevance to this study approach.

McAllister (1995:30) emphasizes closeness (echoed in several studies) in developing trust. The reliability and dependability (cognitive based trust) features of a superior are important antecedents to feed and sustain this closeness for trust to develop. Closeness is also important in care and concern (affective based trust) features. These premises may be relevant to this study.

Disclosure-based trust is one of the two dimensions of the BTI (Behaviour Trust Inventory), Gillespie's (2012:187-188) measure instrument of trust. Closeness and openness are the core of this dimension. The closeness level she proposes seemingly is way too close for comfort. This was the main reason why her measure instrument for trust was not considered for this study. In proposing and developing trust as behavioural trust, Gillespie changed reliability and dependability (that can be used as trustworthy characteristics) in verbs, "rely on" and "depend on".

In the possible gap identified in this study, the problem was more related to management failing in being open with ground level workers and being considerate, than a case of not being close. Clearly there is very seldom, if ever, face to face contact between mine workers and management. Closeness, thus, is hardly possible. Closeness, though, is a factor in the middle-level management and first-level management. Mishra and Morrissey (1990:443) found open communication to be one of four organisational factors that positively influenced trust. Bijlsma and Van de Bunt (2003:657) found openness amongst four other behaviours to be positively related to trust. The importance of both concepts in developing trust is recognised. The problem identified leads to preferring a definition of trust and a trust measure that includes openness.

It is also apparent that openness might be an important antecedent to promote closeness, even when face to face encounters between trustee and trustor does not occur frequently. Closeness and openness bear the danger of vulnerability and the danger of misuse. This study sought to consider the influence of closeness.

A cross-sectional survey study, part of this study, cannot measure closeness, where the length of time is surely of great importance. It was decided to create two sub-sections under biographical information that can evaluate length of time spent together, and face to face contact between middle-level management and first-level management.

If closeness is highly relevant in trustworthy relationships, then management must find means of closing or circumventing the existing distance gap with the mine workers at ground level.

### **2.2.3 Definition of trust**

It is not possible to derive a universal definition of an elusive concept like trust (Dirks & Ferrin, 2002:612; McAllister, 1995:709). Various definitions were researched to determine the one best suited to the conceptual structure and purpose of this study. Three definitions stood out among the rest, namely the definitions proposed by Mayer *et al.* (1995:712), Rousseau *et al.* (1998:395) and Mishra (1996:265), to be discussed in more detail below.

An integrative definition of Mayer *et al.* (1995:712) defines trust as “the willingness of a party (trustor) to be vulnerable to the actions of another party based on the expectation that the other will perform a particular action important to the trustor, irrespective of the ability to monitor or control that other party”. Risk in this context is not risk in itself, but “a willingness to risk”. Noticeable is the emphasis on actions and performance, rather than characteristics of the trustee. The actions and performance are specifically that of the trustee. In practice, though, they concentrated on the trustee’s characteristics, namely competence, expertise, honesty, integrity and benevolence.

Rousseau *et al.* (1998:395), in evaluating cross-disciplinary scholarly contributions, suggest the following as a general definition of trust: trust is a psychological state comprising the intentions to accept vulnerability founded on positive expectations of the intentions or actions of another. Psychological state implies the cognitive, emotional and behavioural aspects of trust. Intent (motivation behind the action) is crucial in a trust work-relationship. Both definitions are based on positive expectations to create an atmosphere of trust and a willingness to be vulnerable.

Chughtai (2010:76) identified one central shortcoming of these definitions: they do not indicate how the positive expectations are generated. This limitation is overcome by a multi-dimensional definition of trust Mishra (1996:265), defined as “one party’s willingness to be vulnerable to another party based on the belief that the latter party is (a) competent, (b) open, (c) concerned and (d) reliable”.

After considering the essential characteristics of the discussed definitions of trust, the definition proposed by Mishra (1996:265) was decided upon as most suitable for the purposes of this study. Other than the relevance of affective and integrity characteristics, the addition of openness covers most of the grievances uttered by the mine workers.

## 2.2.4 Antecedents of trust

a) Trait trust can be an important antecedent to trust

This topic was discussed in Section 2.2.2.1.

b) Characteristics of the Trustee

The subject's ability can be characterised in many ways, like competence, expertise, honesty, integrity, benevolence. Dietz and Den Hartog (2006:560) lamented that this was one area of the literature where contrasting standpoints and emphasis had rather stirred confusion than setting direction. The trustor values different characteristics of the trustee, and may value each one differently.

Still, a logical and practical problem was which ones to use and how many of these characteristics were sufficient to determine the trust relationship as comprehensive as possible and being relevant to the mine workers grievances.

Also, do the different theoretical approaches really matter? If so, why and when would a specific situation call for a specific approach?

Butler (1991:648,656,659) identified ten character-founded antecedents related to situational trust that directly applies to the workplace. They are availability, competence, consistency, discreetness, fairness, integrity, loyalty, openness, promise fulfilment, and receptivity. The eleventh one is overall trust, going by many names in the literature, like propensity to trust and general trust.

Dietz and Den Hartog (2006:560,568-569) analysed 14 trust measures to determine the content (ability) items used. Four content components stood out. They frequented in this order: integrity, benevolence, competence and predictability. The prominence of integrity followed by benevolence are of specific importance to this study where fairness and care stood out as conflicting factors between mine management and employees. When realizing that integrity can be equated with fairness, its importance to this study became all the more relevant. The focus of this literature study were on a measure instrument that favours integrity and/or benevolence, or at least gave them equal importance. The characteristics not in the focus but important to this study, was openness. But for cognitive trustworthiness, integrity and benevolence relates to mine workers grievances and are thus relevant to this study.

Many researchers substituted the cognitive element with procedural justice and benevolence with relational justice, or in variations thereof. Gilstrap and Collins (2012:152) for instance, argue that, in terms of Mayer *et al.*'s (1995:715) integrative model of trust, procedural justice signals integrity,

informational justice denotes benevolence, and a core dimension of transformational leadership represents ability. In principle Gilstrap and Collins' (2012:152) approach closely relates to the characteristic approach of Mayer and Davis (1999). Justice approaches, like that of Gilstrap and Collins (2012:152), interestingly have a similar spread of cognitive-based and affective-based elements resembling that of the cognitive-based and affective-based approach of McAllister (1995) and behaviour approach of Gillespie (2012:187-188). The finer distinctions lay in the different emphases given to the cognitive, affective and integrity elements.

### c) Situational factors

Research shows that situational factors like individualism, collectivism, transformational leadership, etc. can also influence trust significantly. Markus and Kitayama (1991:244) found that people in different cultures differed noticeably in construals of the self and of others, as well as the interdependence of the two. This may influence, at times even determine, the very nature of individual experiences, including cognition, emotion and motivation. Gardner *et al.* (1999:321) state that cultural beliefs unquestionably shape self-construals.

## 2.2.5 Measuring trust

Through a thorough review of various definitions, measures and antecedents of trust - each measure focusing on a different aspect of this complex construct - effort was made to identify the best basic commonalities measuring trustworthiness that this study could use.

In choosing an appropriate measurement instrument, it is crucial that there must be consistency between the way in which trust is conceptualised (definition) and the operational definition thereof (Currall & Judge, 1995:152; Gillespie, 2012:178). Mishra's (1996:265) definition of trustworthiness is consistent with the trustworthiness construct measured by Mishra and Mishra (1994:276-277). Chughtai's (2010:369) measure instrument is an adapted form of Mishra's (1996) trustworthiness measure instrument. The psychometric properties of Mishra and Mishra's (1994:276-277) measure instrument are discussed in more detail in chapter 3. Importantly, there is also an operational consistency between Mishra and Mishra's (1994:276-277) trustworthiness measure instrument and the WES (Employee engagement scale) of May *et al.* (2004:36). The four beliefs (characteristics) identified by Mishra (1996:6-9) are similar to characteristics of trustworthiness, as conceptualised by May *et al.* (2004:16): accuracy (equating ability/cognitive), concerned/benevolence, open communication (openness) and integrity/consistency (equating reliability).

The openness characteristic of Mishra and Mishra's (1994:276-277) measure instrument allows for trustworthy outcome features like communication, safety and feedback. Bijlsma and Van de Bunt (2003:656-657) found openness, as well as guidance and supportiveness to be positively

related to trustworthiness. It furthermore seems reasonable to argue that openness will enhance supportiveness and guidance.

Lewicki *et al.* (2006:1002) are of the opinion that inter-personal relationships are mostly complex and have a broad bandwidth. The prominent benefit of Mishra's (1996:265) definition of trust is that it allows for a deeper and wider insight into the influence of trust on the complexities of work relationships and employee engagement. This occurs by adding the characteristic of openness. This study endeavoured to discover whether this characteristic added important value to the concept of trustworthiness.

Chughtai (2010:76) states that several scholars and researchers agree that the four trustworthiness factors specified by Mishra (1996:265,266-269) frequent in the literature explaining a major portion of perceptions of trustworthiness (Dietz & Den Hartog, 2006 and Whitener *et al.*, 1998:516-518). A short description of each of the four antecedents of trust is given.

#### a) Competence

Competence refers to the expertise and capabilities of the trustee (Mayer *et al.*, 1995:717). To fulfil their leading role as expected, employees perceive that the organizational leaders have the necessary skills and abilities to make sound decisions (Kirkpatrick & Locke, 1991:55-56).

McAllister (1995:30) argues that the existence of cognition based trust is necessary for the development of affective based trust. Individuals must be confident of the other party's reliability and dependability before investing in an emotional relationship.

#### b) Concern

McAllister (1995:29) believes that affective-based trust reflects a special relationship in which the concerned parties express care and concern for each other, as well as altruism. Minimally concern implies that one party believes that the other party will refrain from taking unfair advantage even when the opportunity knocks. At a higher level the concern component of trust postulates that the concerned parties will be sensitive to each other's needs and will act in each other's best interests. This does not imply that the parties involved in a relationship lack self-interest. "Rather trust in terms of concern means that such self-interest is balanced by interest in the welfare of others" (Mishra, 1996:267). It could be considered to dust off an old comment that: Cognition-based trust, or reliability, is seen as "more superficial and less special" than emotional trustworthiness (Johnson-George & Swap, 1982:1316).

### c) Reliability

Reliability can be defined as doing what one says one is going to do (Simons, 2002:18). In other words: one's words and actions must be in line. It also implies keeping one's commitments and promises. They verify the potential to build trust. Several scholars consider reliable behaviour to be central to trust.

Individuals must be confident of the other party's reliability and dependability before investing in an emotional relationship (McAllister, 1995:30).

Whitener *et al.* (1998:516) discriminate between consistency and behavioural integrity (reliability). Both reflect a consistency that reduces employees' perceived risk in trusting their managers.

However, whereas behavioural consistency reflects the reliability or predictability of managers' actions, based on their past actions, behavioural integrity refers to the consistency between what the manager says and what he or she does.

### d) Openness

By adapting the wording of Tschannen-Moran and Hoy (1998:343) to this study's situation, openness of first-level management and middle-level management relations is embedded in department leadership, and openness in their interactions is encapsulated in managerial professionalism. These set conditions for openness. Not any openness is good enough.

Chughtai (2010:79) did a comprehensive literature study to clarify the openness concept. As this is relevantly new to trust measure instruments used, this study also gave it more consideration. He quotes Costa (2004) who argues that by igniting communication and openness, organizations can encourage the exchange of important knowledge and consequently increase mutual learning. The trustee and trustor put themselves at risk by sharing sensitive information with each other.

Tschannen-Moran and Hoy (1998:341) believe that subordinates looked to superiors for openness and benevolence when extending trust. Open and honest communication can reduce uncertainty and ambiguity because it makes motives, agendas and goals more transparent.

However, being open implies risks for trustee and trustor. When the trustor shares sensitive information with the trustee (or vice versa) there is a real danger that they might misuse the shared information or they may fail to reciprocate this openness. Openness beyond a certain level may serve to damage rather than enhance trust. (Butler, 1991:646; Eisenberg & Witten, 1987:421-424). In spite of these potential risks several scholars, and this study, regard openness as a key aspect of trust.

## 2.2.6 The consequences of trust

Bijlsma and Van De Bunt (2003:639) refer to a recently published meta-analysis of antecedents and consequences of trust in leadership. Of the following mentioned consequences several were also found in their studies presented in that issue:

- > belief of information;
- > organisational commitment;
- > decision commitment;
- > organisational citizenship behaviour;
- > job satisfaction;
- > satisfaction with leaders;
- > leader-member exchange; and
- > intention to stay.

From this it can be gathered that positive consequences of trust can also lead to several positive and significant consequences for the workplace and for organisations in general.

Some links to employee engagement are also indicated, like commitment, job satisfaction and intention to stay. In believing in information concerning the trustee, the trustor can engage him- or herself accordingly. In this study only the positive outcomes are stressed, and specifically belief of information. A link is sought as to how it can realise in employee engagement and productivity. Literature research relating to the positive consequences of trust was undertaken.

### a) Trust and employee's behaviours

Dirks and Ferrin (2002:614) asserted that high trust in managers evaluating performance fairly and providing guidance can amongst others effect employees' commitment and satisfaction profoundly.

### b) Trust and cooperation

Morgan and Hunt (1994:20) are among the studies that have established an empirical link between trust and cooperation. Most of these studies, however, are directed at team relationships which fell beyond the scope of this study.

### c) Trust and Sharing of knowledge and ideas

A trusted superior facilitates knowledge and ideas sharing that then may lead to stronger work engagement and higher productivity (Staples & Webster, 2008:630, 631).

#### d) Trust and extra-role and greater effort

Research indicates that an atmosphere of trust influences employees to go that extra mile, thus greater effort can lead to better performance and higher productivity (Dirks & Ferrin, 2002:618).

#### e) Trust and Performance

Performance is likely the most important link with trust Dirks and Ferrin (2001:450). A number of reasons account for trust being transformed into superior performance. Dirks and Ferrin (2002:615) argued that a high level of trust in the supervisor might encourage individuals to engage in an exchange relation with him. This may enable the trustee to receive performance-related resources, such as constructive feedback, guidance and assistance from his superior and this may help him to improve his performance. Trust can also positively affect individual performance through increasing work motivation by strengthening the effort-performance leading to productivity.

Mayer and Gavin (2005:876) explain the trust-performance linkage in terms of the cognitive resource theory. They suggest that when employees lack trust in management, their cognitive resources will be pre-occupied with unproductive matter. The reverse, obviously, is also true.

#### **2.2.7 Referent**

Mayer & Davis (1999:124) state that for the trustor to be willing to act, the trustee must be identifiable and specific, otherwise the theory of trust is pointless.

Where top, middle-level and first-level management, employees and peers are all part of a trust relationship, a bundle of referents in different relationships and ratio are at hand. Ideally, by investigating all these relationships, one may have a complete understanding of trust functioning in the work place. In practice, applying this in a measure instrument, constitutes a nightmare. The problem the study has identified, specifies the referent to be used, namely the middle-level manager. Motivation for this choice follows, and then definitions of the trustee and trustor.

Dirks and Ferrin (2002:611) found that direct leaders (e.g., supervisors) appeared to be a particularly important referent of trust. Direct leaders were a stronger moderator of the relationships between interactional and procedural justice and trust, than organizational leadership was. As already stated, interactional justice infers relations and more specifically affective based trust. Procedural justice infers fairness and thus integrity. In line with these findings, this study therefore focused on direct leaders as most influential foci of interpersonal trust.

Kickul *et al.* (2005:209) think the social accounts variable makes the direct leader a sensible referent, because this level of leadership would be the primary communicator of job-level decisions and explanations.

#### a) First-level management

First-level managers are also called first-line managers or supervisors. Within the mining industry these managers have job titles such as: superintendents, shift supervisors, foreman, etc. First-line managers are responsible for the daily management of line workers; the employees who actually produce the product or offer the service. There are first-line managers in every work unit in the organisation.

Although first-level managers typically do not set goals for the organization, they have a very strong influence on the company being the primary contact between an organization and employee (Daley & Pope, 2004:130).

The first-level managers interact with most employees on a daily basis, and if the managers perform poorly, employees may also perform poorly, may lack motivation, or may leave the company (Reference for Business, 2015).

#### b) Middle-level Management

Middle-level managers are those in the levels typically below top managers. Middle-level managers' job titles within the mining industry include: General Manager, Plant Manager, Mining Manager, Engineering Manager, etc. Middle-level managers are responsible for carrying out the goals set by top management (corporate leadership). They do so by setting goals for their business/operational units. Middle managers have the responsibility to motivate and assist first-line managers to achieve business objectives. Middle-level managers may also communicate upward, by offering suggestions and feedback to top managers. Because middle managers are more involved in the day-to-day workings of a company, they may provide valuable information to top managers (corporate) to help improve the organization's well-being and bottom line (Reference for Business, 2015).

Their leadership involves:

- > Establishing a clear vision, goals and objectives for the business units.
- > Sharing that vision with others so that they will follow willingly,
- > Providing the information, knowledge and methods to realize that vision, goals and objectives
- > Coordinating and balancing the conflicting interests of all members and stakeholders.

Unfortunately, middle-level management has very limited contact or interaction with the operational workers, thus the possibilities for disconnecting and losing the trust of workers are enormous.

First-level managers which act as direct line managers to the mine operational workers are responsible to lead and motivate their direct reports to successfully execute their responsible duties, as well as to ensure overall direct report job satisfaction and well-being. The leadership role for managers entails four primary duties, namely educating, evaluating, counselling and representing their direct reports (Reference for Business, 2015):

- > Educating of their direct reports includes teaching them the required skills and showing them how to function within the company and how to perform their assigned tasks.
- > Evaluating activities that are part of a manager's leadership responsibilities include settling disputes, creating and enforcing standards and policies, evaluating output, and dispensing rewards. In fact, much of the respect and esteem that a manager gets from subordinates is contingent upon the ability to evaluate effectively.
- > A manager's ability to counsel will also impact his or her direct reports' effectiveness. Counselling involves giving advice, helping workers solve problems, soliciting feedback from subordinates, and listening to voluntary input or employee problems.
- > Finally, managers lead through representation by voicing the concerns and suggestions of their subordinates to higher authorities (corporate). In other words, managers must show a willingness to back their workers and represent their needs and goals.

The motivation for the first-level manager in performing these important required ground level leadership duties, leads to two important questions. What is first-level management's trust in middle-level management? The mining ground (operational) level management leadership issues may to a large extent be laid to the door of distrust between first-level and middle-level management. This possible gap is the first problem that this research addresses. This gap might also have a negative effect on employee (first-level manager) engagement. This relationship is the second problem to address.

An open, fair and trustworthy relationship between middle-level management and first-level management may lead to stronger work engagement as perceived by first-level management and be a likely necessity to help ease and resolve conflict and close existing gaps. This may carry through to the ground level employees (workers). Gilstrap and Collins (2012:153) supported this view by stating that endeavours intended to create workplaces featuring fairness and competent leadership may fall short if the subordinates distrust their supervisors. Fairness implies trustworthiness of supervisors enabling them to create a climate of trust.

This section of the literature study focused on different approaches to trust in order to develop a comprehensive understanding of the construct in terms of its definition, antecedents, outcomes and related measuring instruments. The next section focuses on engagement as the second important pillar of this study.

