EXPLORING THE COMPONENTS OF A CONCEPTUAL MODEL OF ORGANISATIONAL CITIZENSHIP BEHAVIOUR TOWARDS THE ENVIRONMENT (OCBE)

by

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DECLARATION

I, Roeloff Ettiene Viljoen, declare that Exploring the Components of a Conceptual Model of Organisational Citizenship Behaviour towards the Environment (OCBE) is my own unaided work both in content and execution. All the resources I used in this study are cited and referred to in the reference list by means of a comprehensive referencing system. Apart from the normal guidance from my study leaders, I have received no assistance, except as stated in the acknowledgements.

I declare that the content of this thesis has never been used before for any qualification at any tertiary institution.

Roeloff Ettiene Viljoen   Date: 2015-12-07

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Signature

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The process of writing a dissertation can definitely be characterised as arduous yet extremely rewarding - and could certainly not be attempted nor completed without ample support, motivation and encouragement.

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Further, I would like to extend special gratification to both my parents for the roles they have played to facilitate the completion of my dissertation. I would like to say thank you to my father for his financial support and guidance to pursue the field of Industrial Psychology and enabling me to chase my dreams. I would also like to thank my mother for her emotional support and encouragement along the way.

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ABSTRACT

Introduction

In the last decade, managing and sustaining the environment has become one of the most important issues facing organisations globally (Brown & Osborne, 2012; Karani & Jewasikiewitz, 2007; Tandon, 2012; Starik & Marcus, 2000). Literature suggests that the importance of sustaining the environment in South African (SA) mining organisations is vital (Hamann, 2003). Given that climate change is largely driven by human activity, and the success of environmental programs often depends on employees' behaviours, fostering employees' pro-environmental behaviour within organizations has now become critical (Daily, Bishop & Govindarajulu, 2009). This study aimed to explore this phenomenon and contribute to what seemed to be a rather scarce body of knowledge which may be used by South African mining organisation in facilitating pro-environmental behaviour.

Research purpose

The purpose of the study is to determine to what extent the antecedents of OCBE, as outlined in the model presented by Daily et al. (2009), are relevant and applicable to encourage employees in South African mining organisations to act in favour of the environment. The study therefore explores how employees perceive the relevance of the factors identified by Daily et al. (2009) as determinants of OCBE. A further aim is to explore employees' perceptions for the purpose of identifying other possible factors that promote voluntary pro-environmental behaviours in South African mining organisations.

The overall aim of this study is to contribute towards constructing an OCBE- model which can serve as a blueprint for South African mining organisations to achieve environmental performance. The findings of this study aim to stimulate further research on environmental management in South African mining organisations.

Motivation for the study

As postulated, the OCBE- model could assist organisations in overcoming current challenges experienced with environment management initiatives' implementation and lead to improved overall organisational environmental performance (Daily et al., 2009). However, the OCBE- model with all of its constructs seems to be mainly theoretically formulated with limited empirical evidence to support its validity or accuracy. This study therefore aims to

evaluate the impact these factors has on employee behaviour in SA mining organisations to engage in voluntary environmental initiatives.

Research design, approach and method

For the purpose of this qualitative study open-ended, semi-structured, in-depth interviews were used as data collection instruments.

Main findings

The following points present a summary of the most significant findings of the study:

- Environmental concern was found to be an important facilitating construct to promote pro-environmental behaviour, especially given the history and cultural context of mining organisations in South Africa.

- Organisational commitment was deemed to be an important antecedent to facilitate pro-environmental behaviour. However, participants found that organisational commitment can only be consistently instilled if organisations engage in a continuous effort to foster a conducive culture that supports pro-environmental initiatives.

- Perceived top management support was confirmed as an antecedent to pro-environmental behaviour and was supported by findings such as perceptions of clear and visible commitment and belief from top management as well as the impact of behavioural modelling in changing individual level behaviour.

- The results confirmed the impact perceived CSP can have in guiding and changing employee behaviour in favour of the environment. The results furthermore emphasised the psychological impact of CSP initiatives on employees from adjacent rural communities. Moreover, findings suggest that mining companies in South Africa should carefully consider the implication of financial investment as it may negatively impact on the perceptions of employees from rural areas.

- Findings in this study identified Compliance as an additional issue that has a relationship with pro-environmental behaviour. Results, as confirmed by

literature, indicated an inconsistent relationship in this regard and emphasised the limitation of compliance when used in isolation.

- Leadership, over and above top management support, was found to be an important issue in facilitating employees to engage in pro-environmental behaviours.

- Environmental awareness and education was deemed a critical issue when expecting employees, especially on lower levels, to demonstrate behaviour in favour of environmental preservation.

- Rewards and incentives were found to have a positive influence on behaviour change in favour of the environment. However, this should be carefully and strategically used in a short-term manner and as part of a larger more inclusive recognition approach.

Limitations / future research

The most significant limitation to the study was the small size of the research sample, which was dictated by the availability of highly experience human resource incumbents in South African mining organisations with environmental and extensive human behaviour experience. The small sample size suggests limitation on the generalisability of the research findings (Welman et al., 2005). It is recommended that future research studies aim to validate or elaborate on the findings using quantitative research approaches with larger sample sizes.

Conclusion

The primary purpose of the study was to explore the relevance of the antecedents to pro-environmental behaviour, as outlined in Daily et al.'s model, in a South African mining context. In doing so, a blue print model was formulated in an attempt to illuminate constructs that might be relevant in the facilitation of pro-environmental behaviour in South African mining context. Although some authors postulated that developing a model incorporating all factors might neither be feasible nor useful, it is felt that this model, together with the findings of the study, could help illuminate the complex field of pro-environmental behaviour in a South African context (Steg & Vleg, 2009).

Key words: Pro-environmental behaviour, green behaviour, environmental performance, environmental management, employee perception, mining organisations

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

CHAPTER 1:   INTRODUCTION

1.1 Overview of the areas impacting on the problem statement

In the last decade, managing and sustaining the environment has become one of the most important issues facing organisations globally (Brown & Osborne, 2012; Karani & Jewasikiewitz, 2007; Tandon, 2012; Starik & Marcus, 2000). It has also been made apparent how climate change, as a widely known environmental issue, can pose quite a number of risks and challenges to organisations world-wide (Robertson & Barling, 2013). Some of these challenges facing organisations include market pressures from consumers and government associations through environmental labelling and the relationship between environmental liability and investor or shareholder value (Strydom & King, 2009; Wingard & Vorster, 2001). Authors have moreover argued that climate change, or "…any change in climate over time, whether due to natural variability or as a result of human activity…" (McCarthy, Canziani, Leary, Dokken & White, 2001: 984), has become a critical issue for businesses and economic systems due to its unpredictability and financial impact.

Climate change, therefore, is a serious global issue that poses urgent and perhaps one of the greatest challenges facing human kind (Kazdin, 2009; Weber & Stern, 2011; Swim et al., 2011). Although climate change can be caused by either natural variation or human activity, scientists conclude that the cause of climate change is largely anthropogenic (National Research Council, 2010; Swim et al., 2011). However, organizations are also regarded to be among the most significant contributors to climate change (Robertson & Barling, 2013) and in response, many have begun to adopt formal and informal environmental management systems (Darnall, Henriques, & Sadorsky, 2008). Literature suggests that the importance of sustaining the environment in South African (SA) mining organisations is vital (Hamann, 2003). Hamann (2003) argues that mining companies' social and environmental responsibilities are increasing due to global changes in the way the role of business is perceived. This therefore places pressure on South African policy developments as well as a need for stronger 'business cases' for mining companies to actively support sustainable development and simultaneously ascertain profit.

However, the answer surely cannot be in the mere adoption of environmental management policies or systems as they have come to be known? Given that climate change is largely driven by human activity, and the success of environmental programs often depends on employee behaviour, fostering employees' pro-environmental behaviour within organizations has now become critical (Daily, Bishop & Govindarajulu, 2009). Encouraging workplace pro-environmental behaviours, such as recycling, conservation and waste reduction behaviours, will not only contribute to the greening of organizations but will also positively affect climate change and prevent further environmental degradation (Bell, Bullock, Hälbich, & Lindsay, 2001).

Given then the importance of understanding human behaviour and what influences green behaviour, Daily, Bishop and Govindarajulu (2009) have identified a theoretical model to assist organisations in encouraging pro-environmental behaviours. Daily et al. (2009) highlight how the success of important environmental programs may hinge on employee behaviour extending beyond the scope of formal reward and performance evaluation systems. The behaviours and perceptions of employees encouraging voluntary pro environmental behaviour, could arguably be the key towards assisting organisations in increasing their environmental performance.

The model illustrates how organisational citizenship behaviour towards the environment (OCBE) acts as the antecedent of increased environmental performance. OCBE can be seen as voluntary environmental initiatives demonstrated by employees in organisations. More specifically, Daily et al. (2009) define OCBE as discretionary acts directed toward environmental improvement within an organization. Embedded in the OCBE- model identified by Daily et al. (2009) is the notion that presence of certain factors could lead to OBCE which in turn leads to increased environmental performance. The factors labelled as determinants of OCBE in organisations comprise environmental concern; organisational commitment; perceived corporate social performance and perceived top management support for environmental efforts.

As postulated by Daily et al. (2009), environmental concern involves the extent to which an employee regards himself/herself as part of the natural environment. Organisational commitment encompasses the extent to which an employee identifies and involves himself/herself with a particular organisation. Perceived corporate social

performance refers to the extent to which employees feel the organisation is focused towards corporate social performance and has a direct relationship with organisational commitment. Finally, perceived top management support for environmental efforts entails the perceptions of employees towards the involvement of top management in environmental initiatives and the perceived support given by top management for environmental performance.

Although many other factors in the literature have been linked to the facilitation of green behaviour, research that investigate and discuss workplace pro-environmental behaviours remain scarce and rather complex (Gadenne, Sharma, Kerr & Smith, 2011; Griffiths, et al., 2008; Robertson & Barling, 2013). From this viewpoint, the antecedents to pro-environmental behaviour as proposed by Daily et al.'s theoretical framework are therefore deemed important and significant for a couple of reasons. Firstly, given the scarce, unstructured and wide-spread nature of literature discussions on the topic of workplace focused pro-environmental behaviour, the need to obtain clarity, structure and focus in terms of the antecedents to green behaviours become vital. The model identified by Daily et al. (2009) provides a central basis to investigate this need.

Secondly, the theoretical model does not merely mention and discuss motivators to pro-environmental behaviour. Instead the authors argue how a very specific and structured set of antecedents can lead to OCBE in organisations or workplaces, which in return could lead to environmental performance. Environmental performance, as mentioned previously, could therefore be facilitative towards organisations' effectiveness, profitability and shareholder value. It can therefore also be argued that the presence of the antecedents to OCBE in organisations could possibly lead to more effective implementation of environmental management initiatives.

1.2 Problem Statement

As discussed in the introduction, it becomes apparent that the determinants of OCBE as identified by Daily et al. (2009) are of fundamental importance to not only ensure mining organisations comply with various legislated requirements but also influence individual behaviours to positively impact on climate change. The OCBE- model could

assist organisations in overcoming current challenges experienced with environment management initiatives' implementation and lead to improved overall organisational environmental performance (Daily et al., 2009). However, the OCBE- model with all of its constructs seems to be mostly theoretically formulated with limited empirical evidence to support its validity or accuracy.

Consequently, the OBCE- model might still in an embryonic phase and lack credibility when considering the following shortcomings. Firstly, the model has not been empirically validated, i.e. no evidence of previous studies was found examining whether the relationships claimed to exist in the model actually exist. Secondly, the model has not been explored from employees' perspectives in order to determine whether they perceive the determinants of OCBE as identified by Daily et al. (2009) as accurate and or relevant. Finally, there seems to be a scarcity among studies exploring factors leading to OCBE or pro-environmental behaviours from employees' subjective perceptions in a SA mining context. Therefore, the impact these factors have on employee behaviour in SA mining organisations to engage in voluntary environmental initiatives is largely unknown.

1.3 Purpose Statement

The purpose of the study is to determine to what extent the antecedents of OCBE, as outlined in Daily et al's model, are relevant and applicable to encourage employees in South African mining organisations to act in favour of the environment. The study will therefore explore how employees perceive the relevance of the factors identified by Daily et al. (2009) as determinants of OCBE. A further aim will be to explore employees' perceptions for the purpose of identifying other possible factors that promote voluntary pro-environmental behaviours in South African mining organisations.

The overall aim of this study is to contribute towards constructing an OCBE- model which can serve as a blueprint for South African mining organisations to achieve environmental performance. The findings of this study will aim to stimulate further research on environmental performance in South African mining organisations.

1.4 Research Questions

The following research questions are utilised in this study:

- How important do HR Managers in SA mining organisations perceive *environmental concern* to be towards facilitating pro-environmental behaviour among individual employees?
- How relevant do HR Managers in South African mining organisations view *organisational commitment* as a factor facilitating pro-environmental behaviour among employees?
- What role does *perceived corporate social performance* play in facilitating pro-environmental behaviour among employees in mining organisations in South-Africa?
- How important is *perceived top management support* as a factor facilitating pro-environmental behaviour among employees in mining organisations in South-Africa?
- What other factors might facilitate employees to engage in pro-environmental behaviour in mining organisations in South Africa?

CHAPTER 2: LITERATURE REVIEW

2.1 Introduction

In order to put a research project into context, a literature review is necessary. A literature review indicates how the research fits into a particular field. It helps to identify knowledge gaps and to develop a research problem (Terre Blance, Durrheim & Painter, 2006).

Managing and sustaining the environment has become one of the most important issues facing organisations globally (Daily *et al.* , 2009; Daily & Huang, 2005; Fernández, Junquera, & Ordiz, 2003; Jabbour, Santos, & Nagano, 2010; Klassen, 2001; Massoud *et al.* , 2007; Palasis-prince & Tremblay, 2012; Zutshi & Sohal, 2004). Literature suggests the problem of environmental degradation has become one of the main political and social issues across the planet (Silva & Medeiros, 2004). Peck and Sinding (2003) concur with these gestures, but are however of the opinion that the mining industry can be viewed as the most widely regarded culprit of engaging in environmentally disruptive activities. They postulate that the mining industry globally is labelled as a thoroughly unsustainable industry due to the nature of its extractive activities as well as the depletion of strictly limited stock of natural resources world-wide. There however seems to be a lack of literature to support the views of Peck and Sinding (2003).

