

The influence of the Eskom North Western Region's safety vision on the organisation's safety culture

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Abstract

The North Western Region suffered a very poor safety performance over a number of years (2001 to 2008) leading to the establishment of a safety vision in 2008. A safety vision was developed and implemented in the NWR but its desired effects are not visible.

The primary objective for the study was to investigate the influence of an electricity supply industry's safety vision on its safety culture. The study was to evaluate further the relationship between a safety vision and a safety culture from an electricity supply industry's perspective.

The empirical approach to the study was to use a quantitative survey. A sample of 350 employees was identified for the study, with a reasonably good response rate of 291 employees (83.14% of the identified sample).

The study revealed that a significant positive relationship between the Eskom NWR safety vision and the organisational safety culture exists. The vision is not only articulated at the highest possible level in the organisation but has positively contributed to the existing organisational safety culture. The study has however also revealed a disconnection between employees and management as far as what the priority is between production and safety. This might be due to the importance given to production on both the employee performance dashboards and scorecards. In these, safety's percentage target is far lower than production. With a target of 20 per cent, the safety target might be confusing to employees as having a lesser weight and importance than production. This was however not an expected outcome.

It can be concluded that the employees in the NWR are currently driven by the conciseness, future orientation, abstractness, desirability, and ability of their safety vision. This vision has become a very strong option in a quest to change behaviour. The employees have accepted and are clear on the strategy behind the vision. Their norms, values, and beliefs system are developing towards achieving the organisational objectives. If leadership continues to employ this vision with vigour, it is bound to have far-reaching implications on both organisational safety and performance.

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THE INFLUENCE OF THE ESKOM NORTH WESTERN REGION'S SAFETY VISION ON THE ORGANISATION'S SAFETY CULTURE

CHAPTER 1

1.1. BACKGROUND

Senior management at the Eskom North Western Region created a safety vision, commonly known as the Safety Dream, with the intention to assist employees to change their safety culture. This vision was an expression of a commitment and a motivator to improve the organisation's safety performance. The intention of senior management was to create a platform for change in behaviour thus a change in culture. According to the Region's leadership at the time, designing a vision was the best motivator for the desired change. The commitment of leadership can be seen in the work done by Zohar (2003) in which he confirmed in his studies that commitment of management, regarding safety, plays a fundamental role in the determination of the employee's safety behaviour and consequently in occupational accident rates. He further suggests that higher levels of management involvement lead to the achievement of lower occupational incidents.

The implementation of the vision was to be a catalyst to change a current safety culture perceived to be reactive in 2007 to one of interdependence by 2013 (Strydom 2007). Once the vision was developed, senior management were to lead the organisation in a journey of change. It was to be a change from a culture of unsafe behaviour to one of zero harm to employees. Zohar (2010) showed that leader based interventions aimed at safety with oriented interactions can create improvements in worker safety behaviour.

The NWR safety vision was not only to be a catalyst for a change to safe behaviour of employees, but was also supposed to ultimately assist the organisation to improve on its bottom line key performance indicators. The understanding was accompanying performance with an improved organisational image. This vision also means to bind and focus employees to a future of zero harm (Cloete 2007).

As a motivator for change in organisational culture, Richter (2004) adds leadership to his argument by describing a vision as simply a picture of an ideal state of what the

leader wants his or her organisation to be sometime in the future. A clear vision enables an organisation to change organisational culture in a positive way.

Without a safety vision and a motivator for a culture of safety, the North Western Region's (NWR) safety performance was characterised by a period of safety incidents which at times led to fatalities.

The table below shows a history of employee injuries and fatalities from the year 2000 to 2008. Carina van Der Venter (Information Management System's Officer) developed this table and the Eskom Sustainability Department verified it.

Table 1.1: Safety Incident history for the Eskom Distribution North Western Region

Year	Number of fatalities	Number of lost time incidents	Number of medical incidents	Lost time incident rate
2000	0	21	56	0.33
2001	1	17	46	0.66
2002	1	11	31	0.25
2003	0	15	48	0.4
2004	1	13	28	0.39
2005	2	18	36	0.82
2006	1	12	26	0.46
2007	3	9	40	0.39
2008	1	14	39	0.39

Considering the above safety performance, management (in 2007) engaged employees in an "indaba" about the Region's safety performance and a way to reduce incidents. It became evident from the discussions that safety performance cannot improve without an improvement in behaviour or the adoption of a new culture. The outcome of the "indaba" was a decision made by Senior Management to develop a vision that will change the existing culture of poor safety performance to one of zero harm to employees. Leadership was convinced in the prevention of all accidents when they developed this vision. This therefore meant that a zero harm environment is possible (Cloete 2007).

This vision was designed to assist in the creation of a culture of inter-dependence, as defined on the Bradley Curve. The development of a safety culture as a Driver of

Safety Performance by Strydom (Du Pont Transformation Safety Culture Tool) explains “The Bradley Curve”. This tool measures four cultural stages of safety transformation. The first stage is when the individuals are in a reactive mode where their safety culture is one of natural instinct and compliance is the goal. The second stage is that of dependency. In this stage, safety is by supervision and the requirements and decisions of others drive actions. The third stage is that of independence where people take responsibility for their own actions and value “self”. The fourth and last stage is that of interdependence where people believe in teams and help others to conform to take pride in teams and care for others (Strydom 2008).

The Du Pont Company adopted the figure (shown below) and used it to determine the current safety culture stage of NWR and the journey it was to follow to reach a desired stage.

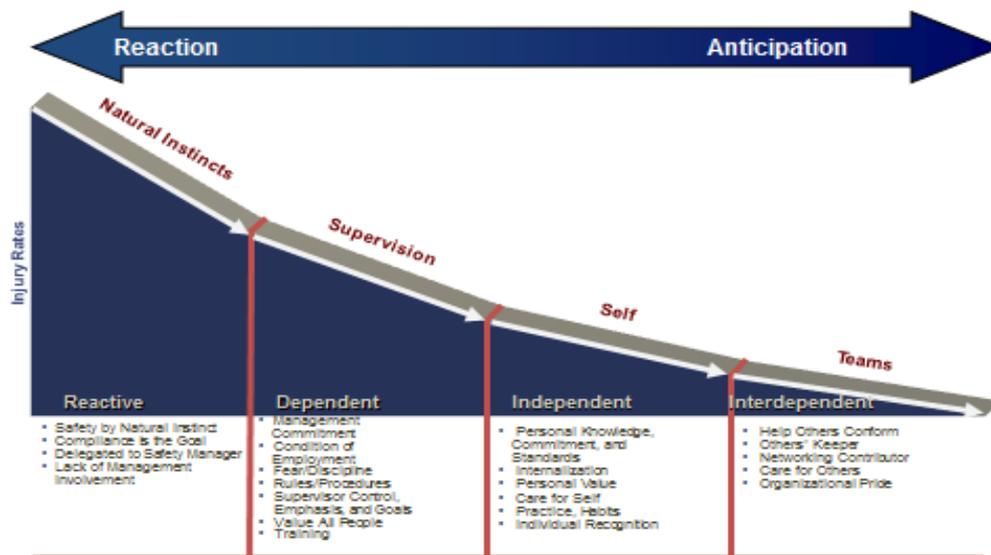


Figure 1.1: The DuPont Bradley Curve (Du Pont 2007)