## **2.3 EMPLOYEE ENGAGEMENT**

Employee engagement and work engagement are not discriminately used in research. This study decided upon employee engagement as it carries a stronger personal connotation.

### **2.3.1 Function of employee engagement**

May *et al.* (2004:13) emphasise the importance of managers developing engagement, as disengagement or alienation is central to workers lacking commitment and motivation.

Markos and Sridevi (2010:89) pointed to the vastness of the employee engagement construct, touching almost all parts of human resource management facets known up till then.

Unless every part of human resources is not addressed appropriately, employees fail to fully engage themselves in their job in the response to such kind of mismanagement. By implication, proper management facilitates employee engagement.

Employee engagement is related to and encompasses concepts like job satisfaction, employee commitment and organizational citizenship behaviour. They further made a weight-bearing comment: managers expressively agree that this day and age demands more efficiency and productivity than ever before.

By focusing on employee engagement, management can create a more efficient and productive workforce in striving to increase their performance.

There are disconcerting aspects regarding employee engagement. Global surveys conducted by survey houses and research organizations indicate that a significant number of employees are disengaged. They are sceptical of any organizational initiative or communication and are inclined to negativity. In referring to initiative and communication, distance or personal interest and poor relationships seem to be the main contributors to poor engagement of employees. A Perrin (2003:6) survey finds that 17% of employees are highly engaged, 64% are moderately engaged, and 17% are disengaged. Dernovsek (2008:43-44) refers to a Gallup survey showing that 30% of employees are engaged, 55% are not engaged, and 15% are actively disengaged. Seemingly over a five-year period no mentionable positive changes took place. Perrin (2003:7) dissected their results into two interesting categories.

- 1) In analysing the results across job levels, it was clearly indicated that the higher the job ranking, the higher the employee engagement will be. There is also an alarming drop from highly engaged senior executives to that of all the other lower job rankings.
- 2) In analysing the results across industries, non-profit industries stand way out above the rest being higher in engagement. All the other industries tend to have similar lower spreads.

Employee engagement is a broad concept. This study focus on the basic concepts of employee engagement based on recent literatures under five headings: The definition of employee engagement; the approaches to employee engagement and differentiation of the concept from related constructs such as commitment, organizational citizenship behaviour (OCB) and job satisfaction; the factors or drivers leading to engagement; the measurement of employee engagement and the impact of employee engagement on organizational performance indicators or business outcomes such as productivity, employee and company growth.

## **2.3.2 Definition of and different approaches to employee engagement**

### **2.3.2.1 Definition of employee engagement**

As is the case with trust, defining work engagement is also highly problematic. Truss *et al.* (2014:3) cite MacLeod and Clarke (2009) who found more than 50 different versions of engagement, suggesting there might be more.

Engagement in work may at first seem clear, but focusing on the literature reveals the indistinctiveness of the concept. The vast confusion aggravates proper assessment and interventions that increases or improve work engagement (Schaufeli, 2014:15). Macey and Schneider (2008:3) attribute this confusion to the “bottom up” way the engagement idea evolved within community practice.

Kahn (1990:694) introduced the concept of personal engagement, defining it as “the harnessing of organization members’ selves to their work roles; in engagement, people employ and express themselves physically, cognitively, and emotionally during role performances”.

Perrin (2003:5) used amongst others as definition employees’ willingness and accomplishment to help their company succeed. Engagement is affected by many factors which involve both emotional and rational factors relating to work and the overall work experience. An interesting new contribution made by Perrin (2003:5) was management’s inspiration motivating employees to do their best. Being left uninspired is due to non-communicative leadership (not open), failing to give a clear picture of future success and lack of developmental opportunities.

Schaufeli *et al.* (2002:74) define engagement “as a positive, fulfilling, work-related state of mind that is characterized by vigour, dedication, and absorption.” It is also “a more persistent and pervasive affective-cognitive state that is not focused on any particular object, event, individual, or behavior”. This definition is echoed by Bakker and Demerouti (2008:209).

Vigour indicates the readiness to devote effort in one’s work, showing high levels of energy in the act of working and the inclination to continue in the face of task difficulty or failure. This then refer to behavioural engagement. The effort exerted may imply greater productivity.

Dedication refers to a strong identification with one’s work and encompasses feelings of enthusiasm, inspiration, pride, and challenge. This then refer to emotional engagement.

Absorption is identified by being fully immersed in one’s work, in such a way that time seemingly pass rapidly and one finds it hard to disengage oneself from work. This relates to cognitive engagement.

Saks (2006:602) defines employee engagement “...as a distinct and unique construct that consists of cognitive, emotional, and behavioral components that are associated with individual role performance”. It relates to the constructs of Kahn (1990). An important substitution is “behavioural engagement” instead of “physical engagement”. This definition relates directly with trust elements discussed in this study. If the cognitive and emotional elements, and the behavioural manifestations of both constructs can be captured, relationships between the trustworthiness and employee engagement constructs might be identified.

### **2.3.2.2 Different approaches to employee engagement**

In trying to make sense of the numerous definitions of engagement that exist, four major approaches defining employee engagement can be discerned that serves as framework in current research, namely: Kahn’s (1990) Need-Satisfying Approach, Maslach *et al.* (2001) Burnout-Antithesis Approach, Harter *et al.* (2002) Satisfaction-Engagement Approach and Saks (2006) Multidimensional Approach.

Shuck (2011:306-315) discuss each approach comprehensively.

#### **1) Kahn’s (1990) Need-Satisfying Approach**

Kahn (1990) is widely credited as being the first to apply engagement theory to the workplace. He perceived work engagement as a motivational variable covering an intrinsic and extrinsic continuum, promoting the use of an employee’s full self in their work roles. Kahn (1990:692) suggests employees could be physically, cognitively and emotionally engaged.

Rothmann and Baumann (2014:515-516) states that physical component of engagement refers to high levels of energy and mental flexibility whilst working, being willing to put in extra effort and persisting under difficulties. The way they see it there is a cognitive association, and the extra effort implies higher productivity.

May *et al.* (2004:16) believe that supportive supervisors within the work environment characteristically display concern for employees' needs and concerns, thereby encouraging them to voice their concerns and even develop new skills. This is an affective, openness and cognitive link. Hopefully this study can trace that link. According to Rothmann and Baumann (2014:516) the emotional component entails a strong involvement with one's work in which one experiences a sense of worth, interest and challenge.

The cognitive dimension refers to vigilance (Kahn, 1990:700) at work and experiencing caution. Rothmann and Baumann (2014:516) states that the work engaged person is fully focused and happily immersed in his work, and find it hard when he should disconnect from his work when it is time to leave.

Involvement and commitment are threatened through every dimension. Schaufeli (2014:21) concludes that both are embraced by employee engagement. All these concepts can be related to productivity.

These three states of existing (physical, cognitive and emotional) were significantly affected by three psychological domains, serving as antecedents to employee engagement. Employees become engaged when these conditions are met. According to Kahn (1990:703) the three psychological domains are:

- a) Meaningfulness, the feeling of getting return of one's self in the role he performs.
- b) Psychological safety, feeling able to show and use one's self in the role he performs.
- c) Availability, the belief of having the physical and mental resources to engage the self at work.

May *et al.* (2004:11), the first to apply Kahn's (1990) theory, found that job enrichment and work role fit were both fully mediated by the psychological indication of meaningfulness. Rich *et al.* (2010) drew on other various existing scales but their measure of engagement corresponds well with Kahn's (1990) three-factor conceptualization. The Soane *et al.* (2012) ISA engagement measure built on Kahn's (1990) theory, but physical engagement is substituted with social engagement. They considered recent reviews and discussions on engagement to develop their approach.

## 2) Maslach *et al.* (2001) Burnout-Antithesis Approach

Because of the positive directness of this study, the basic approach was not considered relevant to this study.

Schaufeli *et al.* (2002) tested the framework of Maslach *et al.* (2001), using the MBI-GS, but a slightly different, positive definition of engagement, defined as a "...positive, fulfilling, work-related state of mind characterized by vigour, dedication, and absorption" (Schaufeli *et al.*, 2002:74). This measure instrument, though, still measures burnout.

## 3) Harter *et al.* (2002) Satisfaction-Engagement Approach

Harter *et al.*'s (2002) article is one of the most widely read and cited articles on employee engagement. He used a positive psychology framework. Harter *et al.* (2002:279) defined employee engagement as an "individual's involvement and satisfaction with as well as enthusiasm for work". Per definition he equates engagement with involvement and satisfaction. Little and Little (2006:117) ask if engagement behaves like well-established constructs such as job satisfaction or job involvement resulting in the similar outcomes, does the field need a construct such as engagement? The main purpose is to help managers to improve areas of work and organizational life. Consequently, it is positively directed. The Gallup Q12 is the main measure instrument developed from this approach and it is internationally recognized. Fletcher and Robinson (2014:277) mention several criticisms this measurement instrument had received. Criticised are items like:

- "Do I know what is expected from me at work?"
- "Does my supervisor, or someone at work, seem to care about me as a person?"
- "This year, have I had opportunities at work to learn and grow?"

## 4) Saks (2006) Multidimensional Approach

Saks hypothesized that employee engagement had developed through a social exchange model. He was also the first academic researcher suggesting two separate stages of engagement: job engagement and organizational engagement. Saks (2006:602) defined the emerging multidimensional concept of employee engagement as "a distinct and unique construct consisting of cognitive, emotional, and behavioural components ... associated with individual role performance". He tested his model and the results indicated that antecedent variables like supportive climate, job characteristics and fairness influenced the development of engagement. Employee engagement mediated the relationship between antecedent and outcome variables.

### **2.3.2.3 Choice of employee engagement approach**

The perspective of Bakker *et al.*'s (2008:189) employee engagement approach emphasizes experience and work activity, resulting in energy studies. The continuum of this is: full power - burnt-out.

The May *et al.* (2004:16) employee engagement approach considers relationships and influences of others. Special reference is made to the superior's influence in the relationship. It stems from Kahn's (1990) approach. It is obvious that the nature of this study followed the latter path.

### **2.3.3 Differentiating engagement from related concepts**

Saks (2006:601) explains that the dire straits one gets in is because of the large amount of vague and conflicting definitions of employee engagement and the resultant variety of measure instruments. Definitions and measures sound like better known established constructs like commitment, involvement and organisational citizenship behaviour (OCB). It also raises the issues of whether or when employee engagement is individual or group directed. Other than confirming these, Little and Little (2006:114) also add that definitions are not clear as to whether employee engagement is an attitude or a behaviour.

It is necessary to differentiate employee engagement from related concepts.

Saks (2006:60) states that engagement in academic literature is said to be related to, but distinct from, other constructs in the actions of organizations. Robinson *et al.* (2004:8) maintain that: "... engagement contains many of the elements of both commitment and organisation citizen behaviour, but is by no means a perfect match with either". Additionally, neither commitment nor organisation citizen behaviour reflect sufficiently two aspects of engagement: its two-way nature and the extent of engaged employees' business awareness.

Organizational commitment also refers to a person's attitude and attachment towards their organization. Engagement is not an attitude, but it signifies the degree to which an individual is attentive and absorbed in the performance of his role.

Engagement also differs from job involvement. According to May *et al.* (2004:12), job involvement is the result of a cognitive judgment concerning need satisfying abilities of the job tied to one's self-image. Engagement has to do with how individuals employ themselves in job performance. Furthermore, engagement involves the active use of emotions and behaviours in addition to cognitions. May *et al.* (2004:12) further suggest that engagement may be regarded as an antecedent to job involvement, because individuals who experience deep engagement in their roles should get to identify with their work.

Schaufeli (2014:21) concludes that commitment and involvement are embraced by employee engagement. All these concepts can be related to productivity. Schaufeli (2014:21) quote Newman *et al.* (2010) who dubbed engagement: “The A (attitude) factor” as a combination of job satisfaction, job involvement and affective organizational commitment. It overlaps with all the mentioned concepts, thus enveloping them all. Thus: engagement is a complex, multi-faceted concept.

In summary, in spite of the fact that the definition and meaning of engagement in practitioner’s literature often overlaps with other constructs, in the academic literature it has been defined as a distinct and unique construct that consists of cognitive, emotional, and physical/behavioural components associated with individual role performance. Engagement is distinguishable from several related constructs, most notably organisational commitment and organizational citizenship behaviour.

#### **2.3.4 Antecedents (drivers) to employee engagement**

Kahn (1990:703) argued that the presence of three psychological conditions - being meaningfulness, safety and availability - influence the employee to get personally engaged. These conditions indicate the depth of employee engagement. They, in turn, are influenced by several characteristics of both the work environment and the individual employee.

According to Saks (2006:604) the antecedents of employee engagement were job characteristics, perceived organisational support, perceived supervisor support, rewards and recognition, procedural justice and distributive justice. The outcomes of engagement were job satisfaction, organisational commitment, intention to quit and organisational citizenship behaviour.

The Gallup Workplace Audit (GWA; The Gallup Organization, 1992-1999) applied by Harter *et al.* (2002:269) consist of 12 items that measure employees’ perceptions of work characteristics, all being antecedents of employee engagement. Antecedents relevant to this study include clarity of work expectations, supportiveness of supervisors and co-workers, and opportunities for growth and development.

Most drivers that are found to lead to employee engagement are non-financial in their nature. Therefore, any organization who has committed leadership can achieve the desired level of engagement with less cost of doing it (Markos & Sridevi, 2010:92).

Macey and Schneider (2008:25) proposed that a trusting management should also influence employee engagement. Engagement has some cost in the form of risk to the employee. A more recent approach to enhancing employee engagement is the Job Demands-Resources (JD-R) model (Gruman & Saks, 2011:126).

Job resources are not only necessary to deal with job demands (extrinsic antecedent), they also stimulate personal growth, learning, and development (intrinsic motivational antecedents) (Schaufeli & Bakker, 2004:296, 298). Supportive colleagues and performance feedback increase the likelihood of being successful in achieving personal work goals. All be it through the satisfaction of basic needs or through the achievement of work goals, the outcome is positive and engagement is likely to occur (Schaufeli & Bakker, 2004:208).

An example of the feedback linking process is proper feedback fostering learning, thereby improving work competence (Bakker & Demerouti, 2008:211). The properness can be fairness and care elements that have trust implications.

Job demands refer to those physical, social, or organizational aspects of the job that require sustained physical or mental effort and are therefore associated with certain psychological costs (e.g., exhaustion). It includes aspects such as workload, time pressure, and difficult physical environments. Job resources refer to those aspects of the job that are functional in achieving work goals, stimulate personal growth and development, and reduce job demands and their associated physiological and psychological costs and include aspects such as job control, opportunities for development, participation in decision making, task variety, feedback and work social support (Crawford *et al.*, 2010:835-836).

Bakker and Demerouti (2008:212) reported on 6 studies finding a positive relationship between the motivational role of job resources and work engagement. The results of two studies are shown.

Schaufeli and Bakker (2004:302) evidenced a positive relationship between three job resources (performance feedback, social support, and supervisory coaching) and work engagement (vigour, dedication and absorption) among four different samples of Dutch employees. More specifically, they used structural equation modelling analyses to show that job resources (not job demands) exclusively predicted engagement, and that engagement is a mediator of the relationship between job resources and turnover intentions.

The former study was replicated in a sample of over 2000 Finnish teachers (Hakanen *et al.*, 2006:495, 499). Results showed that job control, information, supervisory support, innovative climate and social climate were all positively related to work engagement.

Work engagement mediated the effects of job resources on organizational commitment. The motivational process links job resources with organizational commitment through work engagement.

Job resources, more specifically personal resources, are relevant to this study.

### 2.3.5 Measuring employee engagement

Chughtai (2010:27-29) discussed and evaluated the four discussed valid measures of employee engagement. The following is a synoptic representation thereof.

#### a) UWES

According to Chughtai (2010) the most widely used measure of work engagement is the Utrecht Work Engagement Scale (UWES) developed by Schaufeli *et al.* (2002:88-89). The original UWES consists of 17 items measuring the three underlying dimensions of engagement: vigour, dedication and absorption. A study conducted by Sonnentag (2003:521) could not validate the three factor structure of UWES and hence they used the composite score of work engagement.

#### b) The Oldenburg Burnout Inventory (OLBI)

The OLBI developed by Demerouti *et al.* (2010:222) is another measure of work engagement to be noted. As it measures burnout it is not relevant to this study.

#### c) The Q12

The Gallup researchers (Harter *et al.*, 2002:269) have developed a twelve item instrument, labelled as Q 12, to measure work engagement.

Harter *et al.* (2002:274) reported a correlation of 0.77 between overall job satisfaction and employee engagement measured with Q12. This correlation increased to 0.91 after correcting for measurement error.

Also, the observed correlation of overall job satisfaction and employee engagement with a composite measure of business unit performance was found to be identical (0.22). This clearly points to the fact that Harter *et al.*'s concept of work engagement as measured with Q12 and the construct of overall job satisfaction are actually indistinguishable.

#### d) The model of Kahn (1990)

In the first study empirically testing Kahn's (1990) model, May *et al.* (2004) developed a three dimensional measure of work engagement. It is referred to as WES (Work Engagement Scale). They built their measure instrument on Kahn's (1990) three components of work engagement: physical, cognitive and emotional. Notably, the three components proposed by May *et al.* (2004:11) seem to bear a surprising resemblance with the three dimensions of the UWES, i.e. vigour, dedication and absorption. However, May *et al.* (2004) were unable to establish the three factor structure proposed by their measure and as a result they used the composite score to assess work engagement.

Thus, the psychometric properties of this measure have to be rigorously tested and established in diverse samples before it can be considered as a reliable measure of work engagement.

Diedericks and Rothmann (2013:228) adapted a version of the Work Engagement Scale (WES; May *et al.*, 2004) based on the personal engagement model of Kahn (1990) to measure work engagement. The Diedericks and Rothmann (2013:228) Work Engagement Scale use 9 items to measure cognitive, emotional and physical engagement respectively. The criticism that this measure instrument must be tested in diverse samples before it can be considered as a reliable measure of work engagement, persists.

In the empirical study undertaken by Rich *et al.* (2010) they adapted the work engagement model of May *et al.* (2004:36) by executing a thorough research on the concepts of cognitive-, affective- and physical engagement (Rich *et al.* 2010: 623). From his founded basis they developed an eighteen – item engagement measure instrument with 6 items each allocated to physical-, emotional- and cognitive engagement. They then tested their measure instrument in three diverse examples in establishing it as a reliable and valid instrument.

This resolved the criticisms mentioned in the previous paragraph. From the initial 18-item engagement scale executed on 117 workers from a variety of workers and organizations, Rich *et al.* (2010:624) found strong correlations among the scales ( $r=.63$ ,  $r=.74$ ) supporting their aggregation to an overall job engagement scale. This was also reliable from an internal consistency standpoint (.95). They then cross validated the measure instrument on 180 employees of a care nursing facility. A strong inter correlation of .65 among the three dimensions was found. The structure of the engagement scale in this sample was assessed through specifying a series of models and tested them using confirmatory factor analysis (CFA). The main study was that of 245 full-time fire-fighters. The reliability from an internal consistency standpoint was high (.95). The model was again tested for validity using confirmatory factor analysis (CFA).

In Kahn's (1990:694) definition of work engagement performances are included. From this Rich *et al.* (2010:617) concluded a linkage between engagement and job performance. Through literature research this study identified a possible important link to trustworthiness. In establishing this connection, it is expected to reveal a connection to productivity.