Daily and Huang (2005) are of the opinion that organisations can serve as powerful engines of change, who could potentially redirect their substantial financial, technological and organizational resources toward addressing environmental concerns. Consequently, the challenge global mining organisations face is the balancing of sustaining and preserving the environment whilst increasing their market competitiveness (Massoud *et al.* 2008; Silva & Medeiros, 2004; Zutshi & Sohal, 2004).

2.2 Importance of environmental management

Many mining organisations have developed and implemented environmental management systems under ISO 14001. Authors are of the opinion that the main reason for implementing environmental management initiatives is because they provide a comprehensive and harmonised standard for managing an organisation's environmental impacts (Tibor & Feldman, 1996). According to Weaver (1996), environmental management initiatives typically consist of a set of guidelines by which a facility, a single plant or a whole organisation, can establish or strengthen its environmental policy and efforts to sustain the environment. Moreover, these guidelines provide guiding principles for organisations to identify environmental aspects of its operations, define environmental objectives and targets, implement programmes to attain environmental performance goals, monitor and measure effectiveness, correct deficiencies and problems, and review its management systems to promote continuous improvement.

Environmental management programmes, according to Daily and Huang (2005) provide various advantages to organisations. As postulated by Morrow and Roninelli (2002), adopting an environmental management programme not only focuses an organisation's attention on negative environmental impacts but also ensures that responsibility is appropiately assigned through maintaining high environmental standards throughout the organisation. Successful implementation of an environmental management programme has various other benefits to organisations as well, including cost reductions; avoidance of fines and penalties; improvement in organisational image and more effective operational procedures, etc. (Darnall *et al.* , 2000; Daily & Huang, 2001 and Zingale & Himes, 1999).

2.3 Impact of human behaviour

Subsequently, as in many countries, policy makers in South Africa have begun to reach consensus around the need to develop policies and implementing programmes that can have an active, significant and lasting impact on the behaviours of both consumers and producers, in order to meet the extreme environmental challenges of

the 21st century (Wiedmann & Minx, 2008). What is far less clear is what the most appropriate processes, mechanisms and policy instruments to achieve these changes in behaviour might be. Central to this issue therefore is enabling and encouraging human behaviour to be directed towards environmental preservation initiatives.

More literature has provided supportive evidence to this phenomenon in suggesting that many organisations have found environmental policy implementation, from an employee behavioural change perspective, rather challenging (Silva & Medeiros, 2004; Zutshi & Sohal, 2004). However, Daily et al. (2009) constructed a theoretical model that sheds some structural light on the potential factors that might influence employee behaviour towards pro-environmental actions.

Daily et al. (2009) postulate that certain human resource challenges associated with environmental policy or programme implementation are the reason for the lack of environmental behaviours at an individual level within organisations. A definite gap in the literature however exists on studies or papers discussing such policy implementation challenges, specifically within a South African context. Moreover, literature is rather scarce to identify studies or papers exploring employee perceptions on environmental management initiatives and or the challenges and factors associated with its implementation or measure of success.

This literature study therefore aims to discuss various factors said to encourage pro-environmental behaviour by using the theoretical model identified by Daily et al. (2009) as a central discussion point. Additional motivating factors related to pro-environmental behaviour will also be reviewed and comprehensively discussed. The main purpose of this section will therefore be to shed some light on the relationship between various factors (internal, external, psychological, organisational etc.) and pro-environmental behaviour in workplaces or organisations.

2.3.1 Identifying a model of factors leading to OCBE

Daily et al. (2009) highlight how the success of important environmental programs, including Environmental Management System (EMS) under ISO 14001, may hinge on employee behaviour that is beyond the scope of formal reward and performance evaluation systems. This behaviour is defined in the literature as organisational citizenship behaviour directed towards the environment. The term OCBE is defined by Daily et al. (2009) as discretionary acts by employees within the organisation not rewarded or required, that are directed towards environmental improvement. The authors furthermore postulate the importance of identifying the influencing factors that lead to OCBE as this will be the key in ensuring successful EMS implementation.

Daily et al. (2009), identify the following as key influencing factors towards OCBE: organisational commitment; environmental concern; perceived top management support for environmental commitments and perceived corporate social performance. The relationship between these key influencing factors, OCBE and environmental performance is illustrated in their OCBE theoretical model, depicted in figure 1.

Figure 1: OCBE- Model
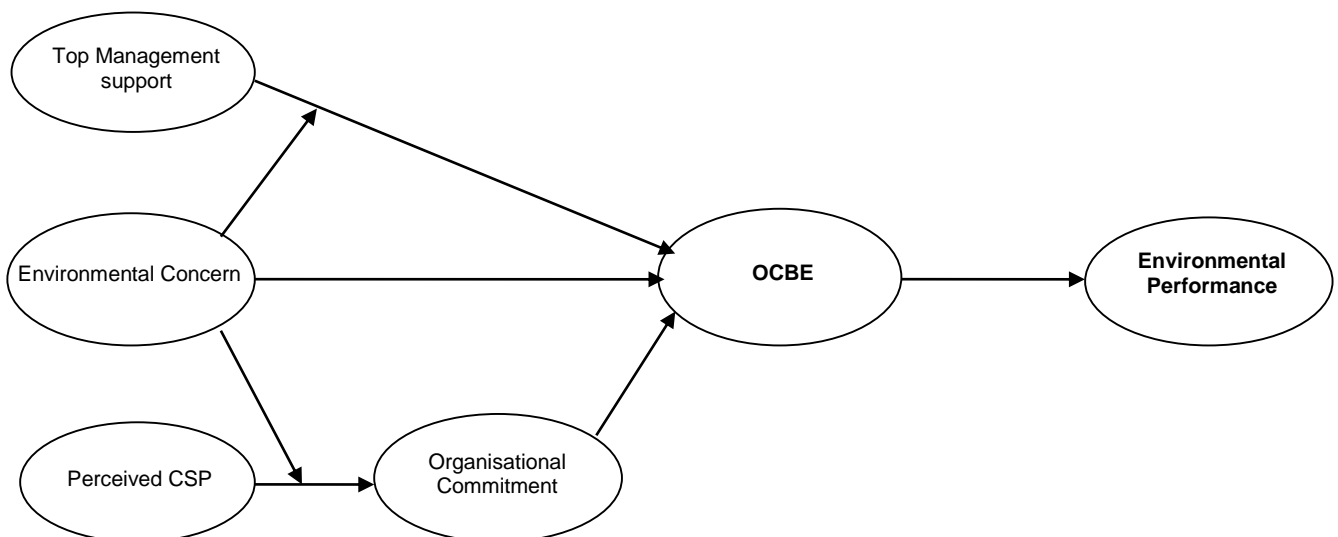
Adapted from Daily et al. (2009)

a) Environmental Concern

Daily et al. (2009) are of the opinion that an individual's environmental concern is the strongest indicator of his or her tendency to engage in OBCE. The authors use the definition given by Schultz (2000, p.391) to define environmental concern: "environmental concern is linked to the degree to which people view themselves as part of the natural environment". Consequently, Daily et al. (2009) claim that individuals with a deep sense of environmental concern are likely to transfer their environmentally friendly actions into the workplace in the form of OCBEs.

Based on the authors' postulations above, does it mean then that the inverse is also likely, i.e. people who do not have an internal sense of obligation towards the environment will likely not behave in an environmentally friendly manner? Evidence in the literature exist to positively confirm this question raised above. Brewer and Stern (2005, p 10788) emphasises: "People who do not see connections between their behaviour and such consequences or who believe that their actions are so insignificant in the scheme of things as not to matter will not be motivated to act by an internalized sense of obligation." These authors' assertions might therefore indicate that organisations should aim to make their employees aware of the possible consequences their behaviour might lead to and in return influence individual behaviour towards environmentally friendly or conscious deeds.

Similarly, Van der Werff, Steg & Keizer (2013) in their research findings suggest that organisations should focus on initiatives that aim to strengthen environmental self-identity among individual employees. They postulate that these initiatives may be a cost-effective way to promote pro-environmental actions, as people with a strong environmental self-identity are likely to act in an environmentally-friendly manner without an external incentive to do so. Other research in the environmental domain concerning self-identity showed that one's self-identity, which is the label one uses to describe oneself (Cook et al., 2002), is an important predictor of environmental actions. From the authors' discussions highlighted above, it can be deduced that people with a strong environmental self-identity should more strongly see themselves as an environmentally-friendly person and are more likely to act pro-environmentally

than those with a weak environmental self-identity (Whitmarsh & O'Neill, 2010; Gatersleben et al., 2012; Nigbur et al., 2010; Fielding et al., 2008).

b) Organisational Commitment

Organisational commitment as defined by Daily et al. (2009), refers to the relative strength of an individual's identification with and involvement in a particular organisation. They therefore believe that employees who are more committed to an organisation and who feel that the organisation contributes to and supports them in their environmental efforts should in return remain focused on environmental initiatives.

Other environmental management literature suggests that commitment from employees across all organisational levels is necessary for sustainability (Cramer & Roes, 1993; Zutshi & Sohal, 2003). Based on the results of a survey conducted by Paillé, Boiral & Chen (2014), employees appear more inclined to commit individually and voluntarily to environmental objectives when organizations show commitment through employee value propositions and employee support initiatives.

c) Perceived Corporate Social Performance (CSP)

CSP is concerned with treating stakeholders of firms ethically or in a socially responsible manner. While an organization consists of both internal and external stakeholders, the aim of social responsibility is to enhance standards of living while preserving corporate profitability and meeting expectations for all stakeholders. Drucker (1974) stated:

> *"Business management must always, in every decision and action, put economic performance first. It can justify its existence and its authority only by the economic results it produces. A business or a management has failed if it fails to produce economic results."*

When considering the impact of CSP on individual level behaviour, important consideration has to be given to Social Identity Theory (SIT). As proposed by theorists

(Ellemers et al., 1999, Tajfel & Turner, 1979, 1985; Turner, 1982) the core concept of SIT refers to how people perceive themselves to identify with a particular social group which should then shape their inclination to behave in terms of their group membership. Social (organizational) identification has been defined as: "the perception of oneness with or belongingness to some human aggregation'' (Ashforth & Mael, 1989 p 234). This occurs when a person integrates his/her beliefs about his/her organization into their own or self-identity (Pratt, 1998). An alternative approach views identification as a process of self-definition and defines it as: ''the cognitive connection between the definition of an organization and the definition a person applies to him- or herself'' (Dutton et al., 1994 p 76).Tyler and Blader (2003) argue that people should become more psychologically engaged with an organization, to the extent that their membership in the organization contributes to a positive social identity. They claim that the extent to which people derive pride from their organization as well as receive respect within their organization, determines the degree to which their organizational membership contributes to a positive identity. Pride refers to the conviction that the organization is positively valued, whereas respect denotes the belief that the self is valued as a member of the organization (Tyler & Blader, 2003). Thus, pride and respect should induce a sense of commitment among employees to an organization (Tyler, 1999).

Motivation is another important concept to consider when investigating how CSP can lead to changes in employee behaviour. Earlier research conducted on motivation suggests motivation represents the psychological process which determines a willingness to exert high levels of effort, arousal, direction and persistence to reach goals through voluntary actions in order to satisfy needs (Maslow, 1954; Mitchell, 1982; Robbins & Pearce, 1993). Moreover, motivation is: "an energizing force that induces action'' (Locke, 1997 p 102). According to Locke two questions serve as the foundation of motivation: ''Why am I doing this?'' and 'What do I hope to achieve?''

It was found some psychologists postulate that work effort reflects motivation and theories of motivation can be viewed as theories of efforts (Goldsmith et al., 2000). Therefore, motivated employees should be driven more strongly to achieve outstanding results in their work, even if fuelled by factors such as compensation and fear of unemployment (Shapiro & Stiglitz, 1984; Yellen, 1984). Compensation may be

expressed in terms of monetary factors such as pay and bonuses, or in emotional ways, in the form of compliments, personal feelings of belonging or positive affect following prosocial behaviour. Employee behaviour in CSP organizational initiatives underlines a specific motivation to participate and contribute to these activities. As a result, the process of being involved in CSP activities should have a reciprocal effect on the general level of employee motivation (Mozes, Josman & Yaniv, 2011).

Although overall little literature exist which specifically examine corporate social performance (CSP) and how it affects employee behaviour (Collier & Esteban, 2007), Peterson (2004) found that employees' perceptions of an organisation's social performance were strongly related to their organisational commitment. As discussed above, organisational commitment should lead to employees exerting extra effort into work tasks. Similarly, Daily et al. (2009) assert that this relationship will uphold in the context of their model, as they believe the more socially responsible an employee perceives the organisation to be, the greater the commitment in theory.

d) Perceived Top Management Support for Environmental Efforts

Significant evidence in the literature exists supporting the assertions made by Daily et al. (2009) with regards to the link between perceived top management support for environmental efforts and pro environmental behaviour. For example, Ramus (2001), Ramus and Steger (2000) and Zutshi and Sohal (2003) highlighted the importance of managerial support in environmental performance. In particular, Zutshi and Sohal indicated that employees were more likely to be committed to environmental initiatives when top management guided and supported their efforts. Similarly, Ramus and Steger (2000) showed how employees were more likely to promote pro environmental initiatives in the company if they perceived strong supervisory support toward environmental improvement activities versus support in general management activities. In summary, literature supports the opinion of Daily et al. (2009) that employees seemed to be less interested in pursuing environmentally friendly objectives if top management did not generate adequate support toward attaining those objectives.