From the above graph, the survey determined that the NWR safety culture was at the reactive stage. As can be seen from the above, the regional organisational safety culture was in a reactive stage where the goal was mostly compliance, and the organisation was only reacting to safety incidents when they happened and management was not involved. At this stage, safety was delegated to the safety manager. The intention for the vision was to move the organisation, over a period,

from being reactive to one of inter dependence. This is where cooperation within and across the teams will exist, where the teams are self-managed and all employees feel accountable for the overall performance and will be empowered to implement safety improvement ideas (Strydom 2008).

The figure below represents a picture in summary of the culture that Eskom NWR desired.



Figure 1.2 - Main Elements of a Safety Culture (Sokolov 2009)

The numbers of the Eskom North Western Regions’ safety incidents have not shown a visible decrease. This suggests that the regional safety vision might not be succeeding in its quest to assist the region to achieve zero harm.

The study that follows hereunder concentrates around the influence of the NWR safety vision on the organisational safety culture.

1.2. PROBLEM STATEMENT / RESEARCH QUESTIONS

The North Western Region suffered a very poor safety performance over a number of years leading to the establishment of a safety vision in 2008. A safety vision was developed and implemented in the NWR but its desired effects are not yet visible.

The problem is therefore embedding an effective safety culture in an organisation by using a compelling vision. The following research question must be answered to address the problem:

- What overall influence does a safety vision have on culture?
- What is the current safety vision of the Eskom NWR?
- What is the current safety culture in the Eskom NWR?
- What relationship exists between NWR safety vision and its safety culture?

The research questions formulated above imply achieving certain aims through this study. The discussion that follows below formulates these aims.

1.3. OBJECTIVES OF THE STUDY

The objective of this study is to investigate the influence of the NWR safety vision on its safety culture.

1.3.1. Secondary objectives:

- To provide an overview on a safety visions' influence on culture.
- To evaluate the safety vision of the Eskom NWR.
- To evaluate the safety culture of the Eskom NWR
- To determine the relationship between a safety vision and a safety culture from an electricity supply industry's perspective.

With the abovementioned objectives in mind, the study will discuss relevant literature initially reviewed.

1.4. PRELIMINARY LITERATURE REVIEW

The following literature supports the belief of management that using a compelling vision as a tool is relevant to guide an organisational culture change: Holt, Fawcett, Schultz and Loewenstein (2013) in their research work concludes that a vision is an organisation's picture of the way things should be. They further state that a vision is a billboard image of what the organisation is working towards and wants to be. In explaining how visions can have an influence on cultural change, Ravashi and Schultz (2006), in support of Holt *et al.* explain that organisational culture is a set of shared assumptions that guide interpretation and action in organisations by defining an appropriate behaviour. This gives impetus on establishing compelling visions to change cultures.

On culture, Shein (2004) argues that culture is a stabilizing force that serves as anxiety reducing, it gives people a frame of reference on how to act and think, and it is a learned defence mechanism. In his view, cultural change is an anxiety revoking process, undertaken only if there is a large enough motivation to change. This motivation can be in the form of a vision, a force to change.

In the preliminary literature review that follows, the researcher conducts theoretical studies and discussions on the following: 1) What are visions and why do we need them? 2) What is the link between visions and cultural change? Then 3) apply this knowledge to the project of the organisation previously mentioned.

1.4.1. Theory on safety visions and organisational safety cultures

Visions are statements that reflect a clear understanding of the current situation and at the same time giving a clear future desired situation. A vision has the following characteristics: 1) It will exhibit the objectives of a company. 2) It will give a desired lifestyle of the company. 3) It is a realistic, reachable dream. 4) It should be convincing enough to shape the company's actions. 5) It should energize the company. 6) It should provide motivation for employees and synergy for the organisation. 7) It must prompt people towards company objectives (Altiok 2011).

Krause (2011) in his article 'The Challenge of Vision' argues that the purpose of visions is to inspire and direct business imperatives. The effectiveness, influence, and observed human behaviour transformation of a compelling vision is evidenced in

the direction that the company is moving towards and how much ground has been covered in achieving that organisation's objectives. The content of Tom Krause's article embodies how the team arrives at that state.

Krause (2011) suggests that the challenge of a good safety vision is to tell the organisation why safety is important. It should determine the kind of time and resources the organisation should put into striving to achieve its objective, and consequently the kind of results the organisation expect to get out of it. The company's leader/leadership normally articulates these factors. He continues to point out that a vision is something that gives employees something to rally around and most importantly its ability to drive change.

Kotter (2011) argues that successful change hinges on a desirable picture of the future. According to him, effective visions focus on guiding decision-making yet must be flexible enough to accommodate individual initiative and changing circumstances. When creating visions leaders should ensure that their intension is clear and appeal to the audience. There should be no ambiguity, the vision should be ambitious but attainable and should assist the company to achieve its bottom line. Kotter further concludes in his research that achieving a company's bottom line is not always possible without a good safety record or better still an excellent safety culture. The income and time lost on production losses due to investigations, fatalities, and loss time hours greatly contribute towards a reduction in any company's income and has a negative impact on the business bottom line. Therefore, safety visions should foster an alignment between culture and Senior Management's strategy, give employees something to rally around, and in most cases build a culture of competitively high performance, which will result in the company's bottom line growth.

According to Zwetsloot *et al.* (2013), other companies develop safety visions from a family of Zero Visions. This is a family of visions where companies adopt a vision under the belief of preventing all accidents, which means it is possible to have zero accidents in the company's operations. In these visions, employees are encouraged to move away from the belief that one cannot prevent accidents or that a certain number is inevitable, to believing in the prevention of all accidents. This provides an ethically sustainable basis for accident prevention.