This study applied the Rich *et al.* (2010:634) employee engagement measure instrument because it is believed that this adapted version is an improvement on the WES of May *et al.* (1994:36). The openness connection to the Mishra and Mishra's (1994:276-277) measure instrument and a performance outcome linkage provide new paths paving the way to new, meaningful contributions.

## 2.4 CONNECTING TRUST AND EMPLOYEE ENGAGEMENT

The proposed research model suggests that a high level of trustworthiness in the middle-level management (direct supervisor) might also positively affect first-level management's engagement with their work. The example and inspiration of the immediate superior play an important role.

Employees tend to be more involved in their work when they have strong feelings of trust in their direct reports' skill and abilities, strengthened by transformational leadership. It has a multi-dimensional influence "in that employees can be emotionally, cognitively and physically engaged (Hassan & Ahmed, 2011:165).

Relevant to this study Kahn (1990:705) and May *et al.* (2004:16) found that supportive and trusting interpersonal relationships promote employee engagement. An open and supportive environment is essential for employees to feel safe in the workplace and getting totally engaged. Openness leading to safety is an important link that could possibly be linked to trust as was also revealed in the literature study undertaken.

Colquitt *et al.* (2007:922) indicated practical implications of trust beneficial for fostering trust in the workplace, of which one where significant for this study. The relationship between trust and job performance was as strong as or stronger than relationships with other attitudes such as job satisfaction. Job performance intersects with employee engagement; thus connecting employee engagement to trust.

Chughtai's (2010:289) findings revealed that trust in a supervisor exercised significant and unique effects on trustor's levels of employee engagement, which is also the purpose of this study.

Perceiving that that middle-level management will give assistance and guidance when they experience work related problems, first-level management will experience believe in their competence, thus raising employee engagement and productivity (Bijlsma & Vander Bunt, 2003:657).

The trustworthy supervisory behaviours "...are suspected to lead to feelings of psychological safety and a willingness to invest themselves at work" (May *et al.* 2004:16).

This, indeed, echoes the main purpose of this study. Psychological safety, as well as supervisory supportiveness (May *et al.*, 2004:16) are additional avenues that did not fall within the scope of this study. This led directly to stating the main hypothesis of the study.

Hypothesis 1: Middle-level management's trustworthiness as perceived by first-level management will be positively related to their (first-level management's) employee engagement.

There are several secondary hypotheses to determine the relations between the dimensions of each main construct, and the possible relations between the specific dimensions of the two main constructs.

Hypothesis 2: There is a positive and statistically significant direct relationship between the sub constructs of trustworthiness.

Hypothesis 3: There is a positive, direct significant relationship between the sub constructs of employee engagement.

Hypothesis 4: There is a positive, direct significant relationship between competency as a dimension of trustworthiness and cognitive employee engagement as perceived by first-level management.

Hypothesis 5: There is a positive, direct significant relationship between competency as a dimension of trustworthiness and affective employee engagement as perceived by first-level management.

Hypothesis 6: There is a positive, direct significant relationship between competency as a dimension of trustworthiness and physical employee engagement as perceived by first-level management.

Hypothesis 7: There is a positive, direct significant relationship between concern as a dimension of trustworthiness and cognitive employee engagement as perceived by first-level management.

Hypothesis 8: There is a positive, direct significant relationship between concern as a dimension of trustworthiness and affective employee engagement as perceived by first-level management.

Hypothesis 9: There is a positive, direct significant relationship between concern as a dimension of trustworthiness and physical employee engagement as perceived by first-level management.

Hypothesis 10: There is a positive, direct significant relationship between reliability as a dimension of trustworthiness and cognitive employee engagement as perceived by first-level management.

Hypothesis 11: There is a positive, direct significant relationship between reliability as a dimension of trustworthiness and affective employee engagement as perceived by first-level management.

Hypothesis 12: There is a positive, direct significant relationship between reliability as a dimension of trustworthiness and physical employee engagement as perceived by first-level management.

Hypothesis 13: There is a positive, direct significant relationship between openness as a dimension of trustworthiness and cognitive employee engagement as perceived by first-level management.

Hypothesis 14: There is a positive, direct significant relationship between openness as a dimension of trustworthiness and affective employee engagement as perceived by first-level management.

Hypothesis 15: There is a positive, direct significant relationship between openness as a dimension of trustworthiness and physical employee engagement as perceived by first-level management.

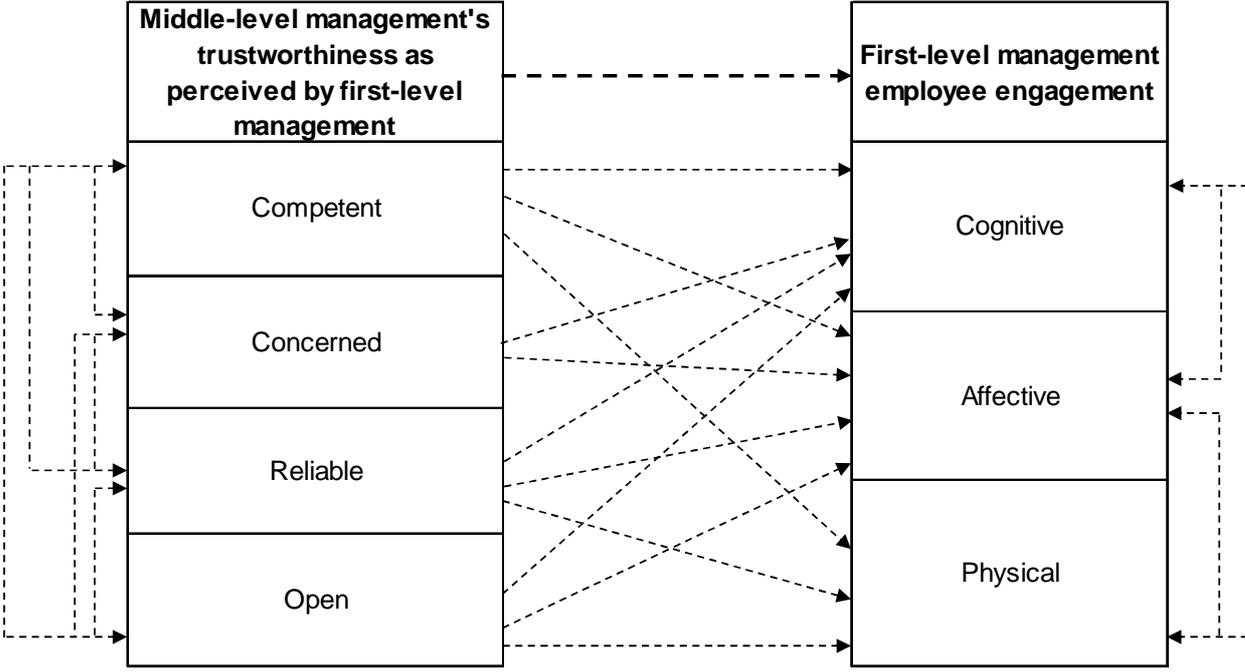
## **2.5 CHAPTER SUMMARY**

Trustworthiness as related to the work situation and its relevancy in the literature was researched to structure this study. Trust models were researched so as to decide on an appropriate one for this study. Relevant definitions and characteristics acting as antecedents of trust were identified. Related measure instruments were discussed. A possible connection to productivity and employee engagement was determined.

Employee engagement's definitions, antecedents, approaches and relevant measurements in literature were researched. Antecedents that may be relevant to trust were identified. Also of importance, was the finding that employee engagement carried more weight than job satisfaction and commitment respectively and seemingly includes them. Outcomes of employee engagement was researched, one of which was productivity.

The summarised essentials revealed through literature were used to present a structured model for this study depicted in Figure 2-1. This model has founded reliable and valid measure instruments related to and suiting this research study at best. The identified referent within his specific work field was assessed through a relevant questionnaire.

Figure 2-1: Research study model



(Model based on May *et al.* 2004:25)

## **CHAPTER 3**

### **EMPIRICAL REVIEW**

#### **3.1 INTRODUCTION**

This chapter examines the outline of empirical research. The specified measure instruments are discussed to clarify their relevance to this study. The participants identified for this study are accounted. The motivation for and construction of empirical survey instrument are discussed, as well as the ethical considerations in executing the empirical survey.

#### **3.2 RESEARCH APPROACH**

This study followed a quantitative approach as explained in chapter 1 and endeavoured to research the primary object, as well as affirm a trust theory and an employee engagement theory from potential evidence relevant to these believes. A hypothetico-deductive model is used in executing the research.

Empirical research is derived from experiment or observation (survey), rather than theory.

#### **3.3 RESEARCH DESIGN**

Burns and Grove (2003:195) define a research design as “a blueprint for conducting a study with maximum control over factors that may interfere with the validity of the findings”. Parahoo (1997:142) describes a research design as “a plan that describes how, when and where data are to be collected and analysed”. The research design of this study adheres to all these definitions and is detailed below.

##### **3.3.1 Survey**

The research design relevant to the research topic and hypothetico-deductive model is a survey. A survey consists of predetermined, directed descriptions, statements or questions given to a sample representing a specific population. It is a common quantitative method providing standardised, numerical information that can be statistically analysed and interpreted.

The benefit of a survey is that it is efficient, accurate, quick and relatively cheap. Surveys, however, do have certain shortcomings. Sampling errors occur as a result of excluding some people from the survey. Coverage errors occurs when a list from the drawn sample does not include all related elements of the population.

Measurement errors occur because of poor wording and insufficient questionnaire design. Measurement errors also occur because of inaccurate, imprecise, prejudiced or defensive responses of respondents.

Non-response errors occur when a substantial number of the respondents do not respond to the questionnaire, or are different from those who respond from those who respond in a way relevant to the study.

This study employed a quantitative, cross-sectional survey-design to reach the stated objectives. A cross-sectional study is a once off sample (or samples) drawn from the relevant population. Although regarded suitable to the purposes of this study, it should be noted that a cross-sectional cannot give any insight as to the causes of population characteristics because it is a predictive, correlational design.

### **3.3.2 Measuring the variables**

The construct items are set to discover the incidence, relative incidence, distribution and interrelations of the variables (Kerlinger, 1986:377).

Validated scales were used to measure the variables of the main constructs. All variables were measured on a 7-point Likert-type scale ranging from 1 (strongly disagree) to 7 (strongly agree). The scale length was decided upon to exclude possible common rater effects that may cause bias. The respondent may try to be consistent in his answers. Responses to previous items are more accessible to short term memory with shorter scales, and thus easily recalled when responding to other items (Podsakoff *et al.*, 2003:882).

### **3.3.3 Measuring instruments**

#### **3.3.3.1 Employee engagement measurement**

In Chapter 2 four work engagement scales were discussed and it was motivated as to why an adapted form of WES (May *et al.*, 2004:36) by Rich *et al.* (2010:634) was decided upon for this study.

This study had some doubts as to whether the concept “physical engagement” would correlate to trust in any way whatsoever, and how. Physical engagement is consistently, conceptually connected within the idea of different types of engagement. Shuck and Wollard (2010:102) stated that scholars agree that employee engagement has no physical properties but is manifested and often measured behaviourally. Possible relationships of the cognitive and emotional components speak for themselves.

Further reasoning for choosing Rich *et al.* (2010:634) above May *et al.* (2004:37) employee engagement measure instrument stems from comparing their items for physical engagement.

Item 1 of May *et al.* (2004) is exactly the same as that of Rich *et al.* (2010), and their item 2 bears some resemblance to Rich *et al.*'s (2010) item 5. May *et al.*'s (2004) item 3 may carry the vein of their item 3, but it is ambiguous and carries a negative connotation.

Their statement 5 is a negative statement and it imply laziness, which, even though it might be true, will hardly be answered truthfully. During this analysis an important observation was that there are psychological and behavioural wording with strong motivational/behavioural connotations in some of Rich *et al.*'s. (2010:634) items.

“Intensity”, “devote” and “strive”, carry much more than literal physicality meaning as such. Finally, the use of the word “perform” was a behavioural antecedent identified in chapter 2 as an important possible link to trust. It was anticipated that these aspects would heighten possible links between trust and employee engagement.

The Rich *et al.*'s (2010:634) work engagement measure instrument consists of 18 items measuring three underlying dimensions of engagement: cognitive engagement, affective engagement and physical engagement, each dimension consisting of six items. An example of each dimension: “I work with intensity on my job” (physical engagement), “I am enthusiastic in my job” (affective engagement) and “At work, my mind is focused on my job” (cognitive engagement).

Rich *et al.* (2010:624) properly standardised their work engagement instrument as a reliable and valid instrument. They administered an initial 18-item job engagement scale on a convenience sample of 117 individuals who were employed full-time in a variety of occupations and organizations. Factor loadings of items to their corresponding scale were greater than .71, and there was no cross-loading greater than .30. The items for each dimension were averaged and formed reliable scales (internal consistency reliabilities ranged from .89 to .94). The strong correlations among the scales ( $r = .63$ ,  $r = .74$ ) supported their aggregation to an overall job engagement scale, which was also reliable from an internal consistency standpoint (.95).

They then cross-validated the job engagement scale (after modifying the one potentially problematic item) in a sample of 180 employees of a skilled care nursing facility. Strong interrelationships among the three engagement dimensions (average  $r = .65$ ) suggested a commonality indicative of a higher-order factor. The second-order factor loadings for the physical, cognitive, and emotional dimensions were all positive, strong, and statistically significant (.89, .64, and .90, respectively).

They finally applied their measure instrument on their main study involving fire-fighters. Second-order factor loadings (.90, .72, .79) from the hypothesized model were strong, statistically significant, and similar to the cross-validation sample in size. Factor loadings on the individual items were all positive, strong and statistically significant (Rich *et al.*, 2010:634).

Permission was requested and received in making use of the Rich *et al.* (2010:634) employee engagement measure instrument for this study.

### **3.3.3.2 Immediate supervisor trustworthiness measurement**

In Chapter 2 several trust measurements were discussed. Led by Lewicki *et al.* (2006) asserting that part of the choice of measure instrument is a relevant definition of trust, this study used Mishra and Mishra's (1994:276-277) trust scale as point of departure.

This measure instrument proved to be a psychometrically sound measure of four factors of trustworthiness: openness, competence, reliability and concern; specified by Mishra (1996:6-9).

Openness is an interesting addition to the more commonly used three factors: ability (competence), integrity (reliability), benevolence (concern). This addition relates directly to one of the grievances of mine workers.

The four components have been found to correlate in the vicinity of 0.80, letting Spreitzer and Mishra (2002:717) recommend that the mean value of the 16 items should be calculated to determine an overall trust score for each respondent. Chughtai (2010:98) followed this recommendation in his adapted version of Mishra and Mishra's (1994:776-777) measure instrument of trust. Several studies found the reliability of the aggregated trustworthiness scale to be excellent. The Cronbach's Alpha for the aggregated scale was 0.91 (Brockner *et al.*, 2004:91), 0.93 (Spreitzer & Mishra, 1999:166), 0.96 (Spreitzer & Mishra, 2002:717) and 0.96 (Chughtai, 2010:263) respectively.

Mishra and Mishra's (1994:276-277) trust measure instrument items was used to assess the Level of Mutual Trust using a Seven-Point Likert Scale (1 = Strongly Disagree to 7 = Strongly Agree). An analysis of the items of this measure instrument raised several issues that makes it unusable for this study. As a starter, "I trust that ..." is openly indicating as to what is measured. In measuring Mutual Trust (fellow management team members), the horizontal approach does not suit the vertical approach of this study. The "person" in the different items changes from "me"/"my" to "their" to "our organization" causing personal, group and organisational trustor shifts. The four main factors are not grouped, so it takes some doing to categorise them. "The 1990s" in item 16 clearly needs to be changed in a way that it carries a futuristic implication.

Chughtai (2010) changed the content of the items significantly, eliminating most of the concerns one may have of the original version. He applied his adapted measure instrument to top management, direct supervisor and team members. It is his adapted form for the direct supervisor that was used for this study. The only necessary change was to substitute “centre” with “department” to fit into the mining work situation.

The measure instrument consists of 16 items to measure trustworthiness using a Seven-Point Likert Scale (1 = Strongly Disagree to 7 = Strongly Agree). The first four items measure openness worded as actions, ex. “My direct supervisor is straightforward with me”.

Stating it as an action, makes it more than a potential characteristic and is clearly personally directed. Will this heighten the willingness to trust the trustor, or is it simply a case of six of the one, half a dozen of the other? The factor loadings spreads from .76 to .93. The next four items measure reliability (integrity), three of the four being worded as potential characteristics, ex. “My direct supervisor is reliable”. Integrity seems to be a better category descriptive word than reliability. The one item that was stated as an action had an obvious higher factor loading (.93), than the other three (.77, .78 and .75 respectively). The next four items measure competence (ability). This section leads to a few debatable points. Statement 9 states two direct characteristics, “competence and knowledgeable”. Firstly, this should have been two statements. Ability seemingly is a better category descriptive word than competence. The factor loading of this item, .46/.54, is slightly higher than the set cut off point, thus forcing Chughtai (2010:248) to delete the item from the scale. Item 10 reads: “My direct supervisor can contribute to our organization’s success”. It reads as a possible action. By simply dropping “can” from the statement it would have become an action statement. The trustor changes from “me” to “our organization”, and the factor loading raises to .94. This give rise to several explanations. The trustor may believe that the trustee contributes to the company at the cost of the individual. This may have a strong negative connotation. The trustor set group interest (“our”) above individual interest. The high factor loadings on items one to four may indicate that the trustor does not perceive this to be the case, or then, only slightly so. Items 11 and 12 follow the same vein than that of item 10. The substitution of “department” instead of organization for this research study gives it a group connotation, making it more personal. The last four items measure concern (benevolence), ex. “My direct supervisor does not exploit me”. Again the action of the trustee is stated and it is personally directed. Permission was requested and received in making use of the Chughtai (2010:369) trust measure instrument for this study.

### **3.3.3.3 Control variables**

Nine control variables were included in the study: gender, age, work department, race, qualifications, number of years spent on the mine, number of years spent at a specific department,

number of years spent with current immediate supervisor and face to face meetings with the immediate supervisor.

Schaufeli and Salanova (2007:148) are of the opinion that age positively relates to employee engagement, older employees believing themselves to be more engaged than the younger ones. These researchers also believe gender may affect employee engagement.

The particular work department may also affect employee engagement, as closeness and openness may differ substantially from department to department. Perrin (2003:7), found in analysing employee engagement results across job levels, clear indications that the higher the job ranking, the higher the employee engagement will be.

There is also an alarming drop from senior executive's high level employee engagement to that of the employee engagement in lower rankings.

South Africa is a multi-racial country. Studies suggests that different races have different trust beliefs. Doney *et al.* (1998:616) ponder on the fact that high trust, strong relationships and benevolent motives are particular to collectivist cultures, whilst trust is low, relationships weak, and motives calculative in individualist cultures. This suggests that cultural differences may influence trust and subsequently employee engagement differently.

Qualifications were included for the same reasons implied by the Perrin (2003:7) studies: the higher the qualifications, the higher the level of employee engagement will be.

Number of working years spent with the current immediate supervisor may also influence closeness and the trust category openness. Categorising of the information took place after the information was received and recorded.