Two other significant findings in the literature pertaining to managerial support and employee behaviour became evident. Results from a survey conducted with 407 employees from several organizations suggest that an employee is more likely to make extra environmental efforts if he/she perceives that the organization supports his/her supervisor by granting him/her the decision-making latitude and necessary resources to engage in pro-environmental behaviour (Paillé, Boiral & Chen, 2013)

The literature further provides reference to how the social learning theory notion of vicarious learning through modelling can be linked to perceived top management support and how this can clarify the phenomenon of behavioural change in organisations. According to Manz and Sims (1981), vicarious learning encompasses attentional, retention, motor reproduction and motivational processes. They are of the opinion if any of these processes is lacking or impaired, the learner is less likely to perform an observed behaviour. Furthermore their findings suggest that irrespective of whether or not a model is attractive, competent or successful, it should still contribute to the overall probability of that model's behaviour being imitated by others. Managers can therefore use modelling effectively to enhance the achievement of organizational and personal goals (Manz & Sims, 1981).

e) Environmental Performance

Daily et al. (2009) in their model are of the opinion that employees who go above and beyond their call of duty to assist co-workers in environmental efforts, i.e. OCBE, will help attain the environmental objectives of an organisation. Therefore, the authors postulate that 'helping' behaviour directed specifically towards the improvement and sustainment of the environment should promote environmental performance as a result. Daily et al. (2009) emphasise the increase in pressure faced by organisations to take proactive steps towards improving the environment. They moreover argue that OCBE exists and that OCBE positively relate to environmental performance. In their view, the above mentioned factors are critical in stimulating OCBE in employees and as a result are vital in the achievement of environmental performance. They view their conceptual model as the first step towards validating the concept of OCBE.

2.3.2) Additional factors found to influence pro-environmental behaviour

Over and above the antecedents to OCBE discussed above, literature has provided evidence of other factors that could potentially facilitate or constrain pro-environmental or green behaviour. Some of these factors' impact on pro-environmental behaviour can be seen as mutually exclusive to those identified by Daily et al. and others' as complimenting factors to the identified framework. Within this section, these factors will be highlighted, as they were argued by the respective authors, for the purpose of identifying the link or relationship to the antecedents of OCBE as pointed out by Daily et al. in their theoretical model.

a) Leadership

The discussion surrounding the effect of leadership influencing people to engage in environmentally friendly behaviours, according to literature, is critical. Leaders' environmental descriptive norms and the leadership and pro-environmental behaviours they enact, play an important role in the greening of organizations (Robertson & Barling, 2013). Some authors argue that leadership in organizations influence a range of traditional organizational outcomes, such as employee attitudes, employee commitment and organizational and financial performance (Barling, Christie, & Hoption, 2010), as well as diverse outcomes such as safety performance (Barling, Loughlin, & Kelloway, 2002) and environmental performance (Ramus & Steger, 2000).

Moreover, according to empirical evidence from a study conducted by Robertson and Barling (2013), the greening of organizations can be enhanced through leaders' influence and application of environmentally-specific situational as well as transformational leadership styles. From the results of their quantitative study, they have drawn the conclusion that leaders' environmental transformational leadership was associated with subordinates' harmonious passion for the environment through behavioural modelling. Moreover, according to Judge and Piccolo (2004), transactional leadership has become the most widely studied of all leadership theories

and has been shown to influence diverse behaviours. Some authors have also found transactional leadership, if consistently and influentially applied, to influence environmental sustainability within organizations (Robertson & Barling, 2013). It was however found within the literature that this type of leadership should be carefully trained and organisations should encourage the implementation of leadership development initiatives with the aim of influencing behaviours and employees to respond and change accordingly (Bandura, 1977), hence contributing to the greening of organizations.

b) Different generations in the workplace

Mixed results regarding the relationship between people's age and pro-environmental behaviour have been reported (Scott & Willits 1994; Stern et al. 1995; Tindall et al. 2003). Recent studies found that more educated people, younger people and females were the most likely to engage in pro-environmental behaviour (Hong 2006; Gong & Lei 2007). However, most of these findings were obtained from bivariate analyses that did not control for correlations among attitudinal and socio-demographic variables. Generally, based on the outcomes of this literature review, the impact of age and generations on pro-environmental behaviour seems to be scarce.

c) Education and exposure

According to literature, an individual's level of education and exposure to environmental concerns have a drastic impact on whether or not he/she will engage in pro-environmental behaviours. As postulated by Chen et al, (2011), people who are more educated are more likely to engage in pro-environmental behaviour because they typically have been exposed to more information about environmental degradation, environmental greening and pro-environmental initiatives either through schooling or other formal education (Scott & Willits 1994).

One is unlikely to knowingly be concerned about the environment or deliberately act in pro-environmental ways if one knows nothing about the problem or potential positive actions. These two factors were among the strongest predictors of responsible

environmental behaviour in Hines, Hungerford and Tomera's classic meta-analysis of 315 studies (1987). A British study found that the best discriminator between environmentally concerned and indifferent teens was the amount of environmental knowledge about specific issues they claimed to have, although concerned teens also had more scientific knowledge than unconcerned teens (Lyons & Breakwell, 1994). As cited by Robelia and Murphy (2012), a recent summary of 15 knowledge surveys in the U.S. found an increasingly high level of knowledge about some environmental issues (e.g. what renewable resources are, where garbage goes, what causes habitat destruction), but discouraging levels of knowledge about others issues (e.g., climate change, energy production and water quality). The authors indicate how making informed pro-environmental choices might be difficult if someone has limited or no knowledge on the subject. The opportunity lies within the view that correct knowledge has been shown to predict behaviour (Levine & Strube, 2012). Further evidence suggests how even self-reported knowledge, even if inaccurate, seems to predict more pro-environmental behaviour (Fielding & Head, 2012).

According to results and assertions within the literature, education is also an important issue central to pro-environmental behaviour. In several countries, individuals with more education in general are more concerned about the environment (Arcury & Christianson, 1993; Chanda, 1999; Hsu & Rothe, 1996; Klineberg, McKeever, & Rothenbach, 1998; Ostman & Parker, 1987), although a study in Norway found the opposite (Grendstad & Wollebaek, 1998). More specifically however, education revolving around business (Synodinos, 1990) and technology subjects are less concerned with pro-environmental aspects than students enrolled in other disciplines (Tikka, Kuitnen, & Tynys, 2000). On the contrary, a study by Gifford, Hay and Boros (1982) students enrolled in a Canadian university environmental education program were found to have significantly more environmental knowledge, verbal commitment and actual commitment than similar students who were not enrolled in the program. Similarly, a study by Siero, Bakker, Dekker and Van den Burg (1996) showed that the offering of information and learning opportunities about pro- environmental behaviour has the potential to change the attitude and behaviour of employees.

Moreover, according to Vicente-Molina, Fernández-Sáinz and Izagirre-Olaizola, (2013), education is one of the most important variables in explaining high levels of environmental concern and behaviour. Researchers suggest relatively higher educated individuals are more concerned about environmental quality and are more motivated to engage in environmentally responsible behaviour, since they are better aware of the potential impact of their actions (Lozano, 2011 & Olli et al., 2001). More simplistically put, highly educated individuals seem to possess a higher level of environmental knowledge, which is translated into pro-environmental behaviour (Schlegelmilch et al., 1996; Zilahy & Huisingh, 2009; Zsóka et al., 2012).

d) Basic needs fulfilment

Environmental literature indicates how the relationships between income, environmental attitudes and behaviour have become important topics in recent decades. Early research suggested a positive relationship between people's income and pro-environmental attitudes and behaviour. This was mainly because of the perception of environmental quality being a luxury item for which people have more degrees of freedom to emphasize when their material needs are well satisfied (Van Liere & Dunlap 1980; Scott & Willits 1994). However, findings also suggests that citizens of poorer countries may have similar or even stronger and more positive pro-environmental attitudes (Brechin & Kempton 1994; Dunlap & Mertig 1995; Brechin 1999), and may be willing to make similar or larger economic sacrifices for environmental protection. This can mainly be attributed to the likelihood of them having had direct experiences with the consequences of environmental degradation (Dunlap & York 2008).

For instance, environmental concern is often concerned as a higher order concern in terms of Maslow's hierarchy of needs (Maslow et al., 1970; Fransson & Garling, 1999), whereby primary or more basic needs such as food and shelter have to be satisfied before higher order needs become important. From this backdrop, environmental concern can be identified as a need only or mostly relevant exclusive to high income groups.

e) Incentives and rewards

Rewards seem to have a positive effect on pro-environmental behaviours. Studies report significant differences between households who have received a reward and those who had not (Winett, Kagel, Battalio, & Winkler, 1978). Results of several studies (McLelland & Cook, 1980; Slavin, Wodanski, & Blackburn, 1981; Thogersen & Moller, 2008) suggest however that the effect of rewards is rather short lived. Rewards interventions appear to be effective, but there is some indication of this effect disappearing as soon as the reward is discontinued. Despite these findings, the impact of reward on behaviour in organisations, especially when linked to pro-environmental initiatives, seems to be scarce.

The next chapter outlines the research design utilised in this study together with the methodological choice and strategies applicable to the study. The first section covers the research paradigm followed by the research approach and research setting. Thereafter, the research sample is discussed followed by data collection methods, strategies for quality research and ethical considerations.

CHAPTER 3: RESEARCH DESIGN

3.1 Paradigm/Philosophy

Research philosophy gives reference to how knowledge is developed and how the nature of knowledge is defined. The research philosophy acknowledges assumptions are made at every stage of research, and indicates how these assumptions shape the researcher's understanding of the research questions, the methodology used and the interpretation of the findings. Overall, the researcher's philosophy also reflects his/her assumptions of how they make sense of the world. The research strategy and methods will therefore always be underpinned by the researcher's philosophical beliefs. Moreover, the researcher therefore also makes a philosophical commitment through the choices of research strategy (Saunders et al., 2012).

Paradigms can be defined as systems of interrelated practice and thinking and typically cover the nature of the enquiry along three dimensions: ontology, epistemology, and methodology (Terre Blance, Durrheim, & Painter, 2007). For the purpose of this study, an Interpretivistic approach was followed. From an interpretivistic perspective the real world can be discovered by means of a systematic, interactive methodological approach. The researcher therefore interacted with the respondents in order to create reality through using quotes to represent and interpret the respondents' stories. As a result, an interprevistic approach in this study lead to a collaborative creation of knowledge by the viewer and the viewed. This type of research focuses on the way we as humans attempt to make sense of the world around us. The idea was therefore to understand and explain what is going on, rather than to change things already in existence (Saunders et al., 2012).

3.1.1) Ontology

Ontology is how the researcher views reality and how it is formed. The researcher is more inclined to the internal reality of internal experience, and therefore viewed reality by investigating the varying experiences, perceptions and viewpoints of the respondents on the subject under question in this study. The aim was to discover how

employees make sense of OCBE as well as what the factors are that could potentially contribute to employees engaging in OCBE within South African mining organisations.

3.1.2) Epistemology

The researcher's epistemology should be viewed in the light of having observer subjectivism. Subjectivism refers to the fact that social phenomena are created from the perceptions that participants have and display. According to Saunders et al. (2012), this could also refer to the reality that is occuring behind what is happening. The researcher's worldview is inclined towards a social constructivist view. From this standpoint, individuals are trying to understand the world they live in. They aim to give their own subjective meanings to experiences, objects and people. During this study, the aim was therefore to rely more on the participants' views of the subject under study. Subsequently, it is known that the researcher's participation in the study as well as interaction with the participants within their social context, influenced the researcher's understanding and analysis of the participants' experiences and perspectives on OCBE in their mining organisation. The researcher therefore acknowledges that his data originated from the interaction with the respondents and that this method is appropriate for the in-depth knowledge required to answer the research questions in this study.

The limitation to the research epistemology used in this study is that some objectivism might be lacking. Objectivism can be defined as "property of the procedures and methods used in science to obtain evidence" (Babbie & Mouton, 2010. p.12). Some argue that an objective process is one that reduces error in the process of research. However, through the establishment of rapport during interviews and the fact that the research was based on the best supporting evidence obtained through the application of rigorous methods and techniques (Babbie & Mouton, 2010), this limitation was mitigated.

3.2 Research Approach

The approach of this study was inductive. The purpose of an inductive approach was to become familiar with what is going on in the research situation (pro-environmental behaviours in mining organisations) with the goal of gaining a greater understanding of the research situation. The researcher aimed to make sense of the interview data that was recorded and collected. The results of the analysis lead to the formulation of a theory, which can also be labelled a conceptual framework. One of the main ideas here was to try and understand the way in which people perceived, interpret and experience their social world. Followers of induction sometimes accuse the followers of deduction that they do not allow for alternative explanations of what caused a situation (Saunders et al., 2012). In this study, an inductive approach lead the researcher to the formulation of a conceptual model that was compared to a theoretical model on pro-environmental behaviour, hence enabling the researcher to answer the research questions.

3.3 Methodological Choice and Research Strategy

The methodology of choice for this study is explorative and qualitative in nature. Qualitative research focuses on the relationship among variables and aims to explore and understand the meaning people give to a social or human problem. Explorative strategies give the researcher an opportunity to gain more in-depth insight and understanding over the research study. Some other characteristics of an explorative qualitative design include:

- Information needed is defined only loosely

- Analysis of primary data is qualitative

- Research sample is small and non-representative

Moreover, qualitative methods can be suitable to indicate how relevant constructs are from the perceptions of respondents in a specific social setting. This method also

provides detailed data at a more rapid pace and needs smaller samples (Randall et al., 2007).

The reason for adopting this methodology type, is justified by the fact that qualitative research provides a platform where employees could be interviewed in order to obtain the data necessary for this study. Due to this type of research being more interpretive, inductive and subjective, the qualitative method would complement this philosophical point of view. This design was chosen with the aim to explore the perceptions of employees on how they perceive OCBE with regards to the specific issues they feel elicit pro environmental behaviour. A qualitative design was primarily chosen because it allowed the researcher to explore behaviours, perspectives, feelings and experiences in depth as well as the quality and complexity of a situation through a holistic framework (Holloway & Wheeler, 2002).

It is acknowledged that the interview guide could have limited the input that the participants gave. This is due to the nature of the pre-set questions that might not have touched on a specific topic that the participant would have chosen to introduce. However, a combination of open ended and semi-structured questions were therefore used to ensure participants were guided to provide the information needed to answer the research questions as well as provide an opportunity for the candidate's own interpretation of facilitating OCBE factors in the SA mining industry.

The limitation of this methodology is a couple of factors could have had an influence of bias on the research findings. Firstly, the researcher's subjectivity, given his philosophical beliefs and world view, has to be taken into account when considering the outcomes of this study. Also, the background of the researcher should be taken into consideration, i.e. the researcher has extensive study experience in social sciences and generally believes and is focused on the development of people. Secondly, complex data analysis procedures might also have had a biased influence on how the data was analysed and discussed. Careful consideration was therefore given by the researcher to follow the standardised data analysis methods.