A few researchers have found that there is a link between a vision and performance. Strydom (2008) makes a direct link between a vision, safety performance, and a desired safety culture. According to him, a good and compelling vision can transform behaviour from an undesired state. Shi and Shiichiro (2012) conclude that the relationship between safety performance and culture is both quantitative and qualitative. They argue that safety culture has a positive correlation on safety performance. The more mature the safety culture the better there is a chance to improve safety performance. Cooper and Phillips (2004), in their analysis of safety performance, found that culture is generally predictive of safety performance. Although concurring with the others.

Miletsky (2003) also demonstrated that cultural change takes a long time and when achieved could lead to a good bottom line. Bridges and Mitchell (2000) concluded that organisations could no longer be managed in the same way. This is because business conditions are changing everyday thus yesterday's assumptions are no longer valid. They further posit that companies must be innovative which means there must be cultural changes (that is that the way we do things must change).

Hartman (2005) considered the concept of change and the creation of a positive culture. After his studies, he concluded that to attract and retain the best of the best human element, companies must establish positive cultures. His research revealed that a positive culture leads to better productivity and growth in the company's bottom line.

The HSC (1993) first used the concept of a safety culture in 1988 in the INSAG's Report on the Leadership Review meeting on the Chernobyl accident. The HSC explained how the lack of knowledge and understanding of risk and safety of employees contributed to the accident. In their explanation, the HSC further described a safety culture as the common perceptions, patterns of behaviour, a product of individuals and group values, attitudes and competencies. Agreeing with Hartman, Pidgeon (2010) proposed that a good safety culture is characterised by reflections, monitoring, analysis, and feedback.

Chapter 2 conducts a thorough investigation of safety visions and organisational safety culture. This study follows a specific research methodology discussed below.

1.5. RESEARCH METHODOLOGY

According to Leedy and Ormod (2005:12) the research methodology refers to the researcher's general approach to carrying out the research project. The approach for this project will be to do the study using the quantitative method.

Using quantitative research design will require that the selected units taking part in the research are measured on all the relevant variables at a specific time. There will be no manipulation of variables and the study will not include an experimental or control group. Therefore, the study will be conducted by the use of surveys (De Vos, Strydom, Fouche, & Delpont 2011:157).

In using this method, the study focuses on seeking explanatory laws and aims at in-depth description. An assumption of a static reality with a hope of developing a law provides measurements.

1.5.1. Sampling and data collection method

Dencombe (2008) explains sampling as taking a portion or a smaller number of units from a population as representative or having particular characteristics of that population.

The sample size will yield at least a 95% confidence interval and a plus/minus 5% point margin of error. The intension is to survey about 350 of the 1160 employees. Twenty of these employees will be Supervisors, five Middle and eight Managers, and the rest will be the general work force. This sample size is determined as per table from The Research Advisors (2006) which is similar to the one used by Krejcie and Morgan. Adhering to ethical considerations during the process of conducting the study is very important, as discussed in the next section.

The sampling method to be used will be a probability method and the strategy will be a stratified sampling technique. According to De Vos *et al.* (2011:230), stratified sampling is suitable for heterogeneous populations because it ensures the inclusion of small subgroups percentage-wise. In this study there are specific sub-groups to be studied for example demographic groupings.

The group to be studied will be males and females divided into the following: From a total population of 1143 employees the researcher will target a sample made up of: 35 managers, 40 supervisors, and 275 other employees who are not managers or supervisors. The total number of employees to be surveyed will be 350. As stated above, a quantitative method will be used to get the precise measurements. The method used to gather data will be through a survey. Once data is collected it will be subjected to interpretation.

1.6. ETHICAL CONSIDERATIONS

According to Cooper and Schindler (2011:30), the rights of the respondent must be protected when in the process of the research. The respondent must not suffer any loss of privacy, physical or psychological harm, discomfort, pain, or embarrassment. When conducting the study the following considerations will be undertaken.

1.6.1. Informed consent

It is the researcher's obligation to inform all respondents about the risks and the procedures followed during the research. They will accept to participate before they get involved in the study (Cooper & Schindler 2011:34).

1.6.2. Risk of harm

The researcher will ensure to all respondents participating in the research the protection of their rights. They will suffer no harm psychologically or otherwise (Cooper & Schindler 2011:34).

1.6.3. Anonymity or right to privacy

The researcher will not disclose the identity of the respondents throughout the study and guarantee confidentiality for the entire period of the research (Cooper & Schindler 2011:36).

1.6.4. Benefits

The benefits of the study will be explained to the participants. The researcher shall uphold ethical principles when conducting the survey and he shall not overstate or understate the benefits to the respondent (Cooper & Schindler 2011:33).

1.7. DEMARCATION OF FIELD STUDY

The study will focus on the influence the safety vision had on the organisation's safety culture. The researcher will select employees from different engineering disciplines and different locations within the North Western Region to respond on a survey for the study. This study will be in the field of occupational health and safety and is a human resource issue.

1.8. RESEARCH OUTLAY

Chapter 2 - Literature review: This chapter will consist of a detailed literature study.

Chapter 3 - Research methodology: This chapter describes and justifies the data gathered according to the method used.

Chapter 4 - Analysis of data and findings: This chapter address the results from the data analysis.

Chapter 5 – Recommendations: The chapter starts by discussing the findings in relation to a theoretical framework introduced in the literature review. It then continues an explanation on what the findings mean in the field of study, including practical implications.

1.9. CONCLUSION

This chapter summarises the results of the research. It identifies and discusses limitations of the research and future work and lastly, addresses Research Objectives and the Research Question.

CHAPTER 2

2.1. INTRODUCTION

Since the study is about how a company's vision has or has not influenced employee culture, chapter two of this study address literature on the subject of visions and culture. The study discusses the basic concepts of both vision and culture including how a compelling safety vision can shape or change an organisational safety culture. In addition, a discussion follows on how the NWR safety vision has influenced a shift in culture, which should be evidenced in an improvement in the safety performance of the Region. The following section will discuss what visions are, why are they important, when are they used, and why should they be designed and implemented.

2.2. VISION STATEMENT

According to The Times 100 (2013), a vision helps organisations to capture what they want to become. An organisation's powerful vision guides interactions among employees, and provides them with a purpose. The report also suggests that to build a successful organisation everyone must be in the same direction, have a common understanding of business expectations including behaviour. Team members must understand the concept of "how things are done here" which will form the backbone of performance excellence for the business.

Research work done by Manasse (1986), Naus (1992), Collins and Porpas (1996), contributed to the development of the concept of vision. They all agreed that visions are mental constructs that inspire, motivate, and engage people on core ideology and the envisaged future.