The number of years spend at the specific mine, at a specific department and with the current immediate superior was controlled, as that may influence closeness and the trust category of openness. The "working years at the company" control variable were categorised as follows: 0 – 3; 4 – 10; 11 – 15; 16 – 20 and 20+ years.

Face to face meetings with the immediate supervisor was also controlled, as it may influence closeness and openness. Time frames of daily, very often, now and then, seldom and very seldom, were construed.

The latter two was also ordered from 1 to 5 and 1 to 4 respectively. In doing so each control was totalled and aggregated, making relational comparisons and interpretations possible.

There is reason to believe, however, that a very large number of years spent together might reflect a decline in a trust relationship in some cases. The reason, for instance, may be the frustration and disappointment of not getting promoted.

#### **3.3.3.4 Structure of the questionnaire**

The paper and pencil based questionnaires to collect data were constructed from the scales of the measure instruments and control variables described above.

The cover letter on the first page consists of an introductory part explaining the reason for implementing the questionnaire, and motivation and safe guarding of the participant. To minimise the common rater effects “social desirability” and “leniency biases”, mentioned by Podsakov *et al.* (2003:882), the following paragraph was inserted: “There are no right or wrong, good, better or worse answers. There are not answers more desirable than others. What matters, is that you answer what you believe to be real in your work situation”.

In assuring the respondents that their identity and the identity of their department and mining company would be kept confidential, as well as that the data would only be used for statistical purposes and that only statistical results would be made public, they were motivated to give honest and objective answers.

The questionnaire (see the complete version in appendix A) was divided into three sections:

Section A – Biographical information.

Section B – Trust measurement (Chughtai, 2010:369)

Section C – Employee engagement measurement (Rich *et al.*, 2010:634)

Information obtained from questionnaires are usually based on self-reports, which may lead to the common method variance attributable to the measurement method rather than to the measurement constructs represented (Podsakoff *et al.*, 2003:879). They suggest that possible anticipated answers where two constructs might indicate cause effect, may be countered by reversing the sections concerned. They also warn, however, that this may interfere with the logical thinking process of the respondent. This study assumed that the latter was the lesser of two evils. Unlike Ghughtai (2010), the sections concerning trust and employee engagement were not changed.

### **3.3.3.5 Participants of the study**

It is accepted that leadership can be substituted by manager or management. The target population include male and female first-level management employees (permanent employees longer than 1 year with the company) of all races working within the gold mining industry in South Africa. The selected South Africa gold mining industry first-line managers have job titles such as: Foreman, Superintendents and Shift Supervisors.

There is another motivation for this choice of referent. Kickul *et al.* (2005:209) think the social accounts variable makes the direct leader a sensible referent, because this level of leadership would be the primary communicator of job-level decisions and explanations.

There are currently approximately 10 gold mining companies with active mining and mineral processing operations within South Africa. The main active gold mining companies within South Africa are AngloGold Ashanti, Gold Fields, Harmony Gold and Sibanye Gold.

The current active South African gold mining companies have a first-line management compliment of approximately 1400 managers.

The target population for this research study was therefore 1400 (N). The actual sample size (n) is determined by making use of the table for proposed sample sizes for different sized populations at 95% confidence level and a 5% margin of error as suggested in Krejcie and Morgan (1970:609-610). The proposed sample size (n) was 302.

The employer's current internal address lists and employee directories served as basis for compiling the sampling frame to be representative of the target population. The sampling frame of first-line managers was then each allocated a number and by applying the sampling fraction, which was determined to be approximately a third; the first person was selected randomly and from there every third person was selected until the sample size of 302 was reached. The research study was then applied to these randomly selected individuals (Welman *et al.*, 2012:57).

### **3.3.3.6 Questionnaire distribution and collection procedure**

This study utilized a self-administered questionnaire. Such a questionnaire can be delivered and retrieved by mail, web, internet or by hand. A survey is practically beneficial in that it is an efficient, accurate, quick and relatively cheap method of acquiring data. It also provides respondents with an opportunity to think about their answers. The mail and internet methods also provide access to geographically dispersed samples.

Non-responsive errors are highly problematic in mail and internet services. Cook *et al.* (2000:826) found that the average response rate for online surveys was 34.6%.

Chughtai (2010:210) reported a response rate of 41.5% on e-mail distributed questionnaires. Shih and Fan (2009:26) performed a meta-analysis research examining 35 study results within the last 10 years directly comparing the response rates of e-mail versus mail surveys. Findings were inconsistent, but e-mail surveys generally have lower response rate (about 20% lower on the average) than mail surveys.

Geographically dispersed samples can be problematic when the data is delivered and retrieved by hand. This not a problem for this study.

The main South African gold mining activities are primary clustered in four geographical areas, all within a very reachable 300km radius. The non-response error, therefor, was minimised.

The Mining Department Heads of the selected study participants were informed and their permission obtained to involve their employees in the research project.

Participants were fully informed on the purpose of the study and on their role and responsibilities in this study. They were allowed to ask questions and raise concerns. Participants were ensured that personal information and study data would be handled confidentially at all time.

The questionnaires were hand delivered to and collected from the selected participants. Ethical considerations were made by attaching a covering letter to the questionnaire, which explains the objectives of the research and importantly provides respondent assurance that the responses are done anonymously, confidentially and voluntarily.

### **3.3.3.7 Ethical considerations**

According to Welman *et al.* (2012:181) ethical considerations occur at three stages within a research project: during the recruitment process of participants; during the intervention and/or the measurement procedure to which they are subjected; during the releasing of the results or findings.

Ethical considerations of the first two stages relates to the company/ management, questionnaire and the respondent considered in this chapter. Permission from the involved management were sought to apply the questionnaires. The four ethical considerations listed by Welman *et al.* (2012:201) were adhered to. Each respondent beforehand was informed of the purpose of the research and verbal consent acquired. They were assured that the items applied would be honest and free of hidden and deceptive methods to extract information. In the cover letter of the questionnaire informed consent was worded as well as an assured promise that their right to privacy and secrecy would be honoured in all the stages of the research.

They were comforted in that no specifics pertaining to them would be made public, only statistical facts, results and recommendations not implicating a person or department whatsoever. They were assured of protection against physiological, emotional or physical harassment that might occur. The researcher and his aids treated each respondent with utmost respect and in humility and withheld themselves from any form of influencing respondents. Familiarity was not used to deceive a respondent to extract information he may later regret.

In compliance with the advice of Walliman (2011:48) a storage system for the retrieved data was devised that is safe and only accessible to the researcher.

Statisticians involved were only given relevant, necessary information. Drafts on the report were passed to the supervisor of this study for comment under strict condition that it would be kept confidential.

### **3.3.3.8 Data capturing**

The retrieved data were documented, classified and ordered and then fed to a computer program (spread sheet). Basic summing, medians and standard deviations were calculated.

## **3.4 STATISTICAL ANALYSIS**

Ideally a data analysis plan should be constructed before doing the actual data collection and analysis and always guided by the purpose of the study (Reid & Smith, 1981:242). In this study, biographical analysis of the participants was analysed by way of frequencies, means and standard deviations. Thereafter, reliability was assessed before correlational analyses was used to determine the strength of relationships between constructs. Group differences were finally considered. The theoretical support for these statistics are outlined in the remainder of this chapter. Welman *et al.* (2012:138-140; 229-231), as well as Roodt and Fouché (2004:159) were used in describing basic statistical procedures. According to De Vos *et al.* (2005:218) an analysis calls for the categorising, ordering, manipulating and summarising of data in order to obtain answers to the identified research questions” (De Vos *et al.*, 2005:218).

The demographic information, gender, age, race and qualifications, render discrete, nominal (dichotomous) types of information. This requires statistical testing based on binomial theory. Frequencies (bar diagram or pie chart) and the mode serve as the starting point. Logistic regression/phi coefficient was used where both variables are nominal/discrete. The number of years spend at the specific mine, at a specific department and with the current immediate superior are categorical information. Point-biserial correlation was applied where the one variable is nominal/discrete and the other variable is nominal/continuous.

Face to face information, the trustworthy and the employee engagement variables are ordinal and continues. Frequencies (bar diagram or pie chart) and the median serve as the starting point.

The first step is to set frequency tables, representing the frequencies for each category of the control variables (biographical information), trustworthiness and employee engagement respectively. The percentage of each of unit of the category is calculated and finally a cumulative percentage presented in the last column.

This already give a rough indication of where the mean lies because the information is “ranked”. It also indicates the spread (distribution of lower and higher tails). Where grouping is evident, group statistics was applied.

The second step is to table the descriptive statistics. This presents the sample size (n), the maximum and minimum value of each item/unit, the mean and standard deviation.

Outliers (extreme values) will affect the mean significantly. The outlier(s) must thus be excluded to get a more real central tendency.

The minimum and maximum values allow one to determine the range ( $x_{\text{maximum}} - x_{\text{minimum}}$ ). This produce the simplest descriptive measure of variation in a data set. This has little to no statistical significance as it tells one nothing of the spread of values within a set or in a sample.

The two commonly used measures of variation accounting for the scatter around the “average” are the variance and the standard deviation. By squaring the difference of a specific value with the mean ( $x^2 \geq 0$ ) the result is always positive. This counter the problem that the sum will end up being 0. In general, the standard deviation was the core of the descriptive statistics of this study, but occasions may arise where the variance will be necessary to determine statistical significance of a set or group differences.

The third step was to determine the reliability of all the items, sub-sections and the total constructs of Trustworthiness and Employee engagement respectively. For this purpose, Cronbach’s coefficient alpha ( $\alpha$ ) was used.

Nunnally (1978:206) defined reliability as “the extent to which [measurements] are repeatable and that any random influence which tends to make measurements different from occasion to occasion is a source of measurement error”. Cronbach's alpha ( $\alpha$ ) is a function of the number of items in a test, the average covariance between item-pairs, and of the total score. Alpha is not robust against missing data.

Noticeably variance is the key factor in calculating the reliability of a construct. The theoretical value of alpha will then vary from zero to 1.

According to Tavakol and Dennick (2011:53-54) a high coefficient alpha does not always imply a high degree of internal consistency, because alpha is also affected by the length of the test. A short test length reduces the value of alpha. To increase alpha, more related items testing the same concept should be added. When a test has more than one concept or construct, it may be senseless to report alpha for the test as a whole, because the larger number of questions will inevitably inflate the value of alpha. In principle an alpha should rather be calculated for each of the concepts than for the entire test or scale.

Miller (1995:261) is of the opinion that a shorter test is generally less reliable than a longer one as it yields more information, if the additional items are positively correlated with items already present. In some instances, the internal consistency methods considered assume that the test is completely homogenous, thus all components load on a single common true score and all unique variance is measurement error. Less homogeneous tests will yield lower internal consistency approximations. Cortina (1993:101) makes the point that the number of items is an insufficient measure of scale or test quality. The suggestion is simply that when many items are pooled, the internal consistency estimates are large (invariant) and thus somewhat useless. John and Soto (2007:468-469) suggest that rather than assuming a bigger alpha coefficient is always better, it must be interpreted in terms of its two main parameters: inter-item correlation and scale length. Indifferent contexts an alpha may be just right, too low or too high.

John and Soto (2007:468-469) sadly admits that the alpha has important shortcomings. Lengthier tests offset greater homogeneity or content saturation of its items.

They strongly recommend that researchers habitually compute alpha and the mean inter-item correlation as they provide different information. The mean inter-item correlation describes the closeness of the items, how unique as to how redundant the captured variance are. Alpha informs us about the total or aggregated scale score.

Hogan and Roberts (1996:627) considers the trade-off that become necessary when applying Cronbach's alpha (fidelity) and mean inter-item correlation (bandwidth). In achieving bigger fidelity bandwidth is losing out, while increasing bandwidth comes at the cost of fidelity.

The trade-off cannot be avoided, but it does not imply a conflict or controversy. In certain measure instruments (like Personality Measurement), the choice is between broad and broader, not narrow versus broad Bandwidth Assessment.

The final step is to determine all possible correlations, primarily those of all the set hypothesis.

Statistically, correlation testing, like the Pearson product-moment correlation or the Spearman's correlation, is necessary to calculate a relationship as true as possible.

Statstutor (2015:1) provide the following important information regarding the Spearman's correlation (S) as to the Pearson's correlation (P). Spearman's correlation coefficient is a statistical measure of the strength of a monotonic relationship between paired data. A monotonic function is one that either never increases or never decreases as its independent variable increases. Pearson's correlation is a statistical measure of the strength of a linear relationship between paired data. Briefly, S is computed on ranks and so depicts monotonic relationships while P is based on true values and depicts linear relationships. Pearson's calculation and subsequent significance testing needs the following data assumptions to hold: It must be on an interval or ratio level; linearly related and bivariate normally distributed. If this is not met, then the Spearman's rank correlation should be used.

The Spearman product-moment correlation was used for this study because most of the data are ranked and thus depicts monotonic relationships, while Information is not on a ratio level.

A fundamental application of statistics is making inferences from data. This process involves hypothesis testing. Another method other than a correlation method, is to perform a statistical test to determine a "p-value".

The p-value is defined as the long-run frequency of obtaining the observed results, or a more extreme result, assuming the null hypothesis is true" (Casson, 2011:849).

The p-value is to be used in support of another measurement, like a Pearson product-moment correlation, or a measurement determining the effect size.

The measurement of effect size is relevant to this study, specifically were two groups are compared. Coe (2002:1) states that effect size is an easy way to quantify the difference between two groups having many advantages over the use of tests of statistical significance alone. Effect size emphasises the size of the difference rather than confounding this with sample size.

"The absolute effect size is the difference between the average, or mean, outcomes in two different intervention groups" (Sullivan & Feinn, 2012:279).

They further explain why effect sizes should be reported. The effect size is the main finding of a quantitative study. A p-value can inform one if there is an effect, but it will not reveal the size of the effect. Both the substantive significance (effect size) and the statistical significance (p-value) are essential results that must be reported. Outliers, scores very different from the rest of the data, and can drastically deform true or real results. It is thus very important to uncover outliers (not always that easy) and rid them from the data.

Many assumptions, correlations and interpretations are based on a normal distribution. Abnormal skewness or kurtosis may thus affect correlations and interpretations. Field (2013:185) supply the following information regarding this matter. Positive skewness indicates too many low scores in the distribution, and negative skewness indicate too many high scores in the distribution. Positive values of kurtosis indicate a heavy-tailed distribution, and negative values indicate a light-tailed distribution. Through dividing scores by their standard error z-scores are obtained. If the resulting score is  $> 1.96$  (ignoring the sign), then it is significant.

There is widespread agreement among researchers that true normality rarely occurs in human related research (Dunlap *et al.*, 1995; Schafer & Graham, 2002). Normality can be improved through the use of transformations (Dunlap *et al.*, 1995). If any of the main constructs of z-scores are close to or  $> 1.96$ , square root transformation will be applied.

Significance tests are not necessary for large samples. As the sample size of this study is 307, testing and correcting for skewness and kurtosis wasn't deem necessary.

### **3.5 CHAPTER SUMMARY**

This chapter described and qualified the approach and design of the empirical study. The measure instruments for this study were described and their relevance to the study discussed. Factors that could influence the reliability and validity in answering the questionnaire were considered. Where possible, steps were taken to minimise the negative effects that were identified. The participants were identified and motivations for choosing them were given. Different collection processes where discussed and evaluated. This lead to the choice of a practical, executable collection method. Factor loadings and normal distribution influences on the main constructs were considered. The necessary ethical considerations were accounted and applied.

In the next chapter statistical information derived from the questionnaire is analysed and conclusions are made. Noted limitations are mentioned and possible suggestions may be made. From the findings regarding the assessment of the relationship between trust and employee engagement and other related hypothesis, recommendations are made.

## CHAPTER 4

### EMPIRICAL RESULTS AND FINDINGS

#### 4.1 INTRODUCTION

The data results of the of the empirical research was recorded and analysed by the North-West University's Statistical Consultation Services, using the IBM 2013 SPSS Statistics Version 2.1 program. The quantitative data from the questionnaire was computed according to frequencies, descriptive statistics, reliability and correlations.

At first the descriptive statistics of the biographical profile are computed and discussed.

The validity of both measure instruments were accepted, as both measure instruments were well validated by previous researchers.

Next the reliability of trustworthiness is computed by determining the reliability of each item of the main construct and then the reliability of each trustworthy sub construct. This is concluded by the reliability of trustworthiness as a whole. The same procedure was followed with the other main construct, namely employee engagement.

After the reliabilities have been determined, the different correlations can be computed. Possible relationships between each of the biographical profile and the main constructs, trustworthiness (and its 16 items) and employee engagement (and its 18 items), were analysed.

Finally, the possible correlations between each item, its main sub divisions, and then trustworthiness as a whole with each item, the main sub divisions, and then employee engagement as a whole waere statistically analysed. This constitutes the 16 hypothesis of this study.

#### 4.2 BIOGRAPHICAL PROFILE

Of the 315 questionnaires distributed by hand, 307 were retrieved, which is a response rate of 97%. According to Marx (2009:31), the response rate achieved is far above average within a South African context where research by scholars' response rates average from 25% to 38%. Similar international research has response rates of up to 61%. South African response rates are known to be lower than international rates. The 8 questionnaires not retrieved, was due to mine personnel that went on annual leave and questionnaires could not be retrieved before the submission deadline.

The very high response rate may be attributed to several factors. Departmental heads explicitly acknowledged the survey and that carried more weight. The result could then be that respondents were more willing to cooperate. The further fact that participants had been given the opportunity to ask questions, may be created opportunities to rid themselves from fears. One might also venture to say that the importance of the study was well explained and they thus bought into it.

The sample size (307 respondents) achieved for the purpose of this research was 2% above the required minimum sample size of 302, which is statistically representative of the research population (Krejcie & Morgan, 1970:609).

#### 4.2.1 Frequencies of the biographical factors

Table 4-1 summarises the biographical information, which is described in detail on the following pages.

**Table 4-1: Frequency table: Biographical Profile**

Item	Category	Response	Frequency	Percent	Valid Percent
A1 - Age	≤ 29	1	45	14.7	14.7
	30 – 39	2	82	26.7	26.7
	40 – 49	3	112	36.5	36.5
	50 - 59	4	68	22.1	22.1
	Total		307	100	100
A2 - Gender	Male	1	298	97.1	97.7
	Female	2	7	2.3	2.3
	Total		305	99.3	100
		Missing	2	0.7	
A3 - Race	Black		115	37.5	37.5
	White		190	61.9	62.1
	Coloured		1	0.3	0.3
	Indian		-		
	Other		-		
		Total	306	99.7	100
		Missing	1		
A4 - Highest Qualification	< Grade 12		2	0.7	0.7
	Grade 12		20	6.5	6.7
	Certificate		59	19.2	19.7
	Diploma		185	60.3	61.9
	University degree		32	10.4	10.3
	Post graduate degree		1	0.3	
	Total		299	97.4	100
		Missing	8	2.6	

Biographical frequency table continues on the next page.