3.4 Research Setting

The research study was conducted at two mining organisations based in South Africa. Both organisations are global companies specialising in the mining of coal and other diverse minerals respectively. The purpose of including these companies as the target research settings is justified by the fact that environmental concern is of vital importance in mining organisations and based on the objectives of the study, these companies meet all of the requirements that should enable the researcher to answer the research questions.

3.5 Population and Sample

Due to the research design being qualitative, obtaining a completely representative sample is not of critical importance. However, according to Coyne (1997), the selection of a sampling technique has a major effect on the quality of the research. As the research was targeted at a particular group of individuals, namely HR professionals with experience in human behaviour and environmental strategy, a purposive non-probability sampling technique was utilised. Coyne suggests the use of purposive sampling when a research question is aimed at individuals who share a common knowledge/experience (1997). Therefore, the selection of a thorough sample, representing the required criteria, facilitated accurate and up-to-date perceptions of OCBE factors within South Africa.

According to Welman, Kruger and Mitchell (2005), purposive sampling is the most important form of non-probability sampling. This method of selecting the sample involves a deliberate approach by the researcher to obtain units of analysis (Welman *et al.,* 2005). However, this technique is not without its disadvantages. According to Welman *et al.* (2005), the primary problem with this form of sampling is that the sample is not always representative of the population. This is due to different researchers proceeding to find their own sample in different ways (Welman *et al.,* 2005). Cormack (2000) advises to use small selective samples in qualitative research due to the in-depth nature of the study and analysis of the data required. The sample therefore comprised of six Human Resource (HR) professionals according to the following inclusion and exclusion criteria.

Inclusion criteria:

- Minimum of six participants and a maximum of eight
- Minimum of 5 years work experience at mining organisations respectively (in order to obtained the opinions of those employees most experienced and exposed to the strategic environmental aspects of the mines)
- Employees from the mines' human resource departments. Most of the other workers are underground miners that might not have the insight and understanding of OCBE and the factors influencing such behaviours. Experienced HR professionals should elicit purposeful responses that would aid in answering the research questions.

Exclusion Criteria

- Any employee not working in the mines' human resource departments.
- Employees without a minimum of 5 years work experience in the mines' human resource departments.

3.6 Data Collection Methods

For the purpose of this qualitative study open-ended, semi-structured, in-depth interviews were used as data collection instruments. This method of data collection was used as it allowed participants to discuss their opinions, views and experiences in full detail as opposed to closed ended interviews that might have inhibited them to fully express their feelings and perceptions. Therefore, and also to remain in-line with the research design, individual semi-structured interviews were conducted to obtain the richest source of information from the individual participants. This form of data collection allowed for the best means of drawing a comprehensive and rich data set, and guaranteed the researcher the opportunity to probe and clarify any areas of uncertainty with the respondents by simply asking them.

DiCicco-Bloom and Crabtree (2006) note that when using semi-structured interviews researchers should decide upon a set of predetermined open ended questions that allow for the emergence of other questions resulting from the dialogue. Therefore, the use of in-depth semi-structured interviews gave the researcher the opportunity to probe into personal matters and identify themes that were derived from the meaning participants gave to their perceptions of experiences (DiCicco-Bloom & Crabtree, 2006). Careful consideration was also given on the structure and order of the questions to ensure they were focused around the research question. This enabled a reasonably homogenous sample to provide comparative information (DiCicco-Bloom & Crabtree, 2006).

Three probing strategies suggested by Maree (2007) were implemented during the interviews, namely; clarification probes, elaboration probes and detail-oriented probes. Clarification probes were used when the interviewer needed to align his/her understanding of the interviewee's response with the actual intended meaning of the answer. Clarification probes used were in-line with phrases such as: "So by that you mean to say....." (Maree, 2007). Elaboration probes were employed when the interviewer felt that the respondent needed to paint a bigger and clearer picture of the story told and further explain a certain answer given (Maree, 2007). The interviewer typically solicited this information by asking the respondent to give an example to back-up certain statements. The interviewer used detail-oriented probes in an attempt to understand the finer detail of the "who", "what" and "where" of the responses given (Maree, 2007).

The interview schedule comprised three primary sections. Firstly, an introduction used in the establishment of rapport. The introduction addressed topics covered during the interview. Secondly, the body comprised topics covered and possible questions that could be stated. Finally, a conclusion section was included in an attempt to summarise main topics discussed throughout the interview as well as thanking the participant for their participation.

3.7 Data Recording

The interviews were audio-taped, with permission from the participants, in order to ascertain an accurate account of the interview responses which was then replayed for analytical purposes. Anonymity and the right to withdraw was also assured before the commencement of each interview. Due to the technical nature of the audio recorder, it was not used exclusively, but rather as a means of support to the interviewer who recorded key concepts throughout the interview sessions. As potential malfunction of the audio recorder and subsequent loss of critical information would be a risk too great to bear, such notes also facilitated better understanding and conceptualisation of factors eliciting OCBE behaviours.

3.8 Data Analysis

The purpose of data analysis is to organise, provide structure to and elicit meaning from research data (Polit & Beck, 2008). During this study verbatim data was transcribed through drafting interview transcripts. Transcriptions of the interviews were analysed by utilising the software programme called Atlas ti, which reduced the data by categorising and identifying similar themes. This process allowed the researcher to interpret the findings more easily.

During data analysis, the process of thematic analysis was used to analyse the data. From a theoretical viewpoint, the different phases of thematic analysis was followed as described by Braun and Clarke (2006). The process entailed the following phases:

1. Familiarisation with the data throughout the transcribing process, noting and recognising themes that correspond and emerge.
2. Identifying generations of codes by which data can be compartmentalised into relevant data sets
3. Theme identification from the data sets that emerged from the coding process.
4. Creation of a table of the items and verbatim which were coded according to the higher order themes.
5. Naming and defining the higher- and lower order themes (selective and axial coding)

6. Using the themes as headings the analysis and discussion of the data continued.

Some of the advantages identified by Braun and Clarke (2006) concerning thematic analysis was of particular applicability in this study. These included:

a) Simplifies summary of large amount data. Particularly helpful when dealing with transcriptions

b) Differences and similarities are highlighted throughout the dataset which simplifies analysis.

3.9 Strategies to ensure quality research

The notion of transparency is the over-arching concern in establishing the quality of qualitative research. At its most basic, transparency is the benchmark for the presentation and dissemination of findings, i.e. the need to be explicit, clear and open about the assumptions made and the methods and procedures used. In other words, researchers need to be involved in the study in order to ensure the trustworthiness and quality of data (Maree, 2007). Trustworthiness according to Creswell and Miller (2000) is vitally important when conducting a qualitative research study. Consequently, the researcher made use of consistency checks in order to ensure trustworthiness of the data that was analysed. Consistency checks entailed initial separate coding of transcriptions followed by compared coding between different interviews.

The credibility of any qualitative study lays in the transparency of its specific paradigm assumptions (Maree, 2007). According to Wellman and Kruger (2007) planning, designing and carrying out qualitative research must be a conscious examination of research strategies, selection of participants, and decisions made in collecting and interpreting the data. The essence here is on making explicit and gain consensus on the choices, decisions, and justifications made. In this study, credibility checks were carried out, which entailed member where the transcripts were submitted to the research participants for verification and correction of any factual errors. Moreover, the researcher clearly described every step of the research in order to clarify what was completed and to confirm that the process was carried out correctly and in an unbiased manner.

3.10 Ethical Considerations

Every research study presents numerous ethical dilemmas which must be identified and addressed before the start of the study in order to protect all participants from potential harm. The following four ethical principles were adhered to throughout the study that ensured no harm was caused to any of the participants.

a) Beneficence and Non- maleficence

The findings of the study provided benefits and not harm to any of the participants and society. This study aimed to contribute to the understanding of determinants of OCBE in mining organisations in South Africa. The confidentiality and privacy of participants were maintained at all times. No names were recorded in the interview transcription process, therefore fostering the anonymity of the employees participating in the study.

b) Autonomy

The human right of free choice was respected through ensuring informed consent was obtained before each interview was conducted. All participants were furthermore notified of the option to withdraw from the research at any time without repercussions or negative consequences.

c) Justice

All of the findings and results obtained from the study were based on actual stated facts in the interviews. No false or misleading information was included in the final report.

Ethical dilemmas can arise at any given point in a research study. The researcher therefore ensured, as far possible, the identification, prevention and review of any issues prior, during and after the research study.

CHAPTER 4:   DATA ANALYSIS AND RESULTS

This chapter presents an analysis of the research results. The main focus during data analysis was to organise, provide structure and elicit meaning from the research data (Polit & Beck, 2008). Terre Blance et al. (2006) emphasise that qualitative research has no clear point where data collection stops and analysis begins. It is a matter of mainly collecting data in the beginning and mainly analysing towards the end. A very important aspect of the analysis is to stay close to the data and interpret it from an empathic understanding, but still place it in perspective (Terre Blance et al., 2006).

The main objective of the semi-structured interviews was to enable the researcher to explore participant perceptions on the main themes or constructs entrenched in the OCBE model proposed by Daily et al. (2009). However, a strong focus was also directed on all of the components that have arisen from these themes as well as additional components or constructs that might impact on pro-environmental behaviour. This was achieved through the utilisation of probing techniques and follow-up questions. Other open-ended questions were also used, more specifically at the latter stages of the interviews, to give the interviewees the opportunity to bring forward their own ideas and viewpoints (Terre Blance et al., 2006).

During thematic analysis the Atlas.ti programme was used to code the data transcriptions and deriving certain identified themes. Specific quotes were assigned to the interview data to highlight text that were deemed pertinent and significant given the context of the study. Text quotations were consolidated and labelled with different codes, according to shared information which led to creative conceptualisation. Conceptual models indicated the relationship between the different codes and made it possible to reason logically around the different themes (Terre Blance et al., 2006).

Section 4.1 summarises information about the interview respondents that made up the research sample. Section 4.2 describes the research questions used during the interviews and section 4.3 provides a discussion on the analysis of the results.

4.1 Sample

A descriptive summary of the participants chosen for the semi-structured, face-to-face, interactive interviews is outlined in the table below.

Table 1: Demographical Information of Participants

Participant	Age	Race/Gender	Job Title	Years in Industry
1	44	Indian/Male	Vice President HR Africa	18 years
2	40	White/Male	General Manager HR Africa	26 years
3	55	Black/Female	HR Manager South African Operation	5 years
4	52	White/Male	Senior HR Manager	18 years
5	59	White/Male	Group Manager: Talent and Learning	27 years
6	46	White/Female	Senior HR Manager	15 years

The sample comprised six participants with ages ranging between forty and fifty nine. All six participants have extensive experience within a human resource management position in the mining industry. Their years of experience in the South African mining industry ranges between five and twenty-seven years. Furthermore, with regards to gender and race, the sample comprised three White males, one African female, one White female and one Indian male.

4.2 Interview questions

Although the OCBE themes were used as the basis during questioning in the semi-structured interviews, many open ended and probing techniques were used to give the participants opportunity to elaborate and share their own personal beliefs and thoughts. Table 2 shows the research questions, interview questions, and the related themes.

Table 2: Research questions, interview questions and related themes (constructs)

Research Question	Interview Questions	OCBE Theme
How important do HR Managers in SA mining organisation perceive **environmental concern** to be towards facilitating pro-environmental behaviour among individual employees?	• *How do you feel being aware" (internal concern) of the impact you have on the environment will influence employee behaviour in favour of the environment within a SA mining context? (possible examples).* • *What is the relevance of environmental concern on employee behaviour in SA mining organisations?*	Environmental concern
How relevant do HR Managers in South African mining organisations view **organisational commitment** as a factor facilitating pro-environmental behaviour among employees?	• *What impact do you feel will organisational commitment have on green behaviour in SA mining organisations?*	Organisational commitment
What role does **perceived corporate social performance** play in facilitating pro-environmental behaviour among employees in mining organisations in South-Africa?	• *How important do you feel corporate social performance might be in having an influence on employee behaviour in SA mining organisations?*	Perceived CSP
How important is **perceived top management support** as a factor facilitating pro-environmental behaviour among employees in mining organisations in South-Africa?	• *What impact do you feel can it have on employees and their behaviour in SA mining organisations if they know, believe and perceive top management*	Perceived to management support

	to be supportive of pro-environmental behaviour and initiatives?	
	• *Do you feel this might have an influence on the value they attach to environmental preservation?*	
What other factors might facilitate employees to engage in pro-environmental behaviour in mining organisations in South Africa?	• *Which organisational factors do you feel will motivate employees in SA mining organisations to engage in voluntary pro-environmental behaviours?*	Other factors

4.3 Data analysis

The interviews were recorded and transcribed, resulting in raw data that were critically analysed. Due to the study focusing on the relevance of the OCBE factors in SA mining organisations, data was purposefully coded to include these OCBE factors as selective coding themes. Additional selective coding themes, with shared meaning and a specific relationship to the respective OCBE themes, were also identified. Table 3 outlines the open codes identified during analysis that were coded into more specific axial codes against the respective selective coding themes.