Eren (2005) suggests that a vision emphasizes the organisations unique characteristic that will differentiate it from others. A vision takes all activities planned for the internal and external environment into consideration. All of the organisations stakeholders should understand and share this vision. It should also assist the public to have an idea of the organisations culture. He concludes that on a shared value, a vision is a situation a business plans to be in, in the future and employees share this

ideal. According to him, a vision is a guide from some aspect, to focus and bound employees to the future goals of the business as a planning and motivation tool. This is the briefest description of how the company will achieve its targets.

Yalcin (2005) adds to Eren's (2005) views by suggesting that a business that has a strong vision will be able to predict future events, be prepared for changes and innovations. This business will have the courage to face future demands and predict customer demands and thus improve employee efficiency.

Why should companies have visions? Dogan (2005) suggests that the purpose of visions is to strengthen the culture of the organisation and act as a unifier among members; it should increase employee loyalty and motivation and should reflect organisational culture.

To give strategic direction, Balay (2004) agrees with the other researchers. His view is that a vision is a strong sense of the future. It is an intellectual bridge tying today to tomorrow, and it is not for justifying today but to look at the future. Mirvis *et al.* (2010) do not differ with others who came before him. According to him, a vision articulates a desired future for a company, provides an intellectual framework for company strategy; it defines a strategic direction and presents a conceptual map of how a company moves from its current reality to a desired future state. It is a motivational driver.

A vision can be viewed as a future picture or mind image. Altiok (2011) does not have an alternate view by expressing a vision as a future image of the company, a basic factor that reflects clear comprehension of the present situation and the future aimed situation. It exhibits the objectives of a company and effects all vital compounds of it and it has quite an important place today within company management strategy. Vision is a preference and a lifestyle for a company. Holt *et al.* (2013) do not have an opposing view either. According to them, a vision is an individual's picture how he/she views how things should be. Greenstein (2012) agrees and gives a similar view, that of how an organisation or enterprise will look into the future. He further explains his definition by saying that a vision is a long-term view, describing the way an organisation or enterprise will look in the future.

The most important use is to lead the way in specifying goals and objectives. It provides motivation for workers and synergy for the organisation. It must prompt people towards company objectives. Visions renders the company open to innovation and changes, and prevents loss of direction for the company as to facilitate limited movements.

According Gaddis (2009), on the importance of a safety vision, he mentioned that a safety vision should communicate both the purpose and values of the organisation. He further posits that a safety vision should be clear, concise and geared towards workplace safety success, motivating employees to do their best when it comes to workplace safety. It should not only focus on reducing loss caused by accidents but also must talk about safety expectations and drive a sense of safety ownership.

2.3. RELATIONSHIP BETWEEN A VISION AND CULTURE

A vision enables an organisation to move forward with clarity. It links the business' specific objectives and targets with the core values that govern how the business will operate in order to meet those targets. It therefore goes further than a mission statement. Linked closely to vision is the organisation's culture. The culture of an organisation is the typical way of working within an organisation as demonstrated by the behaviours of the people that work for it. This includes how approachable managers are, how they treat subordinates and care for customers, and how formal systems and procedures are. A clear vision enables an organisation to change organisational culture in a positive way (Holt *et al.* 2013).

In the, The Times 100 (2013) a marvellous culture is reported to be stated in the vision or mission statement of an organisation. The vision statement guides an organisation's values and provides the organisation with purpose. The purpose given by the vision statement orients every decision that employees make. Proudly displayed and seriously authentic vision statements can orient stakeholders, customers and suppliers in what the organisation is all about and what it stands for. According to The Times 100, a vision statement is a simple but foundational element of the organisation's culture.

To shape or change a culture, you need to understand all of the key drivers that affect it. Your vision is the starting point. A vision helps capture what an organisation wants to become, and where it wants to go, the value proposition it provides to customers, giving meaning to work and direction for decision-making. A powerful vision guides interactions with customers and among employees, and it provides purpose for shareholder financial returns (Cobham 2012).

The organisation's values should reinforce vision and value proposition and they should reflect the way everyone works together as a team; how team members behave within the organisation; who and how one recruits and develop team members; and how ones leads the organisation. Getting ones values and the right behaviours linked to these, will help reinforce performance expectations for all members of the team (Cobham 2012).

The literature has so far indicated that there is a close relationship between vision and culture and that it is important to start with a vision to establish a shift in culture. The following section will thus deal with the understanding of culture.

2.4. ORGANISATIONAL CULTURE

Needle (2004) explains organisational culture as representing the collective values, beliefs, and principles of organisational members and is a product of such factors as history, product, market, technology, strategy, type of employees, management style, and national cultures. Corporate culture on the other hand refers to those cultures deliberately created by management to achieve specific strategic ends.

Ravashi and Schultz (2006) states that organisational culture is a set, common and acceptable way the group would act in different situations controlled by the same thinking. This way of behaviour normally gives direction to the organisation. Ravasi and Schultz continue to argue that large organisations have unique cultures but this can be offset by a co-existing sub-culture switch might be detrimental to the organisation's culture. Managers' different characters might form these sub-cultures, negative or positive.

Greenstein (2012) describes organisational culture as the sum total of an organisation's past and current assumptions, experiences, philosophy, and values that hold it together, and is expressed in its self-image, inner workings, interactions with the outside world, and future expectations. Also called corporate culture, it manifests in as follows: (1) The ways the organisation conducts its business, treats its employees, customers, and the wider community. (2) The extent to which autonomy and freedom is allowed in decision-making, developing new ideas, and personal expression. (3) How power and information flow through its hierarchy, and (4) the strength of employee commitment towards collective objectives. Organisational culture can consists of subcultures especially in global companies.

2.5. SUBCULTURES

As described and discussed above, it was found that previous studies agree that organisational culture is recognized by shared values and beliefs. Schein (1992) identified that global organisations cannot have organisational cultures because different work sites in different locations in the world are unlikely to have these characteristics unified. Local influences such as the national culture and managerial style will tailor the culture of a particular site or group of employees. This is the emergence of subcultures. Cooper (2000) argues that sub-cultures will be either in alignment or at odds with the dominant cultural theme of the organisation.

The study investigates an organisation that is only local and not necessarily subjected to conditions that exist in multinationals. The following section will therefore discuss organisational safety culture.

2.6. SAFETY CULTURE

The concepts of safety culture originated from organisational culture. The term 'safety culture' has been widely used since the International Atomic Energy Agency (IAEA) report into the Chernobyl nuclear accident (Yule 2003). The origins of the concept stems from the social and behavioural psychology of the 1950s and 1960s.

It is (safety culture) learned through a process of socialization, which may be why culture change is a long and difficult process.