Item	Category	Response	Frequency	Percent	Valid Percent
A5 - Current department or section at the mine	Engineering		166	54.1	54.8
	Metallurgical		60	19.5	19.5
	Mining		79	25.7	25.7
	Total		305		100
	Missing		2	0.7	
A6 - Number of years at above department	0 - 3		59	19.2	19.2
	4 - 10		132	43	43
	11 - 15		78	25.4	25.4
	16 - 20		27	8.8	8.8
	20+		11	3.5	3.5
	Total		307	100	100
A7 - Number of years at mine	0 - 3		40	13	13
	4 - 10		104	33.9	33.9
	11 - 15		65	21.2	21.2
	16 - 20		46	15	15
	20+		52	16.9	16.9
	Total		307	100	100
A8 - Number of years with current direct supervisor	0 - 3		140	45.8	45.8
	4 - 10		134	43.6	43.6
	11 - 15		29	9.4	9.4
	16 - 20		3	1	1
	20+		1	0.3	0.3
	Total		307	100	100
A9 - Meeting direct supervisor regarding work related issues	Daily		92	30	30
	Very often		132	43	43
	Often		81	26.4	26.4
	Now and then		1	0.3	0.3
	Seldom		1	0.3	0.3
	Very seldom		-	0	0
	Total		307	100	100

a) A1 - Age

The smallest group (14.7%) were younger than 30 years and the largest group (36.5%) were from 40 to 50 years old. Furthermore 58.6% first level managers were older than 39 years. Clearly first level managers reflect a riper age.

b) A2 - Gender

Of the respondents 298 were males (97.1%) and 7 were females (2.3%). Two respondents didn't complete this demographic variable. The mining industry is not a workplace place favoured by women, likely because of the dangerous, harsh and tough underground conditions. The small sample size of women meant that no statistical analysis of any relevance could be made.

c) A3 - Race

There were no Indians present in the sample and only 1 Coloured. It is evident that these race groups are not considering working in a mine as a feasible job choice. But it provided a golden opportunity to compare black (37.5% representation) and white (62.1% representation) races in relation to trustworthiness and employee engagement.

d) A4 - Highest qualification

Only two respondents didn't pass grade twelve. A mere 6.7% respondents' highest qualification were grade twelve. Undoubtedly qualifications play a major role in getting an appointment on first-level management. The majority (61.9%) attained a diploma at a Technical College or a Technicon. More than 70% employees work in the engineering and metallurgy departments, indicating that studying in those fields would create favourable opportunities in being promoted to a relating first level management.

e) A5 - Current department or section at the mine

Gold mining departments can possibly be divided into three main sections: engineering, metallurgy and mining. This undertaking proved to be a fruitless effort. Department as a possible influential factor was thus discarded.

f) A6 - Number of years at above department

Almost half (43%) of the employees worked from 4 to 10 years in their present department. 25.4% are from 11 to 15 years in the department. A relatively high percentage (19.2%) are starters 0 to 3 years in the department. The smallest percentage (3.5%) were more than 20 years in the department. Job changes or work environment changes does not seem to be a warning sign in the industry.

g) A7 - Number of years working at this mine

The largest percentage (33.9%) worked at the specific mine from 4 to 10 years, corresponding to a large extend with the number of years working at the department. 21.2% were working at the specific mine from 11 to 15 years. This also correspond to a large extend with the number of years working at the department. This may indicate a meaningful stability within each mine.

The 13% (the smallest group) that were 0 - 3 years at the mine, were 6.2% less the corresponding group working at the department within the same mine. This tendency was also noticeable in the 4 to 10 and 11 to 15 age groups, being respectively 9.9% and 4.2% less. This may be due to workers who were promoted to first-level management from another mine.

Seemingly workers with 11 to 15 years of experience are favoured, then teetering off in the 16 to 20-year group. 16.9% worked longer than 20 years for the specific mine reflecting satisfied workers. By comparison only 3.6% of this age group work in the same department, implying that a significant number got promoted or changed department.

h) A8 - Number of years working with current direct supervisor

The largest number (45.8) only worked from 0-3 years with (under) the current supervisor, closely followed by 43.6% from 4 to 10 years. This dropped to 9.4% in the 11 to 15-year group. The number of years spent with a specific direct supervisor were much less than the time spend in the department or time spend at the mine. This meant that the direct supervisors are changing quite often, either because of getting promoted or leaving the specific mine. Thus another factor or other factors probably plays or play a more important role if there were to be a high level of trust in the direct supervisor and/or a high level of employee engagement.

i) A9 - Meeting with direct supervisor regarding work related issues

Results shown that 43% met with their direct supervisor very often, 30% employees met daily with their direct supervisor and 26.4% met often with their direct supervisor. Together it constituted 99.7%. The “Now and then”, “Seldom” and “Very seldom” categories became irrelevant. Subsequently closeness by way of face to face contact could be considered as one of the decisive factors in a high level of trustworthiness in the direct supervisor and/or a high level of employee engagement.

In summary the descriptive statistics revealed a general stability in the mining industry and first-level managers being satisfied in their work situation.

The fact that 58.6% first level managers were older than 39 years, revealed that promotion mostly came from a ripe age and through experience.

Most first-line managers (61.9%) attained a diploma at a Technical College or a Technicon and more than 70% employees work in the engineering and metallurgy departments. Qualifications are work related.

Close to a half (43%) of the employees worked from 4 to 10 years in their present department, thus job and work place changes are not the order of the day, and if changes do take place, then probably it is because of promotions.

In total 73% first-line managers met their direct supervisor very often or daily. Face to face contact (thus closeness) could have played an important part in their trustworthy relationships and employee engagement.

### 4.3 VALIDITY AND CONFIRMATORY FACTOR ANALYSIS

Trustworthiness as measured by Chughtai (2010:369) and employee engagement (Rich *et al.* 2010:624) were already validated questionnaires and thus it was not considered necessary for the purpose of a mini-dissertation to apply a confirmatory factor analysis again. The reliability and validity of employee engagement were discussed in chapter 3 (section 3.3.3.1). Rich *et al.* 2010:624) applied an initial 18-item job engagement scale on respondents employed full-time in a variety of occupations and organizations. Factor loadings of items to their corresponding scale were greater than .71, and there was no cross-loading greater than .30. The scale was also reliable from an internal consistency standpoint (.95). Replicating the test on a skilled care nursing facility an alpha of .95 was found again.

The reliability of trustworthiness was also discussed in chapter 3 (section 3.3.3.2).

The Cronbach's Alpha for the aggregated scale was 0.91 (Brockner *et al.*, 2004:91), 0.93 (Spreitzer & Mishra, 1999:166), 0.96 (Spreitzer & Mishra, 2002:717) and 0.96 (Chughtai, 2010:263) respectively. In the next section the reliabilities of both constructs are verified and discussed in greater detail. High, positive correlations were found.

### 4.4 RELIABILITY OF THE TWO MAIN CONSTRUCTS

Cronbach's alpha ( $\alpha$ ) is currently one of the most used reliability statistics. It is a criterion to measure the internal consistency or average correlation of items in a survey instrument (Santos, 1999:1). The other reliability instrument used was the average inter-item correlation.

#### a) Evaluation of alpha scores

George and Mallery (2003:231) provide the following rules of thumb:  $\alpha > .9$  – Excellent,  $\alpha > .8$  – Good,  $\alpha > .7$  – Acceptable,  $\alpha > .6$  – Questionable,  $\alpha > .5$  – Poor, and  $\alpha < .5$  – Unacceptable. Robinson (1991:13) categorizes slightly different:  $\alpha > .80$  – Exemplary,  $\alpha > .70$  – Extensive,  $\alpha > .60$  – Moderate,  $\alpha < .60$  – Minimal. This study follows the categorization of George and Mallery (2003:231).

#### b) Average inter-item correlation

There are two approaches to determine the level of homogeneity and how to interpret it. One group follows a broad - narrow approach claiming that narrow measures are followed by most researchers and the approach provide a finer grained understanding (Hogan & Roberts, 1996:629-630). The acceptable level varies between researchers but there is a rough common ground. Field (2009:821) believe the level of homogeneity should preferably occur between  $> 0.3$  and  $< 0.6$ .

According to Briggs and Cheek (1986:119) the optimal level of homogeneity occurs when the mean inter-item is  $\geq 0.2$  and  $\leq 0.04$ . If the mean inter-tem is  $< 0.01$ , it is likely that a single total score could not adequately account the complexity of the items. If the mean inter-tem is  $> 0.5$  the items on a scale tend to be overly redundant and the construct measured too specific. Robinson *et al.* (1991:13) indicate the average inter-item correlations and also presents the corresponding coefficient  $\alpha$  that were reported in studies in Table 4-2:

**Table 4-2: Robinson *et al.* (1991:13) general rating criteria (for evaluating Attitude Measures)**

Level	Exemplary	Extensive	Moderate	Minimal
Inter-item correlation	$\geq 0.3$	0.20 – 0.29	0.10 – 0.19	$< 0.10$
Coefficient $\alpha$	$\geq 0.8$	0.70 – 0.79	0.60 – 0.69	$< 0.60$

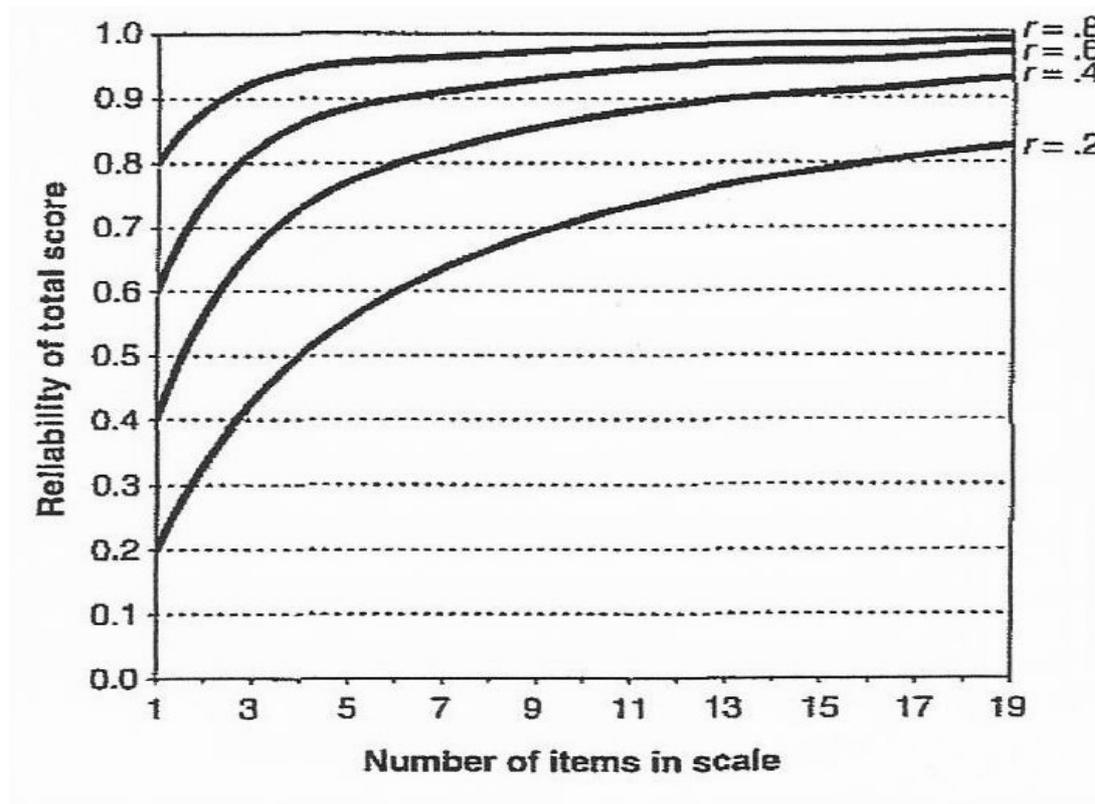
According to this table the optimal level of homogeneity occurs when the mean inter-item is  $\geq 0.1$  and  $\leq 0.03$ . What remains unanswered, is what happens when coefficient  $\alpha > 0.80$ ?

Furthermore, what George and Mallery (2003:231) classifies as good for the coefficient  $\alpha$ , is considered exemplary in this table. One must take note that these ratings are relevant to attitude measures. There are no indications of the number of items, nor the number of categories within the measure instruments.

The other approach follows a broad, broader approach. In a research done by Hunsberger (1989:360) on the Short Christian Orthodoxy (SCO) scale, they reported a Cronbach's  $\alpha$  of  $\pm 0.94$ , and inter-item correlations range from .69 to .74 across different samples. They noted that the SCO does sacrifice breadth of coverage of basic Christian tenets. This is clearly a broad, broader approach and obviously the inter-item correlations are way beyond the limit set by the broad-narrow approach.

This study follows the broad, broader approach. John and Sotho (2007:401) present a graph as depicted by Figure 4-1 that makes interesting reading and helps in understanding the broad, broader approach.

**Figure 4-1: Cronbach's coefficient alpha reliability as a function of the number of items on a scale ( $k$ ) and the mean of the correlations among all the items (mean  $r_n$ )**



(Source: John & Sotho, 2007:401)

The dotted verticals were imposed on the figure to indicate the approximate  $\alpha$  values for 4, 6, 16 and 18 items respectively.

From the table is clear that as the number of items increases, so does the Cronbach's alpha together with the coefficient  $r$  (mean inter-item correlation). There is a sharp gradient with the initial number of items but from 18 items and more there is a point where the gradient almost remains the same. This suggests that a construct should be limited to at the most 20 items. There isn't a curve for  $\alpha = 0.9$  but probably  $r$  then at least = 0.9.

Cortina (1993:102) presents a table (Table 4-3) from which one can read off the comparative values of  $r$  (average inter-item correlation) and Cronbach's  $\alpha$ . Table 4-12 does not correspond to the graph.

**Table 4-3: Alphas and Precision estimates for scales with different number of dimensions, different number items and varying average inter-correlations**

No. of items	Average item inter-correlation					
	r = .30		r = .50		r = .70	
	$\alpha$	Precision	$\alpha$	Precision	$\alpha$	Precision
<b>One dimension</b>						
6	0.72		0.86		0.9	
12	0.84		0.92		1	
18	0.88		0.95		1	
<b>Two dimensions</b>						
6	0.45	0.04	0.6	0.07	0.7	0.09
12	0.65	0.02	0.78	0.03	0.9	0.04
18	0.75	0.01	0.85	0.02	0.9	0.03
<b>Three dimensions</b>						
6	0.28	0.03	0.4	0.05	0.5	0.08
12	0.52	0.02	0.65	0.03	0.9	0.04
18	0.64	0.01	0.76	0.02	0.9	0.02

Important to note is that as the number of items increases, so does the value of  $\alpha$  and  $r$  increases. As  $r$  increases, irrespective of the number of items, so does the  $\alpha$  value at a sharper gradient. As the number of dimensions increases, the values of  $\alpha$  and  $r$  decrease.

Precision and its implications did not fall within the scope of this study. For the purpose of this study, figure 4-1 serves as a reference. Cronbach's  $\alpha = 0.94$  (4 items),  $\alpha = 0.95$  (6 items),  $\alpha = 0.98$  (16 items),  $\alpha = 0.99$  (18 items) and a corresponding  $r = 0.80$  are cut off points for consideration.

With this background the reliability of the trustworthiness and employee engagement measurement instruments are discussed and evaluated.

The reliabilities for all the multi-item scales of both constructs were generally acceptable. All trustworthiness alpha values met the acceptable criterion of  $\alpha > 0.7$  as proposed by George and Mallery (2003:231).

The initial comparison was made between all the items of trustworthiness (16 items) and employee engagement (18 items).

Values of the 16 trustworthiness items ranged from 0.71 to 0.98. The mean was 0.84, the range 0.27 and the variance 0.00.

Values of the 18 employee engagement items ranged from 0.62 to 0.95. The mean was 0.77, the range 0.34 and the variance 0.01. Quite a few items were questionable ( $0.7 > \alpha > 0.6$ ), all in the physical employment sub category. This raised some concerns about this category of the employee engagement measure instrument.

Tavakol and Dennick (2011:53-54), as well as Field (2013:668) are of the opinion that in principle an alpha ( $\alpha$ ) should be calculated for each of the concepts, rather than for the entire test or scale. Many concepts may inflate the  $\alpha$  values. Consequently, comparative inter-correlations of the sub constructs to that of the Cronbach's  $\alpha$  of trustworthiness (Table 4-4) and employee engagement (Table 4-5) was made.

**Table 4-4: Comparative inter-correlations of the sub constructs to that of the Cronbach's  $\alpha$  of trustworthiness**

<b>Trustworthiness sub constructs</b>	<b>Cronbach <math>\alpha</math></b>	<b>Inter-correlations</b>
Openness (4 items: b1 – b4)	$\alpha = 0.96$	$r = 0.87$
Integrity (4 items: b5 – b8)	$\alpha = 0.96$	$r = 0.86$
Cognitive (4 items: b9 – b12)	$\alpha = 0.97$	$r = 0.88$
Affective (4 items: b13 – b16)	$\alpha = 0.98$	$r = 0.94$

All sub construct  $\alpha$  values were significantly higher than the set cut off  $\alpha = 0.94$  for 4 items. The  $\alpha$  values were all  $> 0.96$ , the expected values for 12 items. All the  $r$  values exceeded the maximum cut off available,  $r = 0.8$  (if a  $\alpha = 0.9$  and  $r = .9$  had to be the guide line for 1 item, the results of tables 4-4 and 4-5 would most likely be close to being in line).

**Table 4-5: Comparative inter-correlations of the sub constructs to that of the Cronbach's  $\alpha$  of employee engagement**

<b>Employee engagement sub constructs</b>	<b>Cronbach <math>\alpha</math></b>	<b>Inter-correlations</b>
Physical engagement (6 items: c1 – c6)	$\alpha = 0.97$	$r = 0.87$
Affective engagement (6 items: c7 – c12)	$\alpha = 0.98$	$r = 0.89$
Cognitive engagement (6 items: b13 – c18)	$\alpha = 0.97$	$r = 0.87$

All sub construct  $\alpha$  values were significantly higher than the  $\alpha = 0.95$  of the table. The  $\alpha$  values were all  $> 0.96$ , the expected values for 12 items.

The  $\alpha$  values of the sub constructs of trustworthiness (4 items) were roughly the same as that of employee engagement. This study does not support the opinion that many concepts may inflate the  $\alpha$  values.

After exploring all of the possibilities that could reasonably affect the reliability of the two main constructs, the only important possibility was the matter of redundancy.

All of this culminates into a discussion of the reliability of trustworthiness and employee engagement allowing one to analyse the relationships. Trustworthiness:  $\alpha = .99$  and employee engagement:  $\alpha = .98$ .

Reading the  $\alpha$  from the graph (John & Soto, 2007:470) in figure 4-1, the expected  $\alpha = \pm 0.98$  for the 16 items of trustworthiness, and  $\alpha = \pm 0.99$  for the 18 items of employee engagement, both are in line with the alpha values found in this research. From this one gather that the  $\alpha$  value of trustworthiness seems to be somewhat inflated, but that of employee engagement seems to be in line. The  $r$  values of both constructs are reasonably higher than the  $r = .80$  of the set cut off point, more specifically that of trustworthiness. However, in the same vein as Hunsberger (1989:360), this study sacrificed breadth coverage of both constructs. Their still remain a concern regarding the high  $\alpha$  value of trustworthiness. Although the possibility of redundancy is looming and need consideration, for the purposes of a mini-dissertation, however, the researcher decided to stick to the validity and reliability of the constructs as presented in the literature study.