Table 3: Identified coding themes

Open Coding	Axial Coding	Selective Themed Coding
• Roles and responsibilities • People at different levels	• History of SA mining industry • Generations	Environmental Concern

• Basic needs not in place • Accept responsibility • Being conscious • Beliefs and characteristics • Habits • Past behaviour • No care attitude • Nobody can force you • You have to believe it • Intrinsic sensitivity • Belief system, attitude and motivation • Attractive culture • Generation Y • Maslouw hierarchy of needs	• Fulfilment of basic needs • Locus of control	
• Consistently drive culture • Associating yourself • Showing care • Getting people engaged • Investing in the hearts and minds	• Conducive organisational culture	Organisational Commitment
Open Coding	**Axial Coding**	**Selective Themed Coding**
• Perceptions through manager • People emulate people • Rewards • Drive from the top • Be visible	• Visible support • Recognition • Behavioural modelling	Perceived top management support

• People who are really poor • Not leading ethically • In-tune with community • Uphold good community behaviour • Impact on social life • People involved • Using money responsibly	• Psychological impact • Profit focus	Perceived CSP
• Communicate and engage • Impact of forced actions • Harts and mind approaches • Setting the example	• Inclusive approach	Compliance
• Positive focus • More of leadership • Proactive steps • Guiding individuals • Keeping people hopeful	• Situational approach	Leadership
Open Coding	**Axial Coding**	**Selective Themed Coding**
• Background of individuals • Increase general awareness • Education • Exposure	• Education levels • Organisational effort	Environmental exposure and awareness

• The way you were brought up • Role specific		
• Punitive action positive • Punitive action negative • See the benefits • What is in it for me • Reward good behaviour • Incentives • Short-term • Financial • What is in it for me	Consequential management Reward	Incentives

4.4 Results

During the coding and data analysis phase of the study the following eight selective coding themes were identified:

- Environmental concern
- Organisational commitment
- Perceived top management support
- Perceived CSP
- Compliance
- Leadership
- Environmental exposure and awareness
- Incentives

Figure 2 illustrates the selective coding themes' frequency of occurrence as identified in the research results i.e. the amount (%) of research participants recognising the respective theme as important issues facilitating OCBE.

Figure 2: Relevance of OCBE factors and additional factors
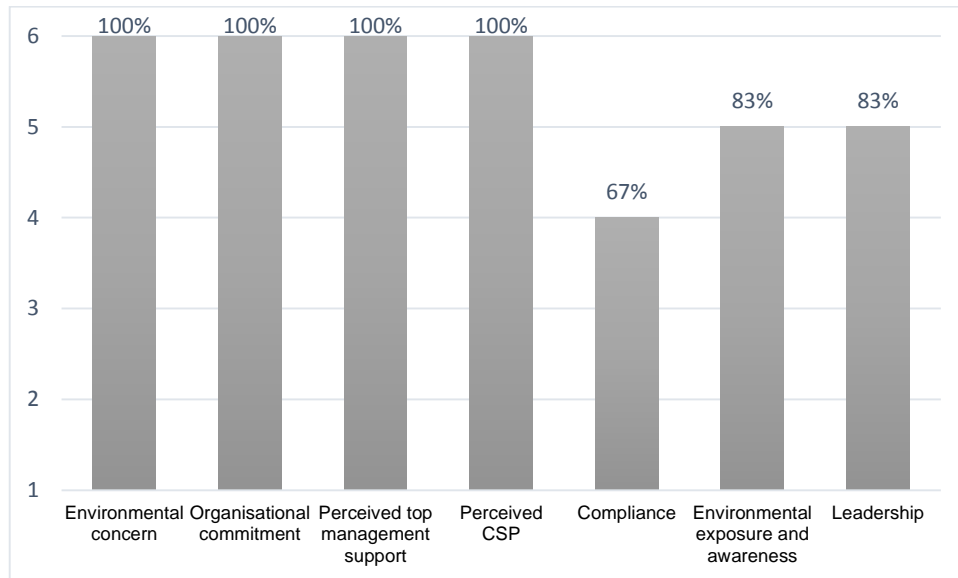
4.4.1) Environmental Concern

This selective coding theme relates to how employees' internal commitment to the environment should facilitate pro-environmental behaviour. As illustrated in Figure 1, all of the participants identified and confirmed the importance of environmental concern as a facilitating factor that will direct employee behaviour towards pro-environmental acts in SA mining organisations.

Examples of participants' response in this regard were:

"Why do we put those bins there? We do it more because we have to. It like a speed cop standing there to enforce it but in our hearts and minds if we are not there we will exceed it."

"Absolutely, I mean it goes without saying. Do you go out and sell something to the world if you do not believe in it no."

"You have that kind of beliefs and characteristics. You will definitely influence the organization. You will come up with suggestions and say I think we can do it better this

way. And you as an individual can bring that awareness because you already have it in you and ja I think it is really the individual that has the biggest influence in terms of making sure that organizations do the right thing and take care of the environment."

"Nobody can force you. If you don't believe in it, it's not going to happen."

"It must be a sort of altruistic drive. This is what I want to give. I want to give back…"

"…should you value that you will think twice before you engage in an activity that could possibly harm the environment."

Within this selective coding theme participants mentioned and discussed four main factors that will have an impact on employees' environmental concern. These were grouped into four axial themes (sub-themes) namely:

- History of SA mining industry
- Generations
- Fulfilment of basic needs
- Locus of control

Figure 3 depicts the frequency of the sub-themes, impacting on environmental concern, mentioned by the participants:

Figure 3: Factors influencing environmental concern
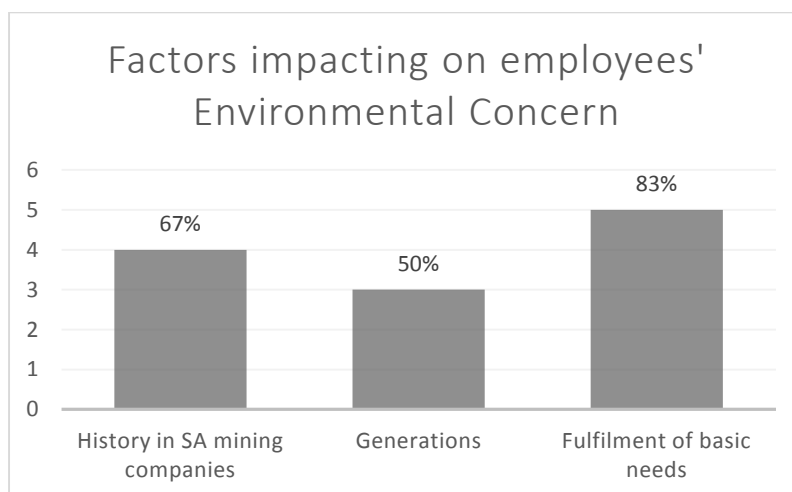
a) History of SA mining organisations

This axial coding theme (sub-theme) gives reference to the impact of past behaviour, benefits and habits entrenched in the culture of mining companies during previous years. Four out of the six participants (67%), directly and indirectly made reference to the following open coding themes: habits, past behaviour, benefits and no care attitudes from mining companies.

Examples of participants' responses in this regard were:

"I would say more in the South African context. And in mining per se. I mean historically, mining houses will go to an environment, and mine and they would not care about taking of the environment or how it affects the environment…"

"Remember back to the mining industry, you are used to receive a house with water and lights. So what happens? The lights burn day and night, the lawns are lush and green. That is the culture where mining in South Africa comes from."

"They would go there, dig a whole and just leave…Not thinking about the community"

"So it's like big brother comes and gives you a geyser. It's not yet like we go that those individuals and say do you accept now the responsibility of environmental greening…"

b) Generations

This sub theme relates to how participants discussed the potential behavioural inclinations of employees from different generations in the workplace and the impact it might have on their behaviour towards the environment.

According to Figure 3, three out of the six participants (50%) recognised the impact that different generations, currently in the workplace, might have on their likelihood to

engage in pro-environmental behaviour. Two open code themes were combined to support this axial code, i.e. generation Y and disposable generation.

Despite three participants mentioning a positive relationship between younger generations and pro-environmental behaviour, one of the three participants also identified a potential negative relationship. This participant mentioned that younger generations can also be viewed as the disposable generations by not using and re-using resources, instead disposing of it e.g. cell phones. Other participants did however not support these assertions.

Examples of participants' responses within this sub-theme were:

"The face of the shareholder is changing. The younger people investing in the stock exchange come with a completely different mind-set. And their mind-set is to protect the environment, don't harm the animals....they… they blame the older people for mistreating mother earth."

"The point I am making is that the generations have changed. Where naught was naught, point being is not naught anymore. The mind-set is different. They are more animal lovers they are more for the environment, they care much more than what we do. They really really care… they do."

"I think it is an age issue, I think there is different generations that we have in the workplace that plays a major role. I really think so"

"Yeah they are certainly more aware about the environment then older generations but they are also known as the disposable generation."

c) Fulfilment of basic needs

This sub theme relates to participants' feelings and assertions towards the impact of basic needs fulfilment and the impact it might have on employees behaving or acting in a pro-environmental manner.

During the analysis of the data, the following open codes were combined to identify this sub-theme: Maslow hierarchy of needs, basic needs not in place and employees at different levels in a mining company. As depicted in Figure 2, five out of the six participants emphasised how the lack of basic needs might constrain employees from behaving or focusing on behaving environmentally friendly. The majority of the participants also mentioned how this is more evident among lower level employees. One of the participants directly emphasised how mining organisations should take ownership to ensure lower level employees' (miners) basic needs are in place.

The responses below are examples of participants' perceptions within this sub-theme:

"… it is not a priority in their life. Their priority is to put food on the table, it's a different issue. Whereas somebody else it's a priority to green the environment because all the basic factors have been taken care of."

"But those are the people who have basic factors in place. The others are like, hallo by 12 o'clock today I have nothing. Can you understand the difference?"

"…so why do people behave environmentally well? They are at a stage where they can. Why don't some people behave well environmentally? Not because they don't want to its just that it is not their priority."

"Maslow hierarchy of needs and if you just focus on that it will give you a number of initiatives and things that need to be in place."

"What people or employees want, they want to belong, and that is you belongingness in the work team or in the family, ok they want to be valued, recognised and appreciated. And I am saying this is the basics. Now if you if you want to "belong" how can you belong to a community, if you don't have drinking water, if you don't have toilet facilities, if you don't have food, if you don't have structure? How can you belong?"

"No ja if people are hungry it is not always sufficient to tell them just be eco-friendly or behave in a safe manner."

"I think yes sometimes because of circumstances, people are not always in a position to act, or it becomes a lower priority to act safely or to act in a zero harm way. It is typically the Maslow hierarchy of needs. So, I mean if you are hungry you are not going to certain safe behaviour. So I think human beings are human beings, but circumstances in which they operate might differ."

"You need to address the basic needs of your employees. Going beyond the basic needs in an environment and social responsibility, whilst your employees are perceiving you are not meeting their basic needs, could be dangerous. So ja I think it is a balance but I don't think there is a recipe to get to that balance."

4.4.2) Organisational commitment

This selective coding theme relates to how employees' commitment to the organisation will facilitate them to engage in pro-environmental behaviour. As depicted in Figure 1, all of the participants identified and confirmed the importance of organisational commitment as a facilitating factor that will direct employee behaviour towards pro-environmental acts in SA mining organisations.

Examples of participants' response in this regard were:

"…commitment leads to compliance."

"Yes I mean and remember you spend most of your alert hours you spend here, so if you are committed and the company can take steps for you to get exposed to these environmental concerns and how to combat it, it should definitely have a big impact."

"Well it can have a huge impact. It is not just about the behaviour of course, it's about getting people committed to the organisation."

"if employees value the company it will definitely facilitate engagement to pro-environmental behaviour."

Within this selective coding theme participants mentioned and discussed one main factor that will have an impact on employees' organisational commitment. This was grouped into an axial coding theme, i.e. conducive culture:

a) Conducive culture

This sub theme was identified through participants' emphasis on the important role an organisation's culture plays in getting employees committed. The following open codes were identified during the analysis of the data and were combined to construct this sub-theme: Consistently drive culture, associating yourself, showing care, getting people engaged and investing in the hearts and minds of your employees.

All of the participants indicated directly or indirectly that the culture instilled by an organisation will be critical on the engagement and commitment levels of employees. Examples of participants' responses within this sub-theme were:

"Is that not what we want? So if companies want commitment and change behaviour they have to change their culture"

"Showing care towards your people will make all the difference to get people engaged into a process."

"So what the company needs to do… is to keep on talking the language and showing commitment towards environmental responsibility"

"Definitely in has an impact. I mean if it is in our strategy it is what the organization believes in, and it is communicated constantly, it does impact on you know, the employees' commitment."

"…culture that is conducive to environmental preservation."

"…should be entrenched in spite of your culture of excellence."

"…where operational excellence is not only moving tonnage."

"…culture of caring for employees, we will care for the community as well. But if I see that my manager don't care for me that is where that disengagement happens."

4.4.3) Perceived top management support

This selective coding theme relates to how perceived top management support, from employees' perspectives, could facilitate them to engage in pro-environmental behaviour. As depicted in Figure 2, all of the participants identified and confirmed the importance of perceived top management support as a facilitating factor that should direct employee behaviour towards pro-environmental acts in SA mining organisations.

Examples of participants' responses in this regard were:

"Yes you have mentioned the top management and the need to drive it from the top. I think that is the very first thing that needs to happen."

"There needs to be a cause and effect understanding by all in terms of the use and reuse of resources. And it is not a once off thing...the CEO needs to continuously enforce it. "

"The issue is now to let this cascade through from top management to every "boss" in the company so that more employees' behaviours can be influenced in this way."

"…some background noise from an organisational or superior level then we might be moving in the right direction...."

Within this selective coding theme participants mentioned and discussed three main supporting factors that justify the importance of perceived top management support as a facilitator to pro-environmental behaviour in mining organisations in South Africa.

These factors were grouped into the following axial coding themes:
- Visible support
- Recognition
- Behavioural modelling

Figure 4 depicts the frequency of the axial coding themes, impacting on perceived top management support, mentioned by the participants:

Figure 4: Factors associated with perceived top management support
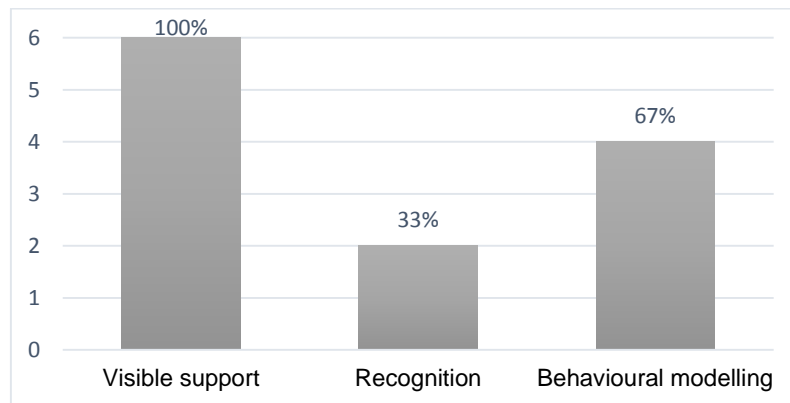
a) Visible support

This sub theme was identified through the emphasis participants placed on the impact visible senior management support has on employee-level behaviour. The following two open codes were identified during the analysis of the data and were combined to construct this sub-theme: Drive from the top and be visible.