There is no single definition of a safety culture. The term arose after the investigation of the Chernobyl nuclear disaster in 1986, which led to defining safety culture as an organisational atmosphere where safety and health is the number one priority, and is understood and accepted as such. On the basis that safety and health does not exist in a vacuum and is isolated from the other organisational aspects, thus defined as an organisational atmosphere where safety and health is a high priority and as such understood and accepted. The errors and violations of operating procedures, which contributed to the Chernobyl disaster, were evidence of a poor safety culture at the plant (Lee 1998) updated in November 2009. The identification of a poor safety culture as a factor contributing to the accident led to a large number of studies investigating and attempting to measure safety culture in a variety of different high-risk, high-hazard industries. Although the importance of safety culture is widely accepted, there is still little agreement about what the term means.

Culture is to society what memory is to individuals. Culture includes traditions that reflect, "What has worked in the past". It also encompasses the way people have learned to look at their environment and themselves, and their unstated assumptions about the way the world is and the way people should act (IAEA-TECDOC-1329, 2002).

Since the 1980s, there has been a large amount of research into safety cultures. However, the concept remains largely "ill defined". The origin of Safety Culture comes from a historical context or organisational operations, values, and traditions that may be years, or decades in the making. Long-term and repeated patterns of performance form the basis of Safety Culture (Goulart 2013).

A recent review of the research literature identified 16 separate safety culture definitions (Guldenmund 2000). The concept of safety climate however, further confuses the issue. It appears that those who introduced the term safety culture ignored the earlier concept of safety climate described by Zohar. Once the concept of safety culture became popular in the early 1990's, the question of its relationship with safety climate arose. Over the last decade, there have been several attempts to

distinguish between the two terms (Cox & Flin 1998), but the interchangeable use of safety climate with safety culture persists.

The Human Factors Working Group of the Advisory Committee on Safety in Nuclear Installations (ACSNI) suggested a popular definition to describe a safety culture. The working group described a safety culture as the group's shared values, attitudes, assumptions, and behaviour. This defines the group's commitment to, and the style and proficiency of, an organisation's health and safety management.

A review by IOSH, which considered many of the proposed definitions, suggested that safety culture includes or refers to the following:

- norms and policies related to safety
- common values, beliefs, attitudes and behaviours regarding safety
- the joint values, attitudes, competences, and
- behaviours of individuals and groups that establish organisational commitment to, and
- style and safety culture influences workers' (or group of workers) view of the world (i.e. what is important and how they interpret new information), and is relatively stable over time.

Safety culture links to the personality of the organisation. IOSH further contends that safety culture is always cascaded and shared by new recruits and stays in organisations for a long time. According to them, a safety culture depends on current employees of the organisation. They contend that culture will continue to exist even after some members have left. This means that new recruits normally adopt the existing culture through imitation, copying and adapting. In a strong safety culture, individuals will feel responsible to identify unsafe acts and conditions and will do everything in their power to correct them. In a case like this, employees will feel obliged to correct a manager or CEO if they feel and see that his/her behaviour is not safe. When the organisations safety culture is appropriate, they will value-reward correcting and pointing out unsafe behaviour. Likewise, co-workers routinely look out for one another and point out unsafe behaviours to each other.

A company with a strong safety culture typically experiences few at-risk behaviours, consequently they also experience low accident rates, low turn-over, low

absenteeism, and high productivity. They are usually companies who are extremely successful by excelling in all aspects of business and excellence.

Cooper (2000) suggests that safety cultures are trial and error processes taken in many steps, developed over years. The possibility of a strong and positive vision shifting a safety culture forms the basis of this study. The following section concentrates on the development of a safety culture.

2.6.1. Development of a safety culture

Since the study calls for a shift in culture, this means that there should be a conscious development of a culture going through several stages. Figure 2.1 below shows the development of a safety culture from a “pathological stage to a stage where it is generative. At this stage the organisation is high performing and excellence is the order of the day” (King 2013:¶5).

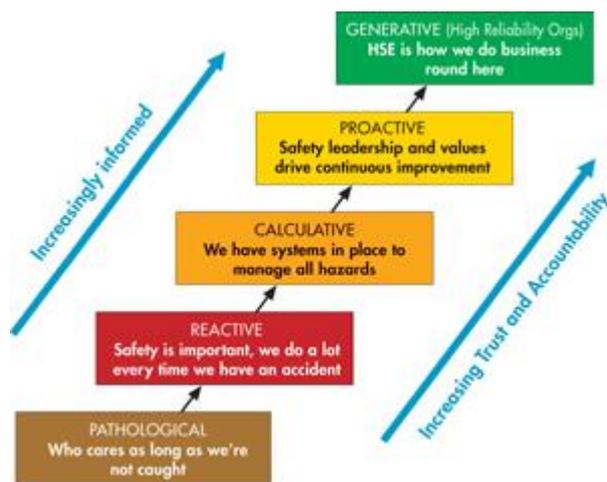


Figure 2.1: The evolutionary model of Safety Culture. (Hudson and Van der Graaf 2001)

The figure above shows five developmental stages of culture, divided into levels from the ‘Pathological’ to the ‘Generative’ levels.

- At the pathological stage, people do not really care about HSE and are only driven by regulatory compliance and/or not being caught.
- After an incident where something goes wrong, management starts to take Safety serious at the reactive stage. Management feels frustrated especially when they feel the employees does not follow instructions.

- At the calculative level, focus is on systems and numbers, collecting and analysing data. There are also many audits conducted. It is not always possible to prove the data collected and analysed.
- At the proactive level: here the employees start to be involved in the health and safety issues with the Health and Safety personnel giving advice and not being the executioners of safety. Everyone has moved away from what happened in the past and what should be done to prevent it from happening in the future to current involvement.
- Generative level: organisations set very high standards and attempt to exceed them. They use failure to improve, not to blame. Management knows what is really going on, because the workforce tells them. People are trying to be as informed as possible, because it prepares them for the unexpected. This state of "chronic unease" reflects a belief that despite all efforts, errors will occur and that even minor problems can quickly escalate into system-threatening failures (King 2013).

From discussions above, the highest level of this cultural development is specific and defined in stages. Since the basis of this study is a vision's influence in a cultural change, the following section explains what a safety culture is.

2.6.2. Culture as a driver of Excellence

For culture to drive excellence, it must comply with the following:

- the people must be aligned to the vision of the organisation,
- their actions must be consistent with the aspirations of the organisation,
- everyone should show and take accountability,
- there should be teamwork across the organisation, and
- employees must be and feel empowered to do the right things (Jamison 2005:1-40).

With this background and understanding, a discussion on the NWR safety culture follows, especially with respect to how it prevented the region from achieving excellent production results in the past.

The Injury Pyramid - Safety & Law of Probability



Figure 2.2: Safety and Law of Probability. (Du Pont de Nemours 2007).