All considerations taken into account as derived from the reliability analysis presented above, the researcher concludes that the tests can be considered as reliable and subsequent further analyses can thus be presented.

## 4.5 CORRELATIONS

Table 4-6, 4-7 and 4-8 presents correlations between the biographical profile and the trustworthiness, employee engagement constructs and sub constructs. A2 (Gender) was excluded as there was a too small sample of females (7 out of 307). A3 (Race) needed group statistics and they are presented separately. A5 (Department) was discarded because it was not possible to divide the department significantly into three groups.

**Table 4-6: Correlations of biographical profile**

		A1	A4	A6	A7	A8	A9
A1	Correlation Coefficient	1.00	-.39**	.65**	.83**	.48**	.35**
	Sig. (2-tailed)	.00	.00	.00	.00	.00	.00
	N	307	299	307	307	307	307
A4	Correlation Coefficient	-.39**	1.00	-.35**	-.36**	-.24**	.02
	Sig. (2-tailed)	.00	.00	.00	.00	.00	.74
	N	299	299	299	299	299	299
A6	Correlation Coefficient	.65**	-.35**	1.00	.72**	.52**	.34**
	Sig. (2-tailed)	.00	.00	.00	.00	.00	.00
	N	307	299	307	307	307	307
A7	Correlation Coefficient	.83**	-.36**	.72**	1.00	.53**	.40**
	Sig. (2-tailed)	.00	.00	.00	.00	.00	.00
	N	307	299	307	307	307	307
A8	Correlation Coefficient	.48**	-.24**	.52**	.53**	1.00	.33**
	Sig. (2-tailed)	.00	.00	.00	.00	.00	.00
	N	307	299	307	307	307	307
A9	Correlation Coefficient	.35**	.02	.34**	.40**	.33**	1.00
	Sig. (2-tailed)	.00	.74	.00	.00	.00	.00
	N	307	299	307	307	307	307

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

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

**Table 4-7: Correlations of biographical profile and employee engagement**

		Engagement Physical	Engagement Affective	Engagement Cognitive	Engagement All
A1	Correlation Coefficient	-.06	.05	-.03	-.00
	Sig. (2-tailed)	.28	.36	.67	.98
	N	307	307	307	307
A4	Correlation Coefficient	-.03	<b>-.23**</b>	-.11	<b>-.17**</b>
	Sig. (2-tailed)	.58	.00	.06	.00
	N	299	299	299	299
A6	Correlation Coefficient	-.05	.08	-.02	.03
	Sig. (2-tailed)	.350	.16	.78	.64
	N	307	307	307	307
A7	Correlation Coefficient	-.06	.05	-.04	-.01
	Sig. (2-tailed)	.32	.43	.46	.87
	N	307	307	307	307
A8	Correlation Coefficient	-.043	.03	-.02	.00
	Sig. (2-tailed)	.45	.552	.79	.98
	N	307	307	307	307
A9	Correlation Coefficient	<b>-.11*</b>	<b>-.24**</b>	<b>-.19**</b>	<b>-.22**</b>
	Sig. (2-tailed)	.05	.00	.00	.00
	N	307	307	307	307

**Table 4-8: Correlations of biographical profile and trustworthiness**

		Trust Openness	Trust Integrity	Trust Cognitive	Trust Affective	Trust All
A1	Correlation Coefficient	<b>.15**</b>	<b>.15**</b>	.03	<b>.14*</b>	.11
	Sig. (2-tailed)	.01	.01	.62	.02	.06
	N	307	307	307	307	307
A4	Correlation Coefficient	<b>-.18**</b>	<b>-.20**</b>	<b>-.20**</b>	<b>-.22**</b>	<b>-.20**</b>
	Sig. (2-tailed)	.00	.00	.00	.00	.00
	N	299	299	299	299	299
A6	Correlation Coefficient	.09	.11	.05	.11	.09
	Sig. (2-tailed)	.12	.05	.41	.05	.14
	N	307	307	307	307	307
A7	Correlation Coefficient	.11*	.11	.01	.11	.08
	Sig. (2-tailed)	.05	.05	.90	.06	.19
	N	307	307	307	307	307
A8	Correlation Coefficient	.04	.03	-.011	.05	.02
	Sig. (2-tailed)	.54	.56	.84	.39	.76
	N	307	307	307	307	307
A9	Correlation Coefficient	<b>-.13*</b>	<b>-.15**</b>	<b>-.23**</b>	<b>-.15**</b>	<b>-.17**</b>
	Sig. (2-tailed)	.02	.01	.00	.01	.00
	N	307	307	307	307	307

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

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

Guidelines for statistical interpretations:

p-value (Sigma 2-tailed) < 0.05 (Statistical significant)

0.1 ≤ Pearson rho < 0.3 (Small correlation)

0.3 ≤ Pearson rho < 0.5 (Medium correlation)

0.5 ≤ Pearson rho ≤ 1.0 (Large correlation)

Age (A1) correlated only with trustworthy characteristics openness (corr. = 0.15\*\*, p < 0.05), integrity (corr. = 0.15\*\*, p < 0.05) and affection (corr. 0.14\*, p < 0.05). There was a very small correlation with total trustworthiness (corr. = 0.11, p = 0.07). Cognitive trustworthiness was the only trustworthiness characteristic that did not correlate with age.

This implies that trustworthiness tends to grow with age, irrespective of cognitive trustworthiness. Thus, amongst middle- and first-level management it is about openness, integrity and the affective, not about what you know or your skills.

Age (A1) did not correlate with total employee engagement or any of its sub constructs. Consequently, the opinion of Schaufeli and Salanova (2007:148) that age correlates with employee engagement was not substantiated. Age (A1) also did not correlate with Trustworthiness or any of its sub constructs. What was indicated in the frequencies, was not upheld.

Qualifications (A4) were negatively related to all the characteristics of trustworthiness, as well as the total trustworthiness, at the 0.01 level (2-tailed) and statistical significant (p < 0.05). The finding of this study that the higher the qualification, the lower the trustworthiness tends to be, was peculiar. It may be that employees with higher qualifications tends to be more self-reliant, thus not depending on the trustworthiness of others. This was also true for affective employee engagement, as well as the total employee engagement. Qualifications (A4) did not correlate and were not statistically significant with physical- and cognitive employee engagement. It may be that employees with higher qualifications tends to work smarter, rather than harder. This result is direct opposite to the findings of Perrin (2003:7) that the higher the qualifications, the higher the level of employee engagement will be.

The fact that physical employee engagement and cognitive employee engagement did not correlate with qualifications was anticipated, again for the reason of working smarter, rather than harder.

Qualifications (A4) and face to face contact (A9) were the only biographical factors that did not correlate amongst themselves. This may imply that qualifications do not matter when a first level manager meets face to face with his immediate superior. Thus skills, knowledge and openness are the real matters of concern when middle-level management and first-level management meet face to face regarding work related issues.

Neither the number of years at the specific department (A6) nor the number of years working with the current supervisor (A8) were correlated with or showed statistical significance with trustworthiness and employee engagement or any of its components. Of number of years working at the mine (A7) only trustworthiness openness correlated at the 0.05 level (2-tailed) with a statistical significance ( $p = 0.05$ ). Number of years from three perspectives proved to bear no significance with either trustworthiness and employee engagement or any of its components. This outcome came as a surprise as it was believed that length of time would heighten trustworthiness and employee engagement.

Personal contact with direct supervisor regarding work related issues (A9) correlated negatively significant at the 0.01 level (2-tailed) and statistical significant ( $p < 0.05$ ) with trustworthiness and all its components, but for trust openness. The latter correlated negatively significant at the 0.05 level (2-tailed) and statistical significant ( $p < 0.05$ ). Personal contact correlated negatively significant at the 0.01 level (2-tailed) and statistical significant ( $p < 0.05$ ) with employee engagement and all its components. This meant that the more often the personal contact, the lower the trustworthiness and employee engagement will be. This was completely contrary to what was expected. Too much work related contact seems to be harmful.

A T-Test was executed to determine whether the black and white race groups responded differently. Table 4-9 represents the results.

Sullivan and Feinn (2012:279) maintain that the effect size is the main finding of a quantitative study. Both the substantive significance (effect size) and the statistical significance (p-value) are essential results that must be reported.

**Table 4-9: White and black race group correlations**

<b>A3</b>	<b>1-Black 2-White</b>	<b>N</b>	<b>Mean</b>	<b>Std. Deviation</b>	<b>p-value (sigma 2- tailed)</b>	<b>Effect Size</b>
Trust_Openness	1	115	5.15	1.50	.14	0.15
	2	190	5.38	1.36	.10	
Trust_Integrity	1	115	5.12	1.47	.14	0.07
	2	190	5.22	1.44	.10	
Trust_Cognitive	1	115	5.16	1.48	.14	0.06
	2	190	5.07	1.45	.11	
Trust_Affective	1	115	4.79	1.77	.17	0.07
	2	190	4.92	1.65	.12	
Eng_Physical	1	115	6.27	1.12	.10	0.02
	2	190	6.25	1.00	.07	
Eng_Affective	1	115	5.09	1.69	.16	0.03
	2	190	5.14	1.50	.11	
Eng_Cognitive	1	115	5.99	1.20	.11	0.08
	2	190	6.09	.96	.07	
Eng_All	1	115	5.78	1.25	.12	0.03
	2	190	5.82	1.07	.08	
Trust_All	1	115	5.14	1.44	.13	0.05
	2	190	5.22	1.38	.10	

Guidelines for statistical effect size:

0.2 – small effect

0.5 – medium effect

0.8 – large effect

p-value < 0.05 for statistical significant difference

From table 4-9 it is clear that black and white races did not respond significantly different on both trustworthiness and employee engagement and all their components. All p-values clearly exceeded the 0.05 cut off point for effect size and thus the evidence is not statistical significant. The effect sizes of trustworthiness and employee engagement and all their components surpassed 0.2, the smallest effect acceptable, by reasonable margins. There was no evidence whatsoever that race difference affected the two races on either trustworthiness or employee engagement.

#### 4.6 DESCRIPTIVE STATISTICS OF THE TWO MAIN CONSTRUCTS

At first the descriptive statistics of all of the items of the two main constructs are presented for interpretation, Table 4-10 and Table 4-11 respectively.

**Table 4-10: Descriptive statistics for trustworthiness**

Item	N	Minimum	Maximum	Mean	Std. Deviation
b1	307	1	7	5.47	1.45
b2	307	1	7	5.37	1.49
b3	307	1	7	5.29	1.50
b4	307	1	7	5.00	1.52
b5	307	1	7	5.45	1.42
b6	307	1	7	5.30	1.41
b7	306	1	7	5.00	1.63
b8	307	1	7	4.95	1.65
b9	307	1	7	5.48	1.43
b10	307	1	7	5.17	1.50
b11	307	1	7	4.68	1.71
b12	307	1	7	5.05	1.50
b13	306	1	7	4.80	1.73
b14	307	1	7	4.81	1.75
b15	307	1	7	4.93	1.73
b16	307	1	7	4.94	1.73
Valid N (list wise)	299				

Clarifications of the table:

- > Openness trustworthiness items b1 – b4
- > Integrity trustworthiness items b5 – b8
- > Cognitive trustworthiness items b9 – b12
- > Affective trustworthiness items b13 – b16

The largest mean is 5.48 (b9) and the lowest is 4.68 (b11). The difference between these two are 0.8, indicating a clustering around the average mean of trustworthiness that will be bigger than 5, roughly about 5.1. The respondent's perceptions of their immediate supervisors on all the items and all the sub constructs of trustworthiness are very similar.

A small shift to the right (left skewness) and subsequent longer tail to the left (right kurtosis) are indicated. The largest standard deviation is 1.75 (b14) and the lowest is 1.41 (b6).

The difference between them is only 0.34. This indicates a tendency to a highly similar spread. No items could be considered outliers. Testing for skewness was considered.

What is obvious are the very close means (4.80, 4.81, 4.93 and 4.94) and standard deviations (1.73, 1.75, 1.73 and 1.73) of affective trustworthiness. Thus the distribution is highly concentrated around an almost common median. All of the averages are smaller than the indicated  $\pm 5.1$ . This implies that first-level managers have a slightly less favourable opinion of their immediate superiors as to the other trustworthiness characteristics. The respondents clearly have almost similar perceptions about their direct superiors' affective trustworthiness. The general low standard deviations lead to an overall similarity of the respondents' perceptions of their immediate supervisor's trustworthiness.

**Table 4-11: Descriptive statistics for employee engagement**

Item	N	Minimum	Maximum	Mean	Std. Deviation
c1	306	2	7	6.16	1.17
c2	307	1	7	6.20	1.18
c3	307	2	7	6.24	1.12
c4	307	1	7	6.42	.99
c5	307	1	7	6.44	.98
c6	305	1	7	6.10	1.20
c7	306	1	7	5.05	1.78
c8	307	1	7	4.98	1.63
c9	307	1	7	5.29	1.48
c10	307	1	7	5.64	1.45
c11	307	1	7	4.98	1.74
c12	306	1	7	4.76	1.79
c13	306	1	7	5.86	1.08
c14	307	1	7	6.07	1.09
c15	307	2	7	6.10	1.08
c16	306	1	7	5.90	1.27
c17	307	1	7	6.19	1.10
c18	307	2	7	6.20	1.08
Valid N (list wise)	299				

Clarifications of the table:

- > Physical engagement items c1 – c6
- > Affective engagement items c7 – c12
- > Cognitive engagement items c13 – c18

The largest mean is 6.44 (c5) and the lowest is 4.76 (c12). The difference between these two are 1.68, indicating a wider difference from the average mean of trustworthiness that will be close to 6 as all the averages of physical- and affective engagement exceeded 6.00. A bigger shift to the right (left skewness) and subsequent much longer tail to the left are indicated. The largest standard deviation is 1.79 (c12) and the lowest is 0.98 (c5) and the difference between them 0.82. No items could be considered outliers.

Noticeable is the much lower averages of affective engagement (5.05; 4.98, 5.29, 5.64, 4.98 and 4.76) and consequently higher standard deviations to that of physical engagement and affective engagement with all or most of their averages larger than 6.

The resemblance between affective trustworthiness and affective employee engagement could hardly be missed. There is a general indication that the affective domain is a specific matter of concern. Some of the effects of the strike suggested this possibility.

Secondly the descriptive statistics of trustworthiness and employee engagement and their main components are presented in Tables 4-12 and 4-13 respectively.

**Table 4-12: Descriptive statistics: Trustworthiness characteristics**

Items	N	Minimum	Maximum	Mean	Std. Deviation
Trust_Openness	307	1.25	7.00	5.28	1.41
Trust_Integrity	307	1.00	7.00	5.18	1.45
Trust_Cognitive	307	1.00	7.00	5.10	1.46
Trust_Affective	307	1.00	7.00	4.87	1.69
Trust_All	307	1.17	7.00	5.19	1.40
Valid N (list wise)	307				

The highest mean was trust openness - 5.2834 and the lowest was trust affective - 4.8719

**Table 4-13: Descriptive statistics: Employee engagement characteristics**

Items	N	Minimum	Maximum	Mean	Std. Deviation
Eng_Physical	307	1.33	7.00	6.26	1.04
Eng_Affective	307	1.50	7.00	5.12	1.57
Eng_Cognitive	307	1.33	7.00	6.05	1.05
Eng_All	307	1.39	7.00	5.81	1.14
Valid N (list wise)	307				

The highest mean was physical engagement - 6.26 and the lowest was trust affective engagement – 5.12.

Three comments resulted from interpreting the two tables:

1) The general greater differences between the means (and standard deviations) of the employee engagement sub constructs and that of trustworthiness indicate that the respondent's perceptions of their immediate supervisor differ significantly more than their perceptions of employee engagement.

A very important point to note, is that trustworthiness represents a relationship between first-level managers and middle-level management, while it is assumed that employee engagement may be one of the significant outcomes of that trustworthy relationship. Surely many other factors also contribute to a respondent's level of engagement. If the averages and the standard deviances were to correspond, then either or both the constructs had to be seriously questioned and even be pointless to this study. May *et al.* (2004:13) refer to the "flow" factor, a total cognitive engagement not influenced by relationships. There is also the case of workaholics, job demands and organization demands.

2) The similarities between affective trustworthiness and affective employee engagement became more obvious.

3) There is a closeness between total trustworthiness and total employee engagement.

Because the trustworthiness measure instrument used was that of Chughtai (2010:369), the total descriptive statistics results for both researches could be compared in Table 4-14.

**Table 4-14: Descriptive statistics comparison of trustworthiness between this study and that of Chughtai (2010:258)**

Items	N	Minimum	Maximum	Mean	Std. Deviation
This research	307	1.25	7.00	5.28	1.41
Chughtai	189	1.40	7.00	6.13	1.00

The sample of this research was significantly larger than that of Chughtai (2010), thus the lower mean and higher standard deviation of this study was to be expected. It could also be deducted that skewness and kurtosis would not be relevant to construct this study, as it had been in the case of Chughtai (2010).

Skewness was tested to resolve any uncertainties. The statistics revealed the following:

- > For trustworthiness items the skewness = -0.66 and kurtosis = -.37
- > For employee engagement items the skewness = -1.19 and kurtosis = 0.90

The references Chughtai (2010:262-263) looked at was used as guidelines. A skewness = 1.25 and a kurtosis = 3.5 can be considered as moderately skewed.

The Trustworthiness distribution could be considered as acceptable. Employee engagement came perilously close to being highly skewed. Unlike Chughtai (2010), the decision was not to transform for skewness and kurtosis.

**4.7 CORRELATIONS OF THE TWO MAIN CONSTRUCTS**

The motivation for the choice of the spearman correlation was discussed in chapter 3 (section 3.3.3.9).

Spearman’s correlation coefficient (r) and the p-value were used to determine relationships. The spearman correlation (r) determines the extent to which each item within the scale correlates with the sum of the remaining items. The p-value is a nonparametric measure of statistical dependence between two variables. The p-value is a function of the observed sample results (a statistic) that is used for testing a statistical hypothesis. When a p-value is equal or smaller than 0.05, then there is a practically significant correlation. Before testing, a threshold value is chosen, called the significance level of the test, traditionally 5% \* or 1% \*\*.

Table 4-15 below provides a rule of thumb scale for evaluating the correlation coefficient.