As indicated in Figure 4, all of the participants asserted the important role of visible top management support when behaviour change wants to be achieved. Examples of participants' responses within this sub-theme were:

"…employees wants to see from top management that they buy in, they believe in this, they drive it, and they champion it."

"…if that if top management demonstrates visibility towards environmental preservation on a frequent basis you could expect to see a great improvement on individual level."

"Visible commitment from the top…"

<u>b) Recognition</u>

This axial coding theme concerns the impact that recognition given by top or senior management might have on employees. Two of the six participants (33%) mentioned that recognition will play an important role when considering the impact of top management support on employee behaviour change in favour of the environment. The open codes that were combined to identify this sub-theme were "reward" and "recognise behaviours".

Examples of participants' responses in this regard were:

"What message, how we are walking the extra mile to show that this is the correct behaviour. So you recognize those behaviours if they are good…"

"…if you give them recognition for achieving it…"

<u>c) Behavioural modelling</u>

This sub-theme was identified through the assertions made by participants regarding the construct of behavioural modelling. As depicted in Figure 4, 67% of the participants emphasised how employees will model the behaviour they observe from their managers.

The open codes that were used to construct this theme were "perceptions through manager" and "people emulate people". Examples of responses given by participants within this sub-theme were:

"…the experience of that company to the employee is seen through his manager."

"Yes yes yes it will it will. The reason being that people emulate people. People look at people as role models and may I remind you at the beginning I said that people look up to their leaders?

"Remember, people model behaviour and they will typically follow what their managers or top management are doing and focusing on."

"You know employees look up to their managers and they will act according to how the manager act. "

4.4.4) Perceived CSP

This selective coding theme was identified as it is also one of the antecedents to pro-environmental behaviour as identified by Daily et al in their theoretical model. This theme relates to how involved employees perceive the organisation to be in CSP initiatives and the reciprocal affect it will have on the employees to behave environmentally friendly. As depicted in Figure 2, all of the participants identified and confirmed the importance of perceived corporate social performance as a facilitating factor that will direct employee behaviour towards pro-environmental acts in SA mining organisations.

Examples of participants' responses in this regard were:

"Employees feel proud to be part of a company when they can "brag" about their "going green" or corporate social investment initiatives; they feel that they are part of a cause; fighting for something. It will impact positively on employees' behaviour."

"Then again if we explain to the employees exactly way the companies invest in the environment and we create that awareness…people will understand and model the behaviour as I explained earlier."

*"The community members know that *** was involved in greening and that has given them a sense of pride and belongingness why it is to belong to ***, because they could see the contribution and not only that, they experience the behaviour of the community."*

*"Yes it definitely links down. As matter of fact we measure our employees' responsiveness towards corporate social responsibility and *** role in it…So I mean*

they immediately pick it up when you are acting in a favourable way towards community upliftment and different programmes."

"…how long will it take to put a five km water pipe line to the village. That is all I ask. And tap them out and change their lives. So can we change behaviour? Off course we can"

"They will not realise that environmental initiatives are important because they won't see any contribution towards that."

*"Absolutely. Corporate social-responsibility or performance is a branding that is the first one, so people go into areas and they see a *** board, sponsored by *** and they know *** was involved in this building was erected and it gives them a sense of pride."*

"So now new shareholders, and the younger ones are going come up through the ranks, they are only going to invest in companies that are openly protecting the environment. If you are not responsible they are not going to give you your money."

Within this selective coding theme participants mentioned and discussed two main supporting factors that play a role in perceived CSP as a facilitator to pro-environmental behaviour in mining organisations in South Africa.

These factors were grouped into the following axial coding themes:

- Psychological impact
- Profit focus

a) Psychological impact

This sub-theme was identified through the assertions made by participants regarding the psychological impact of corporate social investment initiatives on employees. All of the participants recognised the psychological impact of corporate investment initiatives, especially when directed towards communities and to employees from local communities.

The open codes that were used to construct this theme were: People who are really poor; in-tune with community; uphold good community behaviour; impact on social life; people involved. Examples of responses given by participants within this sub-theme were:

"people who are really poor are totally welcoming these initiatives in their lost areas in this world because it will give them jobs, food and the basic entities that they are looking for. But you see consultation between mining companies, government and community are now there more so ever than previously."

"Uhm I mean all the birds downstream are dying because of all the oil you have spilled or whatever...and those things get to people."

"To our employees it is extremely important and they are very proud of it. You see remember that in the South African context, specially the mining context, which is greatly nowadays more in the rural areas, also in the rural areas there is always communities sitting in that areas. And those employees down to the bottom level come from that community."

"....so it's got a huge emotional impact."

b) <u>Profit focus</u>

This sub-theme was identified due to the emphasis participants placed on the positive and/or negative effect financial investments can have on communities and in-return individual behaviour.

The open codes that were used to construct this theme were: Impact on social life, people involved, using money responsibly. Examples of responses given by participants within this sub-theme were:

"…So if the company promotes and acts responsibly in a manner that is going to sustain and uphold good community behaviour then it is going to work in the favour of the company in the long run. And I do think there is a link between this and employee behaviour."

"First of all, a company cannot just make finances available but demonstrates that it is actually doing something. You know throwing a lot of money into environmental projects, can sometimes have the opposite effect. People say guys we are suffering in this community and I suffer to make ends meet. I am an employee of this company, they are not paying me, but they are willing to spend millions on this thing that I might not, might personally not value that high. So I think, once again, look for consistency. We look for more than lip service, throwing money alone is not good enough"

"Going beyond the basic needs in an environment and social responsibility, whilst your employees are perceiving you are not meeting their basic needs, could be dangerous. So ja I think it is a balance but I don't think there is a recipe to get to that balance."

"Then again if we explain to the employees exactly way the companies invest in the environment and we create that awareness…people will understand and model the behaviour as I explained earlier."

4.4.5) Compliance

This selective coding theme relates to how compliance, legislation and the enforcement of policies and procedures can impact employee level behaviour in favour of or against pro-environmental behaviour. As indicated in Figure 2, 67% of the participants identified and confirmed the importance of compliance as a facilitating factor that will direct employee behaviour towards pro-environmental acts in SA mining organisations.

Examples of participants' response in this regard were:

".. compliance, … explaining compliance requirements"

"I am convinced for I have seen changes in behaviour prior to implementing and post implementation. What it actually does, it focus your mind in having to understand your business processes. Because that come through the quality side and then you understand which policies and processes need to be in place to meet those regards."

"Where on the mine, there is no issues, it is not negotiable, and you will comply. That is it. It is legislation, it makes business sense. There is the plan, execute."

"I think if you make it part of an employee's goals and objectives; if you give them recognition for achieving it; a pro-environmental company policy will be extremely important…"

Within this selective coding theme participants mentioned and discussed potential risks associated with compliance should employees not be recognised, consulted and engaged in the process. These risks were grouped into an axial coding theme (sub-theme) indicated as:

- Inclusive approach

a) Inclusive approach

This sub-theme was identified by participant responses related to the potential negative impact compliance can have on individual-level behaviour should it not be accompanied by recognition, communication, consultation and engagement.

The open codes that were used to construct this theme were communicate; engage; impact of forced actions; 'hearts and minds' approaches and setting an example. Examples of responses given by participants within this sub-theme were:

"Then again, is compliance really the answer? Do you want someone to do it because he must or because he wants to? The latter is the sustainable option and the one which should lead to employee engagement and ultimate increased organisational performance."

"…the employees will follow, especially if they understand WHY the company embarked on certain journeys…"

"The question is, is it in the hearts and minds of the people and the answer is no. We would be lying if we say that that is what the ISO do, we do it because it enhances our business. We don't do it because it is the right thing to do. Yeah and you can state that openly...."

"…constant communication about the concept as well as feedback on the successful implementation of initiatives will be important…utilising "influencers" in the company to convince and facilitate engagement."

4.4.6) Leadership

This selective coding theme emphasises the importance of leadership, over and above support and management, to influence individual level behaviour towards adopting pro-environmental behaviour in SA mining organisations. As indicated in Figure 1, 83% of the participants identified and confirmed the importance of leadership as a facilitating factor that will direct employee behaviour towards pro-environmental actions in SA mining organisations.

Examples of participants' response in this regard were:

"Its leadership which can make the difference…"

"I would personally like to see more of our leadership be more involved."

"You need to lead by example…"

"Visible leadership…"

"Leadership in terms of example setting my others and especially management…"

Within this selective coding theme participants responses identified a number of factors that indicated the need for leadership to be situational and adjustable, given the need and audience. This lead to the identification of the axial code (sub-theme) namely:

- Situational approach

a) Situational approach

Three of the participants referred to the importance of leaders to apply situational tactics in order to effectively motivate behaviour and pave a positive outcome regarding the future.

The open codes that were used to construct this theme were: positive focus; proactive steps' situational leadership; guiding, pushing and pulling. Examples of responses given by participants within this sub-theme were:

"Oppositely if no one comes to you and say "well done"...Its leadership which can make the difference."

"…situational leadership is also important here because sometimes you will need to ask and sometimes you will need to guide individuals to get the influence across and only then should behaviour change…"

"The other thing is, that business cannot always be nice. There is hard days, but leadership must have the ability to adjust and keep people hopeful in terms of the future…"

4.4.7) Environmental awareness and exposure

This selective coding theme relates to the important role organisations should play in creating awareness and educating their employees on environmental preservation. This theme also relates to how environmental awareness and education could

facilitate employee behaviour to act pro-environmentally. As indicated in Figure 2, 83% of the participants identified and confirmed the importance of environmental exposure and awareness as a facilitating factor that will direct employee behaviour towards pro-environmental actions in SA mining organisations.

Two axial codes were identified from the participants' responses. These two axial codes are significant considerations in light of this selective coding theme and are:

- Education levels
- Organisational Effort

a) Educational levels

Four of the participants directly or indirectly emphasised the important consideration that should be given to employees' educational levels, as this could constrain lower level employees from engaging in voluntary pro-environmental behaviours. The open codes that were used to construct this theme were: background of individuals, level of education and the way you were brought up. Examples of responses given by participants within this sub-theme were:

"…there are different levels of education, and educationary experience and exposure ladder. So for somebody who is aware of the environment and who understands what is going on and who has a certain intellectual capability and that take care of these things will see to it that it's done. So you know we get good behaviour out of them…"

"…let's take somebody who is in the low level of education and exposure or who are economically inactive, for them they are living hand to mouth. It's a different concept all together for them. It could be lack of literacy rate…"

"To me it has to do with education as well."

"I believe it has to do with the way in which you were brought up in terms of education.

But where you do have a disadvantaged employees with regards to education, you just have a bigger responsibility…"

b) Organisational effort

Three of the participants gave reference to the importance of an organisation's efforts to create awareness around environmental management, environmental greening and pro-environmental behaviour. Two of the participants also emphasised how this becomes increasingly important in lower levels or operating functions within South African mining organisations.

The open codes that were used to construct this theme were: increased general awareness; exposure and role specific. Some of the responses given by participants within this sub-theme were:

"You know your general awareness is increased dramatically. And that is what we currently need in South Africa concerning environmental greening, we need awareness because people especially on the lower levels in mining organisations do not know what it is and why it is important."

"However in saying so the mining companies and their partners such as *** have acknowledged this shortcoming. So they have created in their organisations entities and people and resource that are dedicated to that, such as environmental officers, community liaison officers saying that they know the miners can't do it but we as company can in these roles so as I said, if you take role for role it differs but if you take the company or industry as a whole they are doing their fair share when compare to previously when it comes to environmental affairs."

"…awareness on recycling and other forms of pro-environmental behaviour. However I don't feel it translates yet to the operator on the ground adequately."

"Look there is definitely differences in somebody's behaviour working in an environmental section or function and those working in an operating section. The two

of them will not have the same focus on environmental aspects."

4.4.8) Rewards and Incentives

This selective coding theme emphasises how reward for good behaviour can play its part in influencing employees to adopt pro-environmental behaviour in SA mining organisations. As indicated in Figure 2, 83% of the participants identified and confirmed the importance of incentives as a facilitating factor that will direct employee behaviour towards pro-environmental actions in SA mining organisations.

Within this selective coding theme however, participants' responses elicited contrasting views suggesting a number of factors are creating some dynamic surrounding the impact of incentives on employee behaviour. This lead to the identification of two axial codes (sub-themes) namely:

- Consequence management
- Reward

a) Consequence management

Three of the participants emphasised the importance of engaging in consequence management in order to promote green behaviour. Two of the participants however also made reference to the possible effectiveness of negatively focused (punitive) consequence management and how it well help minimise unwanted behaviour. Conflicting perceptions were however observed regarding this topic.

The open codes that were used to construct this theme were: punitive positive; punitive negative; KPI; performance and consequential management. Examples of responses given by participants within this sub-theme were:

"So consequential management is very very important, meaning that in incentives which is a positive consequential. Also if there is no negative consequences for piggish behaviour it will be condoned."

"Absolutely, because if you look at currently our performance management process, EHS is one of the KPIs. And if you slot in environmental awareness and pro-behaviour, people will start focusing on that. No for sure."

"…it forms part of line manager's KPA's and KPI's as well as employees' KPI's and through performance management systems it becomes part of employees…"
"I strongly believe that we are focussing too strongly on punitive action…"

b) Reward

Four of the participants gave reference to the importance of rewarding efforts towards pro-environmental behaviour if it is to be facilitated and maintained. Three of the participants also emphasised the importance of ensuring the incentive is "low hanging" and short-term and not to reach out to employees financially. Another participant emphasised how important it is to consider the level of employee before an incentive strategy is chosen.

The open codes that were used to construct this theme were: incentives; short-term; financial and what is in it for me. Examples of responses given by participants within this sub-theme were:

"We need to incentivise them. If there is nothing in it for them they will not do it. They need to see the benefits."

"And another way that employee can be influenced I believe is through positive incentives for good behaviour."

"And yes unfortunately given our circumstances, what is in it for me will always be important."