The structure above builds up from the bottom. It will suffer if any of the bricks is missing, but most importantly, it will take time and serious energy to build. The next discussion will be what journey the NWR cultural transformation would take to reach a stage where excellence in safety performance is the norm.

The diagram below explains this shift from a reactive culture to one of interdependence. It further explains the expectations of the shift that is discussed above and which can be measured at any stage to determine the level at which the organisation is operating at.

Building Safety Excellence



Figure 2.3: Integrated Approach. Building Safety excellence. (Du Pont de Nemours 2007).

If the Vision had a positive impact then one would expect the organisations safety performance to be excellent as per the detail in the NWR safety vision. For an

understanding of the expectation, a definition and explanation of safety performance is necessary.

2.7. CONCLUSION

The study in this chapter has shown that when management creates a vision and there is an understanding, an acceptance, and a willingness to implement it by the general employee population, realizing success and seeing through performance is possible. With this theory discussed and the relationships between vision and culture established, the purpose of the study can be continued.

CHAPTER 3

RESEARCH DESIGN AND METHODS

3.1. INTRODUCTION

This chapter provides information on the research methods of this study. A survey is the research method of choice to determine the influence of visions on a safety culture. A description of the sampling technique and the measurement procedures follows. This chapter, in an attempt to provide for the analysis and interpretation of the data, reviews the employment of the research methodology, design, and procedures. Lastly, a discussion on data collection, analysis, and limitations of the study concludes this chapter.

3.2. RESEARCH METHODOLOGY

Leedy and Ormod (2005:12) describe research design as the researcher's general approach to carrying out a research project. The design of the study focuses on creating and executing a program to get answers to the research questions. This topic assists the researcher in selecting the research strategies and tools.

It is vitally important for management to choose and adopt an appropriate research method so that they can achieve practical, comprehensive, and valid results. Broadly, there are two common research paradigms (Easterby-Smith, Thorpe, & Lowe 1991). These are:

- positivist or scientific
- non-positivist or phenomenological

The research method chosen for this study will be the quantitative method thus a discussion on only the positivistic approach follows.

3.2.1. Positivistic paradigm

The positivistic approach attempts to explain social phenomena by establishing a relation between variables, which are information converted into numbers. Terre

Blanche *et al.* (2006) define the main research paradigms in social sciences as positivist, interpretive, and constructionist approaches. The positivist approach is more objective and aims to describe the laws that govern society. The approach impresses on empirically testing and verifying hypotheses and theories by using validated and reliable instruments. For the purpose of this study, the researcher makes use of a cross-sectional survey design targeting permanently employed Eskom NWR staff, with the main aim of describing the empirical relationship between the variables (Babbie & Mouton 2009). The purpose of the surveys is to elicit information from the respondents about their beliefs, opinions, characteristics, and past or present behaviour (Maree 2007; Neuman 2006; Oates *et al.* 2004).

The positivist approach is clear and usually involves the following steps:

1. Pose the research question
2. Gather data relevant to the research question
3. Systematize or order the data in ways that makes sense to the researcher
4. Analyse the data
5. Come to conclusions and make recommendations based on the findings

Essentially, the positivist approach looks for the existence of a constant relationship between events, or between two variables. The notion is that science becomes credible and possible because every scientist looking at the same bit of reality sees the same thing (Robson 2002:21). For the purpose of this study, the researcher will select a structured questionnaire administered to a certain number of employees from senior management to the ordinary employee.

As explained above, the design of the research is such to answer the research and management questions and to discover / define future research opportunities.

3.2.2. Rationale for selected paradigm

The author intends gathering information from individuals in order to arrive at a meaningful conclusion. It is the researcher's intention to analyse the data for this study using the positivist method, hence a sound understanding of the concepts is deemed necessary.

3.3. RESEARCH DESIGN

Research design is the approach taken to assimilate diverse aspects of a researched project into an organised and articulate way. Feng (2006:8) suggests that a research design is a way of constructing the project in order to respond to pre-determined set questions. According to Adams and Schvaneveldt (1985:103), research design involves how a researcher will create a plan or a blue print of how he will collect data and how he will interpret the data. The process also includes the rules of how the researcher will conceptualise the problem and find a solution to the questions asked. The research design is thus the general approach an investigator will follow to solve the research problem (Leedy & Ormod 2005:85).

The research design for this study is explained as follows:

To yield data for this investigation, the researcher makes use of a quantitative method design for data collection, by administering a questionnaire to a representative group, as discussed in population and sampling selection below.

3.3.1. Research variables

Neuman (2006) and Terre Blanche *et al.* (2006), put forward that a variable is a concept that can be measured. According to them, a variable can be either dependent or independent. To produce an outcome an independent variable will cause an effect or have to act on a dependent variable. For the purpose of this study, the independent variable will be the vision and the dependent variable will be the safety culture. The study concentrates on establishing whether there is a significant statistical relationship between these two variables.

In the following section, the researcher will provide a brief description of the sampling technique used in this study.

3.4. POPULATION AND SAMPLING SELECTION

Blaikie (2003:161) states that a population is a combination of all units that fit into a chosen set of criteria. Elements will be single units of a population; these might be

things such as people, social actions, events, places, or times. The population might be whatever the researcher wants it to be. The targeted population for this specific study will be bona fide employees of Eskom in the North Western Region.

According to Scott and Morrison (2006:219), sampling refers to the action of selecting a subset of persons or things from a bigger population. The selection method of the sample will determine whether the process and findings of the research will be valid and reliable. Christensen (2001:198) suggests that the sample must have the same characteristics as the people in the bigger population.

The sampling method that was used was a probability method and the strategy used was a stratified sampling technique. In this study there are specific sub-groups that were studied, for example demographic groupings.

The group was divided into the following: From a total population of 1143 employees, the researcher targeted a sample of 350 employees divided into 35 managers, 40 supervisors and 275 other employees (who are not managers or supervisors). The researcher collected data through a survey. Once data was collected it was subjected to interpretation.

Due to the limited time and resources, purposive sampling forms the basis of this study. The researcher can therefore make face-to-face contact with the respondents or via e-mail to take part in the survey. Data collection was as follows: the sample size must yield at least a 95% confidence interval and a plus/minus 5% point margin of error.

Those not on face-to-face contact, received an e-mail explaining the purpose of the study.

3.5. DATA COLLECTION STRATEGIES

3.5.1. Design of the Questionnaires

For the purposes of the study, the researcher distributed structured questionnaires to 35 managers, 40 supervisors and 275 other employees (general staff). The total number of expected respondents was 350.