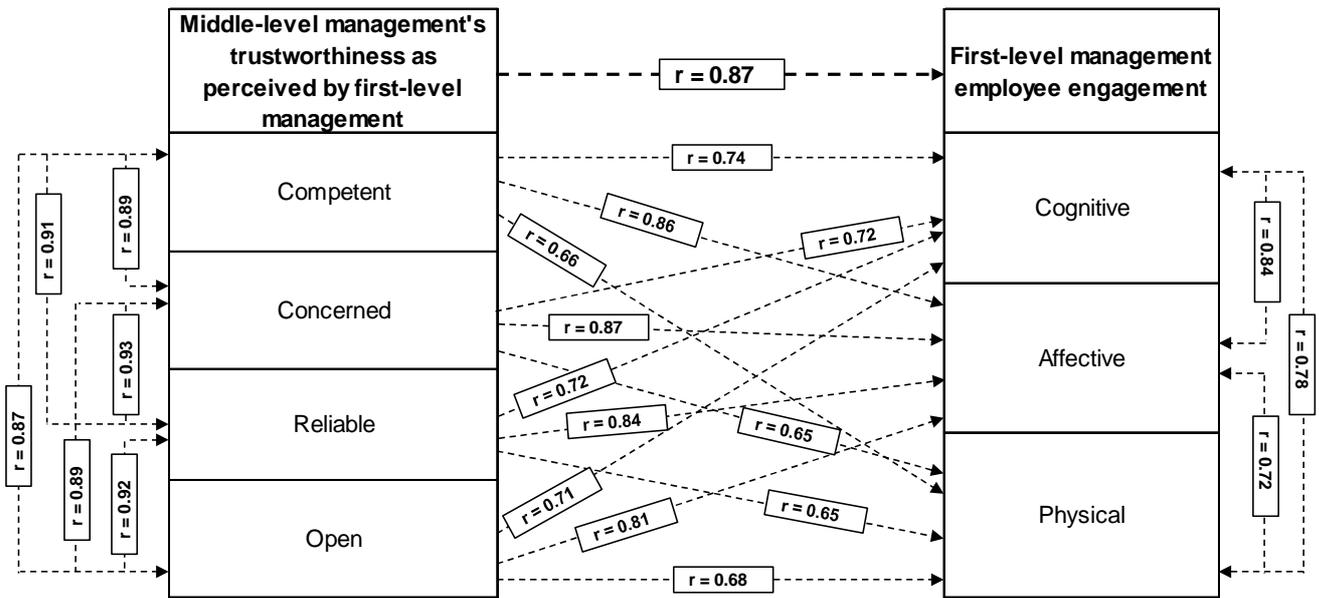
**Table 4-15: Correlation coefficient strength guidelines**

<b>Strength of Correlation</b>	
<b>Size of r</b>	<b>Interpretation</b>
0.90 to 1.00	Very high correlation
0.70 to 0.89	High correlation
0.50 to 0.69	Moderate correlation
0.30 to 0.49	Low correlation
0.00 to 0.29	Little if any correlation

(Source: Zady, 2000)

Figure 4-2 presents a bird’s eye view of all the correlations found in this study projected on the model. The top line represents the outcome of hypotheses 1. The sides represent the outcomes of hypotheses 2 and 3. The middle outcomes is that found between the two main constructs. What stands out is the multi collinear results shown between all the paths and all having high correlations.

**Figure 4-2: Research model hypotheses findings**



(Model based on May *et al.* 2004:25)

The primary purpose of the study was to assess the relationship between middle-level management's trustworthiness and first-level management work engagement within the South African gold mining industry. This led to the main hypothesis.

Hypothesis 1: Middle-level management's trustworthiness as perceived by first-level management will be positively related to their employee engagement.

Correlation coefficient = 0.87                      p-value = 0.00

There was a statistically significant and practical high correlation between the two constructs. Therefore hypothesis 1 was accepted.

The secondary hypothesis.

Hypothesis 2: There is a positive, direct relationship between the sub constructs of trustworthiness.

- Openness trustworthiness and integrity (reliability):

Correlation coefficient = 0.92                      p-value = 0.00

- Openness trustworthiness and cognitive (competency) trustworthiness:

Correlation coefficient = 0.87                      p-value = 0.00

- Openness trustworthiness and affective trustworthiness (concern):  
Correlation coefficient = 0.89      p-value = 0.00
- Integrity (reliability) and cognitive (competency) trustworthiness:  
Correlation coefficient = 0.91      p-value = 0.00
- Integrity (reliability) and affective trustworthiness (concern):  
Correlation coefficient = 0.93      p-value = 0.00
- Cognitive (competency) trustworthiness and affective trustworthiness (concern):  
Correlation coefficient = 0.89      p-value = 0.00

The statistically significant and high to very high practical correlations between all four sub constructs resulted in hypothesis 2 being accepted.

Hypothesis 3: There is a positive, direct relationship between the sub constructs of employee engagement.

- Physical engagement and affective engagement:  
Correlation coefficient = 0.72      p-value = 0.000
- Physical engagement and cognitive engagement:  
Correlation coefficient = 0.78      p-value = 0.000
- Affective engagement and cognitive engagement:  
Correlation coefficient = 0.84      p-value = 0.000

The statistically significant and high practical correlations between the three sub constructs resulted in hypothesis 3 being accepted. The physical sub construct was the weaker of the three sub constructs.

The last comparisons made were between the sub-constructs of the two main constructs. Hypothesis 4 to hypothesis 16 are evaluated as indicating a possible relationship between the two main constructs.

Hypothesis 4: There is a positive, direct relationship between cognitive trustworthiness (competency) as a dimension of trust and cognitive employee engagement as perceived by first-level management.

Correlation coefficient = 0.74            p-value = 0.00

There is a statistically significant and high practical relationship between the two crossed sub constructs.

Hypothesis 5: There is a positive, direct relationship between cognitive trustworthiness (competency) as a dimension of trust and affective employee engagement as perceived by first-level management.

Correlation coefficient = 0.86            p-value = 0.00

There is a statistically significant and high practical relationship between the two crossed sub constructs.

Hypothesis 6: There is a positive, direct relationship between cognitive trustworthiness (competency) (B9 – B12) as a dimension of trust and physical employee engagement (C1 – C6) as perceived by first-level management.

Correlation coefficient = 0.66            p-value = 0.00

There is a statistically significant and moderate practical relationship between the two crossed sub constructs.

Hypothesis 7: There is a positive, direct relationship between affective trustworthiness (concern) (B13 – B16) as a dimension of trust and cognitive employee engagement (C13 – C18) as perceived by first-level management

Correlation coefficient = 0.72            p-value = 0.00

There is a statistically significant and high practical between the two crossed sub constructs

Hypothesis 8: There is a positive, direct relationship between affective trustworthiness (concern) (B13 – B16) as a dimension of trust and affective employee engagement (C7 – C13) as perceived by first-level management

Correlation coefficient = 0.87            p-value = 0.00

There is a statistically significant and high practical relationship between the two crossed sub constructs.

Hypothesis 9: There is a positive, direct relationship between affective trustworthiness (concern) (B13 – B16) as a dimension of trust and physical employee engagement (C1 – C6) as perceived by first-level management

Correlation coefficient = 0.65            p-value = 0.00

There is a statistically significant and moderate practical relationship between the two crossed sub constructs.

Hypothesis 10: There is a positive, direct relationship between integrity (reliability) as a dimension of trust and cognitive employee) engagement as perceived by first-level management

Correlation coefficient = 0.72            p-value = 0.00

There is a statistically significant and high practical relationship between the two crossed sub constructs.

Hypothesis 11: There is a positive, direct relationship between integrity (reliability) as a dimension of trust and affective employee engagement as perceived by first-level management.

Correlation coefficient = 0.84            p-value = 0.00

There is a statistically significant and high practical relationship between the two crossed sub constructs.

Hypothesis 12: There is a positive, direct relationship between integrity (reliability) as a dimension of trust and physical employee engagement as perceived by first-level management.

Correlation coefficient = 0.65            p-value = 0.00

There is a statistically significant and moderate practical relationship between the two crossed sub constructs.

Hypothesis 13: There is a positive, direct relationship between openness as a dimension of trust and cognitive employee engagement as perceived by first-level management.

Correlation coefficient = 0.71            p-value = 0.00

There is a statistically significant and high practical relationship between the two crossed sub constructs.

Hypothesis 14: There is a positive, direct relationship between openness as a dimension of trust and affective employee engagement as perceived by first-level management.

Correlation coefficient = 0.81                  p-value = 0.00

There is a statistically significant and high practical relationship between the two crossed sub constructs.

Hypothesis 15: There is a positive, direct relationship between openness) as a dimension of trust and physical employee engagement as perceived by first-level management.

Correlation coefficient = 0.68                  p-value = 0.00

There is a statistically significant and moderate practical relationship between the two crossed sub constructs.

Physical employee engagement revealed statistically moderate cross correlations to all sub constructs of trustworthiness. The lower physical employee results were expected, because physicality is not relevant to engagement, especially not on management level. None the less, the resulting correlations were still on the positive side.

All the other sub constructs cross correlated statistically high.

Concerned (affective) trustworthiness and affective employee engagement had the highest cross relationship of all sub constructs, while competent (cognitive) trustworthiness had a higher correlation with affective employee engagement (0.86) than with cognitive employee engagement (0.74). The expectancy that the affective component might carry more weight than the cognitive component seems to be a real possibility.

#### **4.8 CHAPTER SUMMARY**

The sectioned quantitative data extracted from the questionnaires were computed in order of frequencies, descriptive statistics. Reliability and correlation statistics were used to interpret the statistics thus derived. Interpretations were done on each facet.

In chapter 5 final conclusions are made, limitations noted and recommendations regarding future research related to this study. Possible institutional-specific research may be proposed.

## CHAPTER 5

### CONCLUSIONS, LIMITATIONS AND RECOMMENDATIONS

#### 5.1 INTRODUCTION

This chapter attempted to derive conclusions from the findings of the previous chapter and its integration with and/or relation with reported literature. This led to discussions and forthcoming recommendations to be made stemming from this study. Some limitations were discovered and discussed.

#### 5.2 CURRENT RELATIONSHIP FINDINGS AND ITS INTEGRATION WITH AND/OR RELATION WITH REPORTED LITERATURE

##### 5.2.1 Hypothesis 1: Middle-level management's trustworthiness as perceived by first-level management will be positively related to their employee engagement

###### 5.2.1.1 Current finding

Correlation coefficient = 0.87                      p-value = 0.00

First-level management's trustworthiness in middle management was positively related to their employee engagement. The implication is that the perceived trustworthiness of the direct supervisor may invoke stronger employee engagement through greater cognitive, affective and physical involvement. Hopefully this may lead to higher productivity.

As this is seemingly the first study comparing the specific constructs, it needs replicating testing to externally validate the finding.

###### 5.2.1.2 Reported related literature

There are empirical findings in literature indicating a relationship between trustworthiness or trust and work or employee engagement supporting the findings of this study.

Chughtai (2010:265) found that work engagement (UWES) was significantly correlated with trust in supervisor ( $r = 0.44$ ,  $p < 0.01$ ). He used UWES as an employee engagement measure instrument, whereas this study used Rich et al. (2010:634). The same trustworthiness measure instrument was used. Roberts (2014:65) found only reliance-based trust was a predictor of work engagement (UWES) but disclosure-based trust was shown not to be a predictor of work engagement which was contradictory to the literature.

The respondents expect supportive behaviour from their leaders, but being too close made them vulnerable. He used the Behavioural Trust Inventory [BTI] of Gillespie (2012:175) as a trust measuring instrument.

Engelbrecht *et al.* (2014:7) found a positive relationship in the leader and the work engagement of the employee through the statistical techniques ( $t = 2.47$ ;  $p < 0.05$ ). They applied the UWES and 13-item Leader Trust Scale (LTS). Based on their trust employees will be motivated and committed to their work. Engelbrecht *et al.* (2014:1) stated that researchers believe productivity and performance to be motivated by work engagement. Fairness and openness are two characteristics mentioned by them that corresponded to this study.

Hassan and Ahmed (2011:168) found that authentic leaders create trusting relationships with their subordinates and employees enjoy working in such organizations and that influence the quality of relationship between employees and their leaders. This results in employees being loyal and committed. If leaders are seen as transparent (openness), employees which in turn contribute to positive employees work outcomes such as work engagement. The last remark bears a direct relation to this study.

Mishra's (1996:265) trustworthiness definition involves four sub constructs: openness, integrity, concern (benevolence/affective trustworthiness) and competence (cognitive trustworthiness). May *et al.* (2004:16) describe openness, integrity and concern as characteristics of managerial trustworthiness, believing it to lead to feelings of safety (an antecedent to trust) and a willingness to invest themselves in work (employee engagement). But for missing out on cognitive trustworthiness, this is a roundabout description of hypothesis 1 of this study.

## **5.2.2 Hypothesis 2: There is a positive and statistically significant direct relationship between the sub constructs of trustworthiness**

### **5.2.2.1 Current finding**

The statistically high correlations between the four sub constructs resulted in hypothesis 2 being accepted (highest  $r = 0.93$  and lowest  $r = 0.87$ ).

### **5.2.2.2 Reported related literature**

The only reported statistics regarding the inter correlations of the sub constructs was found in Spreitzer and Mishra (2002:717) who found them correlating at about 0.84 as to this study that found it correlating at 9.0. Noticeable is the significantly higher finding, and odd experience happening throughout most of the test results. It is a pity that Chughtai (2010) did not reveal inter correlation results of the sub constructs.

As he used the same measure instrument, the comparison would have been more useful. Consequently true possible comparisons were limited, actually non-existent.

By averaging the relationships to each sub construct, the following ranking was achieved: integrity trustworthiness (9.13), affective trustworthiness (9.05), openness trustworthiness (8.92) and cognitive trustworthiness (8.89).

But for openness, this supported the order Dietz and Den Hartog (2006:558) and Mayer et al. (1995:717) found for the frequently used threesome: integrity, affective and cognitive trustworthiness. In this study openness trustworthiness edged out cognitive trustworthiness, all be it by the breadth of a hair. The deduction made, is that the addition of openness to the traditional threesome, is a welcome one. But how meaningful and/or useful is this characteristic?

The Thomas *et al.* (2009:299) study made the following findings:

- Openness positively related to ( $r = .39, p < .001$ ) trust of supervisors, more so than trust of co-workers ( $r = .26, p < .001$ ) and trust of top management ( $p = .33, p < 0.01$ ). This finding also strengthen the choice of participants of this study.
- Organisational openness was also positively associated with employee involvement ( $r = .37, p < .001$ ).

Henceforth it is indicated that trust predicts organisational openness directly effecting employee engagement.

This study's point of departure was a positive attitude, but a dark side of openness is acknowledged (this is also true of affective- and cognitive trustworthiness and of trust per se). A few arguments of Eisenberg and Witten (1987:421-424) are mentioned to substantiate this.

Openness information can be damaging to the individual's job safety and promotion aspirations. Individuals may feel trapped between revealing what they know for the good of the company, as to do so at their own peril. When disagreements are substantive, being open becomes tough or even impossible. Ambiguity is often a personal or company strategy, thus conflicting with openness. Personal style, like shyness, could affect the extent to which a person communicates openly. Revealing company secrets can be disastrous. Just imagine Coca Cola being open about the formula of their product.

Within the work situation, there can be some guidelines when openness may be necessary. Focus on individual or company goal attainment. A combined concern with personal goals and situational adaptation favour openness.

### **5.2.3 Hypothesis 3: There is a positive, direct significant relationship between the sub constructs of employee engagement**

#### **5.2.3.1 Current finding**

The statistically high correlations between the three sub constructs resulted in hypothesis 3 being accepted (highest  $r = 0.84$  and lowest  $r = 0.72$ ).

#### **5.2.3.2 Reported related literature**

Rich et al. (2010:634), as discussed in chapter 3 (section 3.3.3.1) found strong correlations between the sub constructs of employee engagement.

### **5.2.4 Hypothesis 4 – 15**

The last comparisons made were between the sub-constructs of the two main constructs. Only the current statistics of this study were available as the literature research could not unveil another study using the same measuring constructs.

Applying constructs being measured by established scales that demonstrated high reliabilities and validity in previous studies, may play an important role in alleviating the problem of common method variance (Spector, 1987:438). A very real problem of multi-collinearity emerged from the computed statistics. The problem was partly addressed.

As the conditions causing multi-collinearity problems are unclear, it is tough to avoid these conditions. According to Grewal *et al.* (2004:519) a weak composite reliability, a low explained variance ( $R^2$ ) and a relatively small sample size increase Type II errors and cause multi-collinearity. If a reliability exceeds 0.80, an explained variance  $R^2$  reaches 0.75, and the sample becomes relatively large, Type II error rates become negligible and may offset problems caused by multi-collinearity. In this study Cronbach's alpha ( $\alpha$ ) exceeded 0.80 and the sample size of 317 presented a representative 25% of the population. This is excellent when compared to an ideal population representation of 33% that he suggests. Statistically the study results were well in place and were unlikely causing multi-collinearity.

Very importantly, Grewal *et al.* (2004:527-528) focused on a diagnostic not yet been discussed in the literature at that stage. Multi-collinearity as a problem area is also closely related to the issue of discriminant validity. Constructs that are too highly correlated, lack discriminant validity. He explains that researchers using the structural equation modelling usually conduct measurement analyses prior to testing structural relationships.

This study, sorrowfully, did not execute a prior measurement analysis, but multi-collinearity was not anticipated at all and the computed outcomes came as a complete surprise.

Sceptics will say that the results are way too good to be true. The optimist will say that both measure instruments are highly reliable and properly validated. Logically trust must have an influence on an employee's engagement. Replicating these two measure instruments might provide answers to the possibilities and questions this study had raised.

## **5.3 RELIABILITY**

### **5.3.1 Trustworthiness**

#### **5.3.1.1 Current finding**

Trustworthiness' alpha ( $\alpha$  - 0.99) qualified as a highly reliable measure instrument test.

#### **5.3.1.2 Reported related literature**

Chughtai (2010:263) found a  $\alpha$  of 0.96 on the same trustworthy test where the immediate superior was also the trustee. This study thereby confirmed the external validity of the test. The peculiar matter, though, was the very high validity this study found. It is believed that the way the research was conducted had much to do with this. Participants were well informed and the middle management who assisted the researcher, quite often had direct contact with the respondents. The reliability exhibited by trustworthiness in this study was found to be in line with the reliabilities reported in other previous studies, but comparisons must be made with great caution. The value of the Cronbach's  $\alpha$  in three different studies were reported.

Spreitzer and Mishra, (1999:166) found a  $\alpha$  = .93, but made use of a top down approach starting with "I trust that employees..." Their lower result fell in line with a survey done by Mishra and Morris (2002:451) found that the following order in factors that my breed trust: middle managers 95%, division managers 93.0%, directors 86.5% and senior corporate managers 84.2%. There is a clear drop as in the upwards hierarchy and middle managers and division managers had significantly higher averages. The result supported the choice of participants for this study.

Brockner *et al.* (2004:91) found a  $\alpha$  = .97. Their participants were also employees experiencing layoffs. Brockner *et al.* (2004:76, 84) focused on issues of fairness that evoked relatively low management trust and perceived control influencing their self-determination. Even though the focus are different to that of this study, the trustworthy characteristic of fairness (integrity) was a specific common factor.

Spreitzer and Mishra (2002:717) found a  $\alpha = .96$ . As their participants were experiencing layoffs, they also applied distributive justice (fairness of the outcome), procedural justice (fairness) of the process and interactive justice (social influence) to investigate different aspects of fairness. A golden opportunity was missed to compare the justice (fairness) features with the four characteristics of trustworthiness items of Mishra and Mishra (1994), but then these theoretical issues had nothing to do with their more practical intent.

### **5.3.2 Employee engagement**

#### **5.3.2.1 Current finding**

Employee engagement alpha (0.98) qualified as a highly reliable measure instrument test.

#### **5.3.2.2 Reported related literature**

Cronbach's  $\alpha$  (0.99) of this study correlated with the Cronbach's  $\alpha$  (0.95) of the similar employee engagement test of Rich *et al.* (2010:634).