"Or you have got your long term bonus that after five years that is pay day. Now that's because you are mature you understand the markets are cyclical and and and…it will happen however. However If you are a production worker, a blue collar, you want to see I have got thousand units, I am using now school terms, bits items units all right and if I put thousand units I will get that bonus. And that is very short term. So the target range in terms of time is very short for these guys. The target range for the more haves is very long, because that is the market they play. So when we create incentives and awareness, know the level of the employee you are dealing with."

"Short term is what we need. Quick things, low hanging fruit. So we need to put our incentives out there, our terms our campaigns our actions and things to target the specific groups we wish to reach for the desired effect."

"I'm telling you as much as I am an HR practitioner believing in money not being a motivator I am telling you and am very sorry to say this but it's where we are right now, money talks."

"I can give you a very shining example in Company Z. And what they have done is and it is a little thing to change or instil or whatever in human behaviour is that they have a program that says that as employees you are welcome to do community work. So for every hour of community work you do we will match it monetarily right...and give that in the form contributions to the society. So not only are you doing something for the society, the company is also and you become an ambassador for the company as an individual. So here you look at it and you say but I am not alone, I am doing it with the full backing of my company."

"I think if you launch a specific programme. If you want to improve the level of participation, do it and do it for a short time only and pull out. But then it must be, it must never be a hand-out. I've seen you throwing the paper in the bin, now I am giving you twenty rand. That's not going to work. Rather get an achievement through a process that you initiate short term incentive and then pull out of it. And then it must become a process on its own…"

"Yes, especially if there is a huge financial value linked to these initiatives, then they have to make it work…"

This next chapter focuses on the discussion of the results. The discussion of the results comprises the critical discussion of the specific selective codes (main themes) and distinct sub-themes (axial codes) that were identified in the results section.

4.5 Discussion of Results

This section will discuss the identified significant perceptions of participants on the issue under study, namely the relevance of the OCBE determinants as facilitating constructs to pro-environmental behaviour in SA mining organisations. From the analysis of the data collected, specific selective codes (main themes) with distinct sub-themes (axial codes) were identified. The selective coding themes represent issues that participants deemed to be important facilitators of pro-environmental or OCBE behaviour in SA mining organisations. Furthermore, the identified axial codes indicate emerging trends and perceptions that were obtained from the participants during the interviews on issues that would facilitate green behaviour in SA mining organisations. These issues will also be critically discussed with the aim of indicating their relationship to the indicated OCBE determinants.

4.5.1) Environmental concern

All six of the participants emphasised and confirmed the important role internal commitment and individual oneness with the environment play when wanting to direct employee behaviour towards sustaining the environment. From the literature review, it became evident that wide-spread consensus exist on the importance of an individual's internal concern, environmental self-identity and internal sense of obligation, thus supporting these findings (Daily et al., 2009; Stern, 2005; Van der Werff, Steg & Keizer, 2013; Cook et al., 2002; Whitmarsh & O'Neill, 2010; Gatersleben et al., 2012 and Nigbur et al., 2010). Correspondingly, three of the participants emphasised how true internal concern for the environment can facilitate idea generation in organisations in aim of combatting environmental preservation. Two of the participants also emphasised a strong positive relationship between internal

environmental concern and environmental awareness, suggesting that the presence of internal concern should facilitate environmental awareness as individual understanding already exists. However, no evidence to support these findings were obtained during the literature review.

Axial coding theme: History of mining organisations in South Africa

From the participants' responses during the discussion of environmental concern as a facilitating factor to pro-environmental actions, it became evident that the culture that was entrenched in mining organisations in South Africa could have a significant effect on the wide-spread existence or future creation of internal commitment to the environment. Of the participants, 67% asserted how mining organisations in earlier years were not focused on environmental preservation and caused damage to communities and the culture instilled in employees that worked for the mines. Also, the participants emphasised how mining organisations in SA during previous years used to provide houses, water and electricity to employees. According to the participants, this led to the manifestation of a culture characterised by water and electricity waste and an overall neglect to consider actions in the light of protecting the environment. When considering the importance of employees' internal commitment to the environment (Daily et al., 2008), the creation and instilment of employees' environmental self-identity (Van de Werff, Steg & Keizer, 2013) and the importance of employees seeing a link between their behaviour and environmental consequences (Stern, 2005), the history of mining organisations in South Africa could have a significant impact on OCBE.

Axial coding theme: Generations

This identified axial code indicated 50% of the sampled participants' interviewed recognised the impact of generational differences on whether or not an employee will show internal concern for the environment. Although very limited support for this was obtained in the literature, some authors have postulated how younger people are more prone to value environmental preservation (Scott & Willits, 1994: Stern et al., 1995 and Tindall et al., 2003). Participants therefore significantly support the findings of these authors in asserting a positive relationship between younger generations and

environmental concern. On the contrary, one of the participant's perceived younger generations as the "disposable generation" and indicated a negative relationship with environmental preservation. He emphasised that they do not re-use resources, referring as an example to cell phones that are only utilised for a year and then disposed of. This supports the findings of Stern (2005), that environmental concern will be constrained if employees do not see a connection between their behaviour or actions and the impact it has on the environment.

Axial coding theme: Fulfilment of basic needs

From the results, the fulfilment of employees' basic needs has been identified as an axial code theme that deserves careful consideration when expecting or directing people to engage in pro-environmental initiatives. The relationship between income, needs fulfilment, environmental attitude and behaviour have been widely debated for centuries in the literature (Van Liere & Dunlap, 1980 and Scott & Willits 1994). Researchers in their findings have indicated that there is a positive relationship between people's income and pro-environmental attitudes or behaviour, because environmental quality is more easily considered when material and other basic needs are well satisfied (Fransson & Garling, 2008; Hansla, André, et al., 2008). They moreover emphasised the importance of ensuring primary needs, like shelter and food, are satisfied before expecting a need such as environmental concern, as a higher order need, to be seen as important. The results support the findings and postulations evident in the literature, as the majority of the participants emphasised that the circumstances of some of the lower level employees in mining organisations do not foster environmental concern as a higher order need.

4.5.2) Organisational Commitment

Daily et al. (2009) postulates how employees who are more committed to an organisation and who feel that the organisation contributes to and supports them in their environmental efforts, should in return voluntarily behave in favour of the environment. According to the results, all of the participants concur with Daily et al. (2009) and other researchers (Cramer & Roes, 1993 and Zutshi & Sohal, 2003) in that

committed employees should have a significant impact on environmental preservation and pro-environmental initiatives. The participants have however taken organisational commitment further in that they believe organisations can facilitate organisational commitment through instilling a culture conducive of environmental initiatives and one of "investing in the hearts and minds of employees".

Axial coding theme: Conducive culture

Based on the results of a survey conducted by Paile, Boiral and Chen (2014), employees appear to be more inclined to commit individually and voluntarily to environmental initiatives when organisations show commitment through their culture in terms of support and initiatives. Moreover, results obtained in an empirical study conducted in a Hungarian company have indicated the need for a stable and unambiguous integration of environmental values into organisational culture in order to achieve consistent pro-environmental behaviours (Zsoka, 2007). Similarly, all of the participants directly or indirectly made reference to the important role organisational culture plays in SA mining organisations in getting employees committed to environmental initiatives.

4.5.3) Perceived top management support

Daily et al. (2009) emphasised and assumed a positive relationship existing between employees' perceptions toward top management support for environmental preservation and acting in favour of the environment. According to the results of this study, top management support was also deemed an important facilitating factor of pro-environmental behaviour in mining organisations in South Africa by all the participants interviewed.

All of the participants furthermore made specific reference to visible top management support, inferring top managers and line managers should take steps to visibly demonstrate that they positively believe in environmental behaviour, they consistently manage it and champion it. These findings concur with results from a survey conducted with 407 employees, which suggested that employees are more likely to

engage in extra environmental efforts if they perceive that the organisation is supportive of pro-environmental initiatives (Paille, Boiral & Chen, 2013).

Within perceived top management support as a selective coding theme, participants indicated the role that recognition can play in facilitating pro-environmental behaviours. From the results, a relationship between recognition and perceived top management support was indicated and this will be discussed as part of the 'Incentives' selective theme in this dissertation.

From the results of the study, another sub-theme was identified within the perceived top management support selective theme. Of the participants, 67% mentioned the role of behavioural modelling and how employees will emulate the behaviours and actions of their managers when it comes to environmental preservation. Within literature, behavioural modelling is not a new concept and it goes back as far as the Social Learning Theory (Bandura, 1977) of vicarious learning through modelling which can elucidate the phenomenon of behavioural change in organizations.

4.5.4) Perceived Corporate Social Performance (CSP)

The results of this study indicate that all of the participants recognised the important role employees' perceptions of an organisation's CSP initiatives play in facilitating employees to engage in pro-environmental initiatives in South African mining organisations. The results further indicate that two specific issues are central to why employees in SA mining organisations, if they perceive the company investing in the environment, should be motivated to engage in pro-environmental actions.

Psychological impact and profit focused CSP initiatives

According to the results, all of the participants recognised the psychological impact of CSP initiatives on employees in SA mining organisations. They emphasised that mines in SA are generally situated within rural areas and the psychological effect of investment initiatives and other CSP activities is deemed to have a significant behavioural and psychological impact on the employees living in the community. Some

of the participants also made a direct link between investing financially in the surrounding communities and the impact on behaviour. Although three of the participants' recognised a positive relationship between financial investment in communities and pro-environmental behaviour, one of the participants asserted that financial investment could have the opposite effect and in fact demotivate employees, especially those from nearby communities, should the activities be focused on corporate profitability instead of enhancing standards of living.

In this context, when consulting the literature on CSP and the impact on employee level behaviour, it is worthwhile to consider its definition. According to Tyler and Blader (2003), CSP concerns treating all stakeholders of an organisation in a sociably responsible manner. Moreover, the aim of CSP is to enhance the standards of living while preserving corporate profitability and meeting expectations of all stakeholders. This definition is in line with the results of this study and encourages mining organisations in SA to be mindful of exactly what the purpose of CSP is.

When considering the impact of CSP on employee level behaviour, the literature refers to the construct of Social Identity Theory (SIT). As discussed in the literature review, SIT indicates that organisations, who instil pride and positively denotes belief in the value employees place in the organisation, will facilitate employee motivation (Tajfel & Turner, 1979; Turner, 1985; Pratt, 1998; Ellemers et al., 1999 and Tyler & Blader, 2003). Motivation according to Mozes, Josman and Yaniv (2011) has a reciprocal effect on the effort employees will exert on CSP initiatives.

4.5.5) Compliance

According to the results, 67% of the participants recognised the impact of compliance, regulation as well as legislation on employee level behaviour in mining companies in South Africa. However, participants gave mixed opinions regarding the relationship between compliance or regulation and individual level behaviour. Two of the participants indicated how compliance will not suffice as a behavioural antecedent to OCBE if it is not an internally invested principle or concern as discussed in previous

sections. One of the participants is convinced that behaviour change will result as he had previously experienced the positive impact of compliance on employee behaviour.

Within literature mixed opinions regarding the positive effect of regulation and compliance on employee behaviour is widely postulated (Lucas, Brooks, Darnton, & Jones, 2008). These researchers, in a synthesis of numerous studies, models and theories, emphasise the lack of appropriate data to support and predict the impact of compliance on employee behaviour. They also report mixed perceptions on the impact of compliance on behaviour through postulating how compliance should be backed up by a combination of other approaches for it to impact behaviour.

Axial coding theme: Inclusive approach

From the results of the study, all participants indicated the importance of ensuring employees are consulted and engaged over environmental preservation regulations if consistent behavioural change is to be expected. This corresponds to the findings of Lucas, Brooks, Darnton and Jones (2008) in their list of lessons arising from theoretical and policy reviews as discussed in the literature review section. More specifically, the lesson that relates directly to the results of the study is how target audiences are more likely to adapt their practices in line with a policy when they have been involved in its formulation (upstream engagement).

4.5.6) Leadership

The majority of the participants (83%) indicated the need for leadership, over and above top management support and commitment, when aiming to facilitate pro-environmental behaviour in South African mining organisations. Within literature, the positive impact of leadership on environmental behaviour and performance is widely acknowledged (Robertson & Barling, 2013; Barling, Loughlin & Kelloway, 2002 and Ramus & Steger, 2000).

Axial coding theme: Situational approach

The results of the study indicate the need for a very specific type of leadership approach i.e. situational leadership. Three of the participants emphasised how, due to the nature of mining cultures in SA, leaders should aim to apply a more flexible and situational leadership approach in their efforts to promote pro-environmental behaviour change. One of the participants mentioned how leaders will sometimes have to push and sometimes have to pull in order to get the desired amount of influence through to an individual behavioural level. Justifiably, Robertson and Barling (2013) with results from an empirical study, concluded that situational leadership was associated with subordinates' harmonious passion for the environment through behavioural modelling. The application of a situational leadership when aiming to facilitate employees to engage in pro- environmental behaviour should therefore be significant.

4.5.7) Environmental awareness and education

According to the results of the study, mining organisations in South Africa should aim to continually create awareness and educate employees on environmental preservation and pro-environmental initiatives. Of the participants, 83% indicated that environmental awareness and education should facilitate employees, especially those on lower levels, to engage more voluntarily and consciously in acts in favour of the environment. This corresponds to findings in literature which suggests that employees who are aware of the potential impact of their behaviour on the environment and the dangers that go along with it should be more motivated to engage in environmentally responsible behaviour (Olli et al., 2001 and Lozano, 2006).

Axial coding theme: Education and environmental awareness

Some participants emphasised how the majority of miners in mining companies are not educated and/or not aware of environmental degradation and preservation. Participants therefore emphasised that the educational level of employee groups

should be considered before deciding on the type of awareness approach to be utilised in aim of facilitating pro-environmental behaviour.

From the literature, it becomes apparent that the positive impact of education and environmental awareness on pro-environmental behaviour have been widely confirmed (Chen, Peterson, Hull, Lu Lee, Hong & Liu, 2011; Levine & Strube, 2012 and Fielding & Head, 2012). Some researchers have gone so far as to postulate that education is one of the most important variables in explaining a high level of environmental concern (Zilahy & Huisingh, 2009 and Zsoka et al., 2012).