On designing the questionnaire, Scott and Morrison (2006:192) suggest that the key issue is to provide for measurement. The questions must be set in such a manner that they will promote the responses and link them directly to what the researcher wants to measure. Muijs (2004:45) argues that it is very important to be mindful to design a questionnaire relevant to what he wants to achieve. The researcher must also take note of the wording of the questions so that they include the correct aspects of the research. This means that it is very important for the researcher to think carefully about the questions he is to ask.

The questionnaire in this research obtains information on vision and its influence on the organisation's safety culture. The questionnaire contains statements that will identify and measure the key aspects of an influence on culture. Each statement corresponds to the model for improved safety culture. The questionnaire comprises of a 4-point scale and the researcher instructed the respondents during the administration of the questionnaires to mark the most suitable answer. The scale ranges from 1 to 4 as follows:

1. Strongly agree
2. Agree
3. Strongly disagree
4. Disagree

3.5.2. Methods used to ensure reliability and validity

There will be measures in place to ensure a valid and reliable research process:

Validity

Babbie and Mouton (2009) define validity as the extent to which the measuring instrument adequately reflects the real meaning of the concepts investigated. Internal and external validity are imperative for a good research design. Terre Blanche *et al.* (2006) emphasise the importance of clearly stating the purpose of the study, theoretical paradigms underpinning the study, taking into cognisance the context within which the research will take place and the research technique. The

representativeness of the sample and the instrument used are also critical in ensuring validity of the study. In this study, the researcher ensures validity through:

- Using the models and theories relevant to the research topic, aim, and problem statement as guidelines.
- Selecting measuring instruments applicable to the models and theories informing the study and presented in a standardised manner.

Selection of a representative sample ensures external validity. Identification of plausible rivalry hypotheses and eliminating their impact assists in achieving design validity.

Data will be electronically collected, stored, and analysed. The administrator will use a password, only known to him/her, to access the data, ensuring the protection and authenticity of data.

Reliability

Reliability refers to the extent to which the measuring instrument gives the same results when used repeatedly (Terre Blanche *et al.* 2006). In terms of the research process, the researcher ensures reliability as follows:

- Data collection: inviting only staff from the NWR to participate in the study.
- Data management: the researcher will safely store all data collected. Due to the logistics involved there will be hard copies collected and these and electronic surveys will be safely stored. Access to the electronic data will be restricted to the researcher by the use of a code.
- Data analysis: SPSS, a statistical package will be used to analyse the data to ensure reliability. The Cronbach Alpha coefficients will be used to establish internal consistency and resultant reliability of the instruments used to collect data. According to Durrheim and Tredoux (2006), and Terre Blanche *et al.* (2006) a reliability coefficient of between 0.70 and 0.75 is adequate for research instruments.

3.6. PREPARATION OF DATA

The researcher will code, capture, and then evaluate the data in terms of frequency counts in order to ensure clean data that has no discrepancies and invalid information in the dataset.

3.7. DATA ANALYSIS

3.7.1. Reliability through Cronbach's Alpha

Reliability is the degree to which the measurement supplies consistent results. Evaluating the calculated Cronbach's Alpha, assesses the internal consistency or homogeneity among the test items. An alpha value in excess of 0.6 indicates an acceptable internal level of consistency.

A quantitative research approach was used for this study and the statistical data was processed and analysed by means of descriptive (means and standard deviations), inferential and correlational statistics. The SPSS (Statistical Package for the Social Sciences, 2003) programme was used to analyse the data. The Cronbach Alpha coefficients was used to assess the internal consistency reliability properties of the instruments.

3.8. RESEARCH ETHICS

The researcher will abide by the following ethical guidelines derived from research ethics proposed by Bryman and Bell (2007:149):

- Written consent obtained from Eskom North West Region prior to accessing and requesting employees to participate in the study.
- An informed consent obtained from the respondents before the commencement of the study.

- The confidentiality and anonymity of respondents was guaranteed, to encourage the respondents to participate in an open and honest manner.
- The researcher was the only individually who had access to personal information of the respondents.
- The researcher will be the only individual who will communicate the findings of the study to the Eskom North Western Region's Management during the actual research, as well as in a written reports and oral presentation of the findings.

This chapter set out the methods for data collection and enquiry. In investigating the influence of a safety vision on an organisational culture, the researcher utilised a quantitative approach.

3.9. CONCLUSION

Chapter three discussed the research design and the methodology used for the study. This was a descriptive study based on the quantitative design and analysis method. This method was used to gain a deeper understanding regarding a vision and its influence on a safety culture. The next chapter presents the results obtained from these techniques and analysis.

CHAPTER 4

RESULTS AND FINDINGS

4.1. INTRODUCTION

The methodology described in the previous chapter provided the baseline for data gathering in this chapter. The presentation of data links systematically to the format of the self-developed questionnaire attached in the appendix. The researcher used the following to analyse the data: description of the sample, main results, and discussion.

4.1.1. Data collection and response rate

The researcher carried out the data collection that took place in the months of July and August 2014. For relevance and easy access for research purposes, the Eskom NWR is the focus of this study. The response was not reasonably quick considering other business demands on prospective respondents. A questionnaire served as an empirical method to collect data for this study. Respondents received the questionnaire that included a letter of approval as well as a letter explaining the research via e-mail.

The total number of employees in the Region is 1143. The sample size considered was 350, with 291 questionnaires were completed and returned, which is a good representation of the population. Table 4.1 below represents the response rate. The respondents were representative of managers, supervisors, and employees. In totality, 350 respondents received questionnaires via e-mail. Of these, 291 respondents returned their completed questionnaires, which represented a response rate of 83.14 per cent. According to the table used by Krejcie and Morgan (1970), for a population size of 1143 the response should be a minimum of 285. The response rate of 291 respondents is above the minimum threshold, it is therefore reasonably good.

Table 4.1 Response rate of the structured questionnaire

	MANAGERS	SUPERVISORS	EMPLOYEES	TOTALS
Population	57	44	1042	1143
Sample	35	40	275	350
Response	16	22	253	291
% of total returned	5.82%	7.53%	86.64%	83.14%

The next section focusses on and discusses the characteristics of the targeted group.

4.2. DEMOGRAPHIC CHARACTERISTICS OF THE TARGETED SAMPLE

4.2.1. Demographic data

Table 4.2 presents the demographic profiles of the samples to give a clear picture of the surveyed group.

Table 4.2 Respondents as per gender

GENDER		
	Frequency	Percentage
Male	222	75.53%
Female	69	23.53%

Due to the demographic make-up of the organisation, there were more males than females. Of the 291 respondents, 222 were male representing 75.85 per cent, and 69 were females representing 23.53 per cent. These results are within expectation because the organisation, by historical design, consists of more males than females. The response rate per gender is thus representative and acceptable.