From the information gathered from the graph of John and Soto (2007:470) there is still some concern regarding the  $\alpha$  value of trustworthiness. The possibility of redundancy needs consideration. The tables of Robinson *et al.* (1991:13) and Cortina (1993:102) helped to interpret  $\alpha$  in relation to mean inter-item correlation. The highest  $r$  value of the Robinson *et al.* (1991:13) table correlates with one item  $\alpha$  value of the John and Soto (2007:470) graph. This very limited broad-narrow approach was of no use to this study.

To make any useful interpretations John and Soto (2007:470) in conjunction with Cortina (1993:102) were used for this study with a high number of items and quite a few sub constructs.

## **5.4 BIOGRAPHICAL INFORMATION**

On the periphery was the effect that biographical information might have on the two main constructs.

### **5.4.1 Participants**

The choice of participants was a particular headache, as was discussed in chapter 3. After thorough literature research the choice made could be motivated. Chughtai's (2010:289) findings revealed that trust in a supervisor exercised significant and unique effects on trustor's levels of employee engagement, which is also the purpose of this study. Motivation and commitment and hence productivity is most likely to improve.

## **5.4.2 Race**

This study could not establish that race difference influenced trustworthiness or employee engagement. This is a very important finding in the South African context where the black - white conflict almost daily find prominence in newspapers and on television. It still remains a strong political play ball.

This conflict clearly does not materialise on managerial level between middle-level management and first-level management. In the workplace it is truly about trust, irrespective of colour of skin. The employee engagement that results from trustworthiness is not effected by race differences.

This study positively contributes by showing that the practice in the work situation is based on fair judgements hardly influenced by preconceptions.

## **5.4.3 Closeness**

The biographical profile of this study found personal contact (closeness) to be negatively correlated with all but the openness construct of trustworthiness and all the sub constructs of employee engagement. Thus the more personal contact, the lower the trustworthiness will be. This supported the finding of Roberts (2014:65) and the expectancy this researcher had.

## **5.5 LIMITATIONS**

Questionnaires was distributed to and collected from most of the current South African gold mining companies (all main gold mining companies covered) but some smaller gold mining companies were not covered (Mpumalanga province), this was mainly due to the travelling requirements and limitations for hand delivery and collection of questionnaires. The findings and implications cannot be satisfactory generalised.

The study design was a cross sectional design, thus no conclusions about causality could be made. All data were obtained through self-report questionnaires. Making common method variance a possibility. The mines participating in the research claimed indemnity.

It was therefore not possible to identify different mines or regions, thus making any such significant comparisons impossible.

This study may also have been limited as both constructs were negatively skewed. This problem was more pronounced in the employee engagement measure instrument.

Interestingly, this situation was reversed in the Chughtai (2010) study. As this study and Chughtai (2010) used the same measure instrument, the possibility of generalisation was thus immediately expelled.

Rather than seeking the problem in the test, the solution may rather lay in the participants, like the participants in his study as a whole had a higher trust level than those in this study. Considering the existing conflicts and uncertainties in the gold mining industry, this just might make some speculative sense.

The trustworthiness test is a relationship test. If the tendency was to give agreeable answers, then one would have expected a higher left skewness. Were the respondents more truthful than expected?

Why then the significantly greater negatively skewness in the employee engagement measure instrument. This test has a more personal nature.

The tendency to overrate oneself to make a good impression might be greater. Then the workaholics who can inflate negative skewness, but they probably are so small in number that this can be ignored as a significant number.

The average inter-item correlations proved to be an important possible limiting factor. This matter was dealt with in quite detail in chapter 4.

## **5.6 CONTRIBUTIONS**

This study contributed to the theory and model building of research in finding a high correlation (0.87) between trustworthiness and employee engagement using the trustworthiness measure instrument of Chughtai (2010:367) and the employee engagement measure instrument of Rich *et al.* (2010:634).

A possible explanation for this high correlation could be that Rich *et al.* (2010: 619) chose a behavioural conceptualisation because the concept reflects a human agency, thus appropriately focus on consequences that are largely under an employee's volitional control. This apposes an approach concentrating on the energy spent in engagement. Most of the items in Chughtai's (2010:367) measure instrument has a strong behavioural wording. The behavioural communality between the two constructs, as well as both having cognitive and affective constructs, possibly set the way to high correlation between these two constructs.

The addition of openness as a characteristic of trustworthiness proved to carry a useful and meaningful weight.

By replicating the mentioned constructs, their validity was strengthened.

## 5.7 RECOMMENDATIONS

### 5.7.1 Recommendations for the gold mining industry

The discretion of the mining management is in no way questioned. Most or more likely all of the situations and problems mentioned or advice given is probably known. The complexity of the situation or situation, as well as the influence of trade unions cause mountains of problems with little scope to solve any of it.

Trust is an important factor enhancing employee engagement. Other than improved relationships and better communications, there are the possibility of greater employee engagement and productive gains.

a) Leadership's main characteristic necessary to improve trust, is integrity.

Miners believe they are being misled. What management say and what management do are not in line. Management can thus not be trusted.

b) Second in line is the emotional aspect, which is a very vulnerable and sensitive issue.

Mine workers complain: Management simply don't care. This is obvious to them in:

- > harsh working conditions being disregarded and
- > unfamiliarity with different cultural functioning, bonds (ties), responsibilities and demands

The problem of culture. A sizeable number are migrant workers from amongst others the Eastern Cape where they own nothing, but family ties are strong and family responsibilities are far more important than one may realize. This is noticeable in many families clustered in one home, or liabilities back home to family, family heads, captains, chiefs and even kings. This results in a large pecking order. Mining management must acquaint themselves to this, although they are literary and figuratively far removed from this dilemma.

A spokesman for the community is an absolute necessity. It must be made clear to the spokesman that the situation is understood. A worker must be made very clear that the management have empathy for the situation, but that mining management is neither a king, captain, nor family head. They are not, unlike these leaders, responsible for families that are not part of the close family of the employee, like grandparents, uncles, full grown brothers and sisters. Some forms of stake holding are very important to this regard.

### c) Openness

A prominent complaint from mine workers are hidden agendas. Proper communication at regular intervals are of the utmost importance. All parties involved must be properly informed beforehand as what is going to be discussed.

### d) Knowledge and skills

It is firmly believed that management are doing whatever they can to provide the necessary knowledge and develop the necessary skills related to the work situation. This is the least of management's problems. A great difficulty is to make workers understand what productivity is and the demands that it set. The concept of time and its value is another tough nut to crack.

When management visits a mine, physically going and visiting the different workers' areas is a necessity. To be with the driller, even attempting to hold it and trying to drill will have a huge impact on that driller.

It is not about being unable to do his job, it is about admiring and appreciating what he is doing and to know you had the "feel" of it. Rest assure, he has a story to tell at home that day, may be even other miners.

Having pre-knowledge (acquired from a spokesman or someone with his ear to the ground) will also score a lot of points. Knowing that a worker has his aunt, sister, etc., living with him is very important. On the day of visiting a mine it is an opportunity to speak to him about it, and to be genuine in body language and tone. To help him understand, to show empathy (sympathy) will have a substantial impact. Nothing will be solved, but pushing the wheelbarrow up the hill will become easier, if then only for a short space of time. This is why, though it is hard to do in a tough schedule, more than one visit a year would be advisable.

## **5.7.2 Recommendations for future research**

This study with the specific constructs is a first. Replicating studies to establish external validity is necessary.

There were concerns regarding the content of the trustworthiness measure instrument that this study felt needed to be addressed (chapter 3 – section 3.3.3.2).

Items b5 – b8 measure reliability (integrity), three of the four being worded as potential characteristics, ex. "My direct supervisor is reliable". The one item that is stated as an action had an obvious higher factor loading (.93), than the other three (.77, .78 and .75 respectively). It is suggested that the other three items should also be worded as actions.

Items b9 – b12 measured competence (ability). This section lead to a few debatable points. Statement b9 states two direct characteristics, “competence and knowledgeable”. This should rather have been two statements.

The referent in the cognitive trustworthiness changed. Although this seemingly did not affect the responses, it must be considered to change the department as referent to the employee.

Item b10 reads: “My direct supervisor can contribute to the department’s success”. It reads as a possible action. By simply dropping “can” from the statement it would have become an action statement. It is a simple change that will make the statement more effective.

The closeness of the averages of the four affect trustworthiness statements (b13 – b16) started some alarm clocks. The sound became stronger when the component matrix revealed all four being clustered and very close in ranking. This meant that one had to take a closer look at the content of the variable. Item b13 reads: “My direct supervisor does not take advantage of me” and item b14 reads: “My direct supervisor does not exploit me”. This looks like a perilously close connotation. Is there a distinct enough difference, or is it better to drop or change one of the items?

A similar problem arises when items b6 and b7, and items c14, c15 and c18 are compared. This might explain to some extent the multi-collinearity problem that fell in the path of this study. It is recommended that the content of the items need to be scrutinised and honed, if possible, and that some of the items could be dropped.

A further limitation to the study was that only the first-line management and middle-level management was considered. Several studies, like that of Thomas *et al.* (2009:299), reveal that trustworthiness differ between different management levels, as well as between employees and management. The trustworthiness of management as perceived by the workers underground is of vital importance. Empirical studies on sub ordinates perceptions of mine management in South Africa’s gold mining industry are practically non-existent. Because of the large numbers of migrant workers coming from country parts that involves a diversity of languages will cause huge executing difficulties. Communication problems will need the use of translators and interpreters that will have a huge effect on outcomes of such a study. This study could not cope with this problem.

Productivity as an outcome of trustworthiness’ effect was disappointing. The trustworthy level (very high) and employee engagement level (very high) clearly contradicts the current low productivity level in the mining industry. This connection seems to have little or no practical implications. Other factors definitely affect the low productivity rates of the mining industry significantly, more so than trustworthiness and/or employee engagement.

Labour unions affect the mine industry and continually confront management. Importantly, this affects productivity, not only by way of stay-aways. This is surely a highly worrying and significant problem area recommended for future research.

The influence of government in the South African context on the gold mining industry also effects productivity. Overseas investments are dropping because of this.

Billionaire Patrice Motsepe is of the opinion that a lack of trust among South African mining industries, labour unions and the government is undermining prospects for an Industry facing vast job losses as commodity prices tumble (Janse van Vuuren, 2015).

Studies done on trustworthiness and employee engagement have almost only theoretical values. It seems that studies must all the more concentrate on the outcomes of trustworthiness and employee engagements for practical values.

## **5.8 CHAPTER SUMMARY**

From the literature study and to some extent the empirical study conflicts and productivity problems was evident in the mining industry. Investigating the possibility that middle management's trustworthiness as perceived by first line management could result in heightened employee engagement and hopefully improved productivity proved to be a fruitless effort. What could be proved, was that trustworthiness and employee engagement were significantly related ( $r = 0.87, p > 0.00$ ). The study arrived at several conclusions, revealed several limitations of the study and could make some humble recommendations. In a small but meaningful way this study could motivate the addition of openness to the traditional trustworthiness family.

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## APPENDIX A: RESEARCH QUESTIONNAIRE

### Academic research study

Dear Respondent,

This research forms part of my MBA studies at the North-West University and was approved by the Ethics Committee of the University with the following reference number EMS15/02/26-1/07.

This research explores the potential relationship between trust and work orientation. Your participation will contribute towards the pool of knowledge towards the better understanding of these two constructs as well as the possible influence each construct might have on the other, if any.

The success of this research depends largely on the count of participants fully completing this survey. There are no right or wrong, good, better or worse answers. There are not answers more desirable than others. What matters, is that you answer what you believe to be real in your work situation.

If enough respondents complete the survey it may even be possible to put forward a model to predict work engagement which could benefit both management and employees in future. Your participation is therefor of the utmost importance!

I can assure you that your identity and your organisation's identity will remain undisclosed and the results of this survey will only be used for research purposes. Please **do not** put your name on this questionnaire.

This survey is set out in three sections. Section 1 consists of basic biographical information, section 2 assesses trustworthiness and section 3 focuses on work orientation.

#### **Instructions:**

- Answering all of the required information and statements are mandatory
- Please read the instructions for completion of each section carefully
- Please read statements carefully before providing an answer
- Please choose the appropriate answer by making an "X" over the appropriate rating number

In case of any questions or inquiries, please do not hesitate to contact me on 071-606-4440.

Thank you for your envisaged participation.

Philip Croucamp  
**MBA Student**

# SECTION 1: BIOGRAPHICAL INFORMATION

The following information is needed to help with the statistical analysis of the data for comparisons among different demographic variables. Your help in providing this important information are sincerely appreciated.

Mark the applicable block with a cross (X). Complete the applicable information.

<b>A1</b>	<b>6</b>	<b>Age</b>	<b>≤ 29</b>	<b>30 - 39</b>	<b>40 - 49</b>	<b>50 - 59</b>	<b>60+</b>
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<b>A2</b>	<b>7</b>	<b>Gender</b>	<b>Male</b>	<b>Female</b>
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<b>A3</b>	<b>8</b>	<b>Race</b>	<b>Black</b>	<b>White</b>	<b>Coloured</b>	<b>Indian</b>	<b>Other</b>
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<b>A4</b>	<b>State your highest academic qualification. Mark the applicable block with a cross (X).</b>						
	<b>Lower than Grade 12</b>						
	<b>Grade 12</b>						
	<b>Certificate</b>						
	<b>Diploma (Technical College or Technicon)</b>						
	<b>University degree</b>						
	<b>Post graduate degree</b>						

<b>A5</b>	<b>9</b>	<b>Name of your current department or section at the Mine</b>					
	<b>Specify:</b>						

<b>A6</b>	<b>10</b>	<b>How many years are you working at the above department?</b>	<b>0 - 3</b>	<b>4 - 10</b>	<b>11 - 15</b>	<b>16 - 20</b>	<b>20+</b>
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<b>A7</b>	<b>11</b>	<b>How many years are you working at this Mine?</b>	<b>0 - 3</b>	<b>4 - 10</b>	<b>11 - 15</b>	<b>16 - 20</b>	<b>20+</b>
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<b>A8</b>	<b>12</b>	<b>How many years have you been working with your current direct supervisor</b>	<b>0 - 3</b>	<b>4 - 10</b>	<b>11 - 15</b>	<b>16 - 20</b>	<b>20+</b>
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<b>A9</b>	<b>13</b>	<b>I meet with my direct supervisor regarding work related issues</b>	<b>Daily</b>	<b>Very often</b>	<b>Often</b>	<b>Now and then</b>	<b>Seldom</b>	<b>Very Seldom</b>
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## SECTION 2: TRUSTWORTHINESS

This section relates to your views about your direct supervisor (manager). Thus, when asked questions about "supervisor", think specifically about your direct supervisor (manager).

Please read the following statements and indicate how each statement relates to the work you usually do. Please rate the extent to which you agree or disagree with each statement by making an "X" over the appropriate number on the 1 to 7 point scale next to the statement.

**Please take note that 1 = Strongly disagree and 7 = Strongly agree.**

<i>1 = Strongly disagree</i>	<i>2 = Moderately disagree</i>	<i>3 = Slightly Disagree</i>	<i>4 = Neutral</i>	<i>5 = Slightly Agree</i>	<i>6 = Moderately agree</i>	<i>7 = Strongly agree</i>
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	I BELIEVE THAT:	SCALE						
B1	My direct supervisor is straightforward with me	1	2	3	4	5	6	7
B2	My direct supervisor communicates honestly with me	1	2	3	4	5	6	7
B3	My direct supervisor does not mislead me in his or her communications	1	2	3	4	5	6	7
B4	My direct supervisor does not withhold important information from me	1	2	3	4	5	6	7
B5	My direct supervisor does not try to get out of his or her commitments	1	2	3	4	5	6	7
B6	My direct supervisor behaves consistently	1	2	3	4	5	6	7
B7	My direct supervisor is reliable	1	2	3	4	5	6	7
B8	My direct supervisor can be counted on	1	2	3	4	5	6	7
B9	My direct supervisor is competent and knowledgeable	1	2	3	4	5	6	7
B10	My direct supervisor can contribute to the department's success	1	2	3	4	5	6	7
B11	My direct supervisor can help the department survive during the next decade	1	2	3	4	5	6	7
B12	My direct supervisor can help solve important problems faced by the department	1	2	3	4	5	6	7
B13	My direct supervisor does not take advantage of me	1	2	3	4	5	6	7
B14	My direct supervisor does not exploit me	1	2	3	4	5	6	7
B15	My direct supervisor cares about my best interests	1	2	3	4	5	6	7
B16	My direct supervisor is concerned for my welfare	1	2	3	4	5	6	7

## SECTION 3: WORK ORIENTATION

The following statements are about how you feel at work. Please read each statement carefully and decide if you ever feel this way about your job.

Please read the following statements and indicate how each statement relates to the work you usually do. Please rate the extent to which you agree or disagree with each statement by making an "X" over the appropriate number on the 1 to 7 point scale next to the statement.

**Please take note that 1 = Strongly disagree and 7 = Strongly agree.**

<b>1 =</b> <i>Strongly disagree</i>	<b>2 =</b> <i>Moderately disagree</i>	<b>3 =</b> <i>Slightly Disagree</i>	<b>4 =</b> <i>Neutral</i>	<b>5 =</b> <i>Slightly Agree</i>	<b>6 =</b> <i>Moderately agree</i>	<b>7 =</b> <i>Strongly agree</i>
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	I BELIEVE THAT:	SCALE						
C1	I work with intensity on my job	1	2	3	4	5	6	7
C2	I exert my full effort to my job	1	2	3	4	5	6	7
C3	I devote a lot of energy to my job	1	2	3	4	5	6	7
C4	I try my hardest to perform well on my job	1	2	3	4	5	6	7
C5	I strive as hard as I can to complete my job	1	2	3	4	5	6	7
C6	I exert a lot of energy on my job	1	2	3	4	5	6	7
C7	I am enthusiastic in my job	1	2	3	4	5	6	7
C8	I feel energetic at my job	1	2	3	4	5	6	7
C9	I am interested in my job	1	2	3	4	5	6	7
C10	I am proud of my job	1	2	3	4	5	6	7
C11	I feel positive about my job	1	2	3	4	5	6	7
C12	I am excited about my job	1	2	3	4	5	6	7
C13	At work, my mind is focused on my job	1	2	3	4	5	6	7
C14	At work, I pay a lot of attention to my job	1	2	3	4	5	6	7
C15	At work, I focus a great deal of attention on my job	1	2	3	4	5	6	7
C16	At work, I am absorbed by my job	1	2	3	4	5	6	7
C17	At work, I concentrate on my job	1	2	3	4	5	6	7
C18	At work, I devote a lot of attention to my job	1	2	3	4	5	6	7

**Thank you for taking the time to complete this survey.**

## APPENDIX B: LANGUAGE EDITING

### *DECLARATION*

*I, Clarina Vorster (ID: 710924 0034 084), Language editor and Translator, and member of the South African Translators' Institute (SATI member number 1003172), herewith declare that I did the language editing of the Dissertation of P Croucamp (student nr 10867198) from the Northwest-University, Potchefstroom Campus.*

*Title of the article: Assessing the relationship between middle-level management trust and first-level management work engagement within the South African gold mining industry*

*\_\_\_\_\_C Vorster\_\_\_\_\_*

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