4.5.8) Rewards and Incentives

Based on the results of this study, rewards for good environmental behaviour in SA mining organisations should facilitate pro-environmental behaviour. Of the participants, 83% recognised rewards as facilitative towards pro-environmental behaviour if the rewards are short-term, "low-hanging" and not just about reaching out to employees financially. These assertions correspond with the findings of a number of studies who similarly found rewards to have a positive effect on pro-environmental behaviour (McLelland & Cook, 1980; Slavin, Wodanski, & Blackburn, 1981; Thogersen & Moller, 2008).

CHAPTER 5: CONCLUSIONS, LIMITATIONS AND RECOMMENDATIONS

5.1 Summary of Findings

This study was aimed at exploring the components of a conceptual model of organisational citizenship behaviour towards the environment (OCBE) in order to investigate the significance of the model in a South African mining context. The following points present a summary of the most significant findings during this process:

- Environmental concern was found to be an important facilitating construct to promote pro-environmental behaviour, especially given the history and cultural context of mining organisations in South Africa.

- Organisational commitment was deemed to be an important antecedent to facilitate pro-environmental behaviour. However, participants found that organisational commitment can only be consistently instilled if organisations engage in a continuous effort to foster a conducive culture that supports pro-environmental initiatives.

- From the results in this study, perceived top management support was confirmed as an antecedent to pro-environmental behaviour and was supported by findings such as perceptions of clear and visible commitment and belief from top management and the impact of behavioural modelling in changing individual level behaviour.

- The results confirmed the impact perceived CSP can have in guiding and changing employee behaviour in favour of the environment. The results furthermore emphasised the psychological impact of CSP initiatives on employees from adjacent rural communities. Moreover, findings suggest that mining companies in South Africa should carefully consider the implication of financial investment as it may negatively impact on the perceptions of employees from rural areas.

- Findings in this study identified Compliance as an additional issue that has a relationship with pro-environmental behaviour. Results, as confirmed by literature, indicated an inconsistent relationship in this regard and emphasised the limitation of compliance when used in isolation.

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- Leadership over and above top management support was found to be an important issue in facilitating employees to engage in pro-environmental behaviours.
- Environmental awareness and education was deemed a critical issue when expecting employees, especially on lower levels, to engage in pro-environmental behaviour.
- Rewards and incentives were found to have a positive influence on behaviour change in favour of the environment. However, this should be carefully and tactfully used over the short-term and as part of a larger more inclusive recognition approach.

It is widely acknowledged that the field of pro-environmental behaviour is rather complex (Kollmuss & Agyeman, 2002) and despite numerous studies investigating the issues central to this phenomenon, no definite explanation has yet been given due to the important impact of contextual and situational factors (Kollmuss & Agyeman, 2002). The results of this study clarified employees' experiences and perceptions with regards to the OCBE constructs identified by Daily et al. (2009) applied in a SA mining context. The results should therefore prove useful to mining and other organisations in South Africa who are looking to more accurately identify the issues that could facilitate employees to demonstrate consistency in the application of pro-environmental behaviours.

5.2 Conclusion

All of the participants identified and confirmed that true internal concern for the environment should urge employees toward engaging in voluntary behaviour in favour of the environment (Van der Werff, Steg & Keizer, 2013; Daily et al., 2008). Some additional findings are however deemed pertinent considering the role of environmental concern in South African mining organisations. Firstly, the results indicated how the historic mining culture of water and electricity waste in South Africa could have an indirect impact on the creation and existence of environmental concern among employees. Although this might suggest the need for greater environmental awareness and education in South African mining organisations, the subjective nature

of participants' responses limits the generalisability of this finding. Secondly, the impact of generational differences, as confirmed in the literature (Scott & Willits, 1994: Stern et al., 1995 and Tindall et al., 2003), could not be substantiated by the results of this study. Finally, given the rural areas where mining operations are typically located, the results suggest employees are unlikely to develop an internal concern for the environment if lower order needs are not met (Dunlap & York, 2008; Zsoka, 2007 and Fansson & Garling, 1999). The generalisability of this finding might be limited as other studies in the literature have found positive relationships between poorer employees and environmental concern (Brechin, 1999; Brechin & Kempton, 1994; Dunlap & Mertig, 1995).

Participants confirmed the reciprocal nature of organisational commitment in facilitating pro-environmental behaviour (Paille, Boiral & Chen, 2014; Daily et al., 2008; Zutshi & Sohal, 2003 and Cramer & Roes, 1993). Additionally, participants found a conducive organisational culture, which embraces, supports and motivates pro-environmental behaviour, to have a positive effect on employees' organisational commitment (Zsoka, 2007). Responses of participants in this regard suggest that a positive relationship can be assumed between organisational commitment and two other constructs identified by this study, i.e. environmental awareness and perceived top management support. This assumption should however be empirically tested before generalisability can suffice.

The results of the study confirmed the important role employee perceptions of organisations' CSP efforts play in promoting pro-environmental behaviour (Mozes, Josman & Yaniv, 2011; Daily et al., 2008 and Collier and Esteban, 2007). The participants furthermore, emphasised that within a South African mining context, where operations are typically based among or adjacent to rural areas and poor communities, the psychological impact of CSP initiatives can be viewed as substantial. The findings have however indicated that, given the aforementioned rural dynamic, careful consideration when introducing financial investment initiatives should be employed to avoid an opposing negative effect on poor employees. This finding was however not supported by all participants nor the literature and further empirical investigation is therefore suggested to validate the reliability and generalisability of this finding.

As suggested by the literature (Paille, Boiral & Chen, 2013 and Daily et al., 2008), the findings of this study also confirmed the important role of perceived top management support in the facilitation of pro-environmental behaviour in South African mining organisations. Participants ascribed behavioural modelling (Bandura, 1977) as the underlying factor to the effectiveness of top management support. They moreover specifically asserted that the effectiveness of top management support during pro-environmental behaviour facilitation should be enhanced if management are perceived as visibly committed and supportive of environmental preservation by employees and subordinates (Zuthsi & Sohal, 2003, Ramus, 2001 and Ramus and Steger, 2000).

With regards to other pertinent issues found to be motivators or facilitators of pro-environmental behaviours in South African mining organisations, compliance; leadership; environmental awareness and educations as well as incentives were identified.

With regards to compliance, the findings pointed out mixed results regarding the relationship between legislative compliance initiatives and the facilitation of pro-environmental behaviour (Lucas, Brooks, Darnton, & Jones, 2008) in South African mining organisations. Participants furthermore asserted that compliance would only be effective if an inclusive approach is followed whereby employees and other stakeholders are engaged in policy formulation, execution and monitoring (Lucas, Brooks, Darnton, & Jones, 2008). Despite the fact that compliance is supported in the literature, the inconsistency of participants' responses suggests the need for further validation of this finding.

As concluded by the findings of this study, leadership should have an important influence on individual level behaviour change in South African mining companies when engaging in organisational greening (Robertson & Barling, 2013; Barling, Christie & Hoption, 2010 and Barling, Loughlin & Kelloway, 2002). More specifically, participants in the study recognised situational leadership approaches as a pertinent factor when aiming to inspire pro-environmental behaviour in South African mining organisations (Barling et al., 2010). Although a strong relation between leadership and

top management support is assumed with this finding, the study was unable to substantiate and specify clear differences between these two constructs.

As indicated by the results of the study, the need for environmental awareness and education to instil and promote pro-environmental behaviour might be perceived as obvious given the educational shortcomings among lower level or blue collar employees. Nevertheless, the findings of this study confirms the substantial impact knowledge sharing, environmental awareness and environmental education could have on influencing individual level behaviour change in favour of the environment (Robelia & Murphy 2012; Levine & Strube, 2012 and Zilahy and Huisingh, 2009). With this in mind and considering other findings in this study indicating how greater organisational effort towards environmental awareness would facilitate pro-environmental behaviour, this issue is in fact deemed a significant antecedent to pro-environmental behaviour - especially in a South African mining context.

Rewards and incentives have been identified as facilitators of pro-environmental behaviour (Thogersen & Moller, 2008), but participants have identified criteria subjected to its effectiveness. Participants emphasised the importance of using rewards only as a short-term incentive, as the effectiveness thereof lessens as time progresses (McLelland & Cook, 1980 and Slavin, Wodanski & Blackburn, 1981). The findings in this regard suggest that mining organisation should carefully consider the level of an employee before an incentives strategy is chosen.

Despite some authors pointing out that developing a model that incorporates all the factors behind pro-environmental behaviour might neither be feasible nor useful (Kollmuss & Agyeman, 2002), it is the researcher's view that diagrams serving as visual aids in clarifying and categorizing factors can be helpful. The researcher would therefore like to conclude with a graphic illustration of a possible model illustrating the issues that were found to facilitate pro-environmental behaviour in South African mining organisations. As stated in the purpose of this study, this model has been constructed from the basis of validating the antecedents included in the model by Daily et al., (2009). Based on the results of the study, these antecedents have been confirmed to be relevant in a South African mining context, hence was included in the model together with the additional issues identified.

Figure 5: OCBE Model – Blue Print for South African Mining Organisations
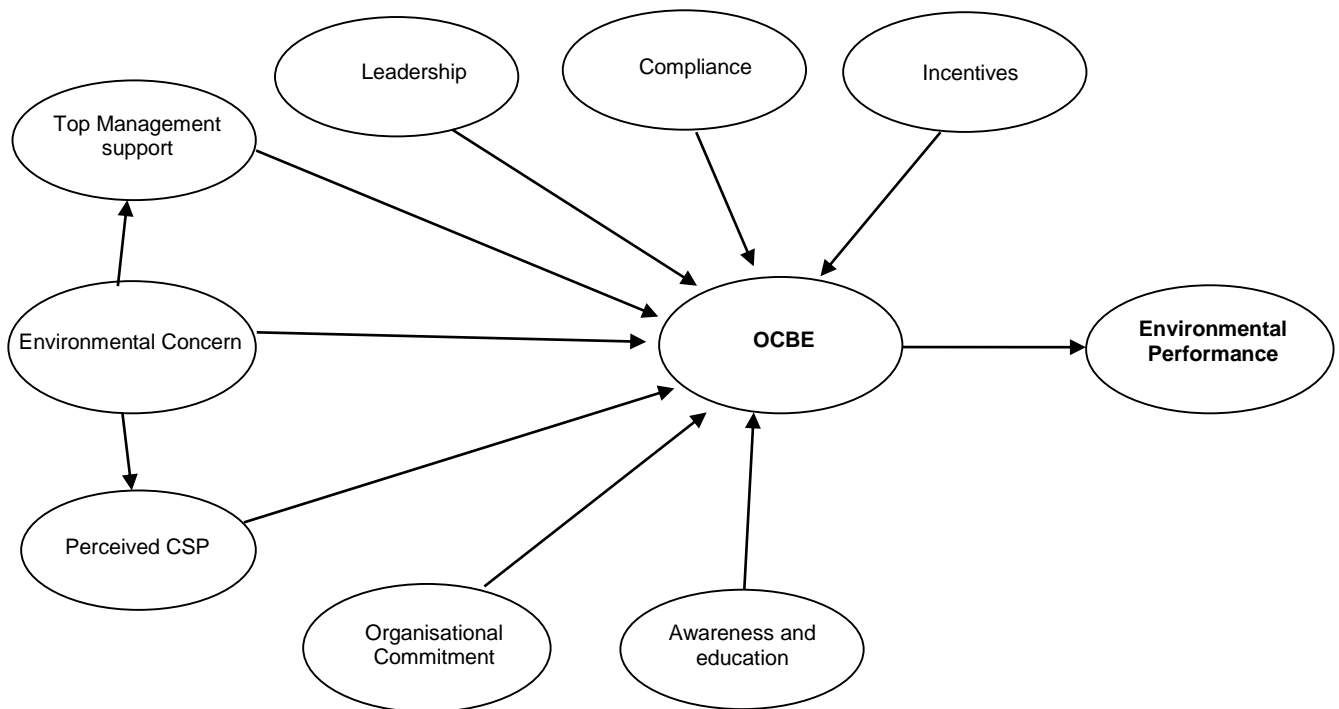
Adapted from Daily et al. (2009)

5.3 Summary of contributions

Given the importance of ensuring mining organisations comply with various legislated requirements and the need to combat climate change, pro-environmental behaviour facilitation remains of utmost importance (Daily et al., 2008). Despite this, there is still a lack of clear understanding and explanation as to which factors would promote pro-environmental behaviour (Robertson & Barling, 2013 and Steg & Vleg, 2009). The primary purpose of this study was therefore to explore the relevance of the antecedents to pro-environmental behaviour, as outlined in Daily et al.'s model, in a South African mining context. In doing so, a blue-print model could be provided in an attempt to illuminate constructs that might be relevant in the facilitation of pro-environmental behaviour in a South African mining context. Although it was already pointed out how some authors postulated that developing a model incorporating all

factors might neither be feasible nor useful, it is felt that this model, together with the findings of the study, could help illuminate the complex field of pro-environmental behaviour more specifically within a South African mining context (Steg & Vleg, 2009).

Although some additional issues have been identified by this study, the majority of the constructs included in the model was supported by the literature. However, despite this, the undeniable effect of contextual factors in pro-environmental research (Steg & Vleg, 2009) should be carefully considered if this framework is to be applied to other contexts or organisations.

5.4 Limitations of the study and recommendations for future research

The methodology discussed in Chapter 3 (p29) highlights certain limitations which need to be considered when interpreting the results of the study. Most importantly among these was the small size of the research sample, which was dictated by the availability of highly experience human resource incumbents in South African mining organisations with environmental and extensive human behaviour experience. The small sample size suggests limitation on the generalisability of the research findings (Welman *et al.,* 2005). It is recommended that future research studies aim to validate or elaborate on the findings using quantitative research approaches with larger sample sizes.

Another recommendation for future studies is to apply the same research approach to more mining companies in South Africa in order to validate these findings and to gain more confidence in the generalisability of these findings across the South African mining context.

Finally, during the data gathering stage of this study, the significant impact of the mining history and earlier mining cultures in South Africa underlying the perceptions of participants became increasingly apparent throughout data collection. It is proposed for future qualitative studies to explore this phenomenon in more depth in order to broaden the impact and scope of environmental research in a South African mining context.

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