The following table presents the respondents according to their race.

Table 4.3 Respondents according to race

RACE				
	Frequency	Percentage	Cumulative Frequency	Cumulative Percentage
African	209	71.82%	209	71.89%
White	63	21.65%	272	93.47%
Coloured	19	6.53%	291	100%
Asian	0	0		100%

Table 4.3 categorises the respondents according to race. There is no particular expectation for the study from this table except to show the demographics of the group that responded. The respondents per race are also within the demographic divisions that exist in the organisation. More males that are African work in the organisation than any other race. The researcher is satisfied that the respondents were representative of the demographics. The no-response from the Indian community is of no concern, as the number of people of Indian origin is very small in this region.

The following table will show the number of years the employees spent in the organisation.

Table 4.4 Years in service

YEARS IN THE ORGANISATION				
	Frequency	Percentage	Cumulative Frequency	Cumulative Percentage
5 to 10	184	63.23	184	63.23
11 TO 20	32	10.99	216	74.12
21 and above	75	25.77	291	100

This table indicates a higher number of respondents who were relatively new to the organisation when the vision was first implemented.

Table 4.5 Age distribution

AGE				
	Frequency	Percentage	Cumulative Frequency	Cumulative Percentage
22 - 30	68	23.36%	68	23.36%
31 - 40	115	39.52%	183	62.88%
41 - 50	43	15.12%	226	78%
51 -older	64	21.99%	291	100%

The table above shows different categories of respondents' ages and the percentages per category. The above table shows that the majority respondents are in the 41 to 50 age group. The researcher expected this, as the highest number of employee's falls in this group, including management. There are fewer entry level employees who have qualified in the last five years, than employees who have been in the organisation for more than five years and are thus at a more advanced age, say above thirty years of age. This justifies the spread of respondents according to age.

The next question dealt with the location of the respondents.

4.2.2. Question 2.1

The respondents indicated their location as shown in the table below. The numbers indicated on the bar chart represent the percentage respondents of where they are located.

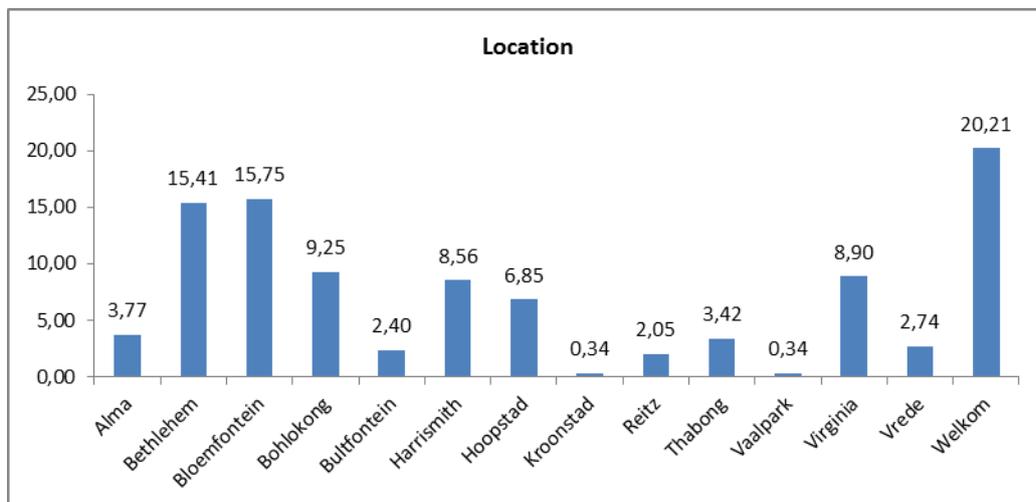


Figure 4.1 Location of the respondents

Figure 4.1 above shows the geographic location and numbers of the respondents. A few people in Kroonstad responded whilst the highest number of respondents was in Welkom. The Welkom Sector had a higher response rate because they have a higher number of employees than the other Sectors. The other reason might be that the Sector Manager personally assisted the researcher in encouraging employees to complete the surveys.

The following question surveys the job level of the respondents.

Question 2.2

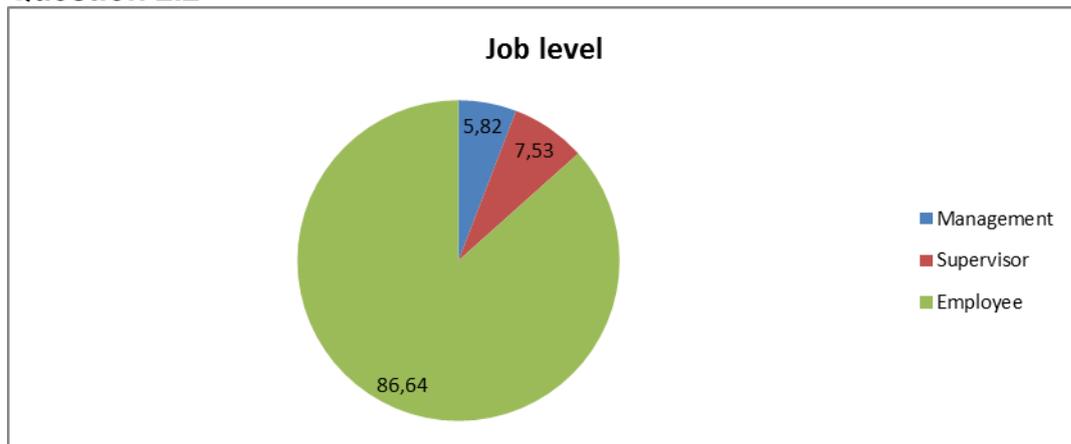


Figure 4.2 Graphical representation of the response rate per job level

The above graph shows the job categories of respondents who completed the survey. As can be observed, the management response was very low which is of concern.

The following question dealt with participants' opinion (in order of importance) on the four categories in their operations.

4.2.3. Question 2.3

The participants were requested to rank, in an order from 1 to 4, which the item they think is the most important; ranked highest (1) and that with least importance ranked lowest (4).

Table 4.6 Ranking aspects in order of importance

Priority	Frequency	Percent
1 Quality, customer focus	8	2.7
2 Cost efficiency	66	22.6
3 Production volume	122	41.8
4 Safety	96	32.9

The above table shows that respondents considered production volume more important than safety. Figure 4.3 below shows the same priority ranking in a pie chart format. The priority ranking is another result that is of concern to the researcher, because management has always been stressing the importance of safety above everything else. The researcher will discuss this issue in the findings and recommendations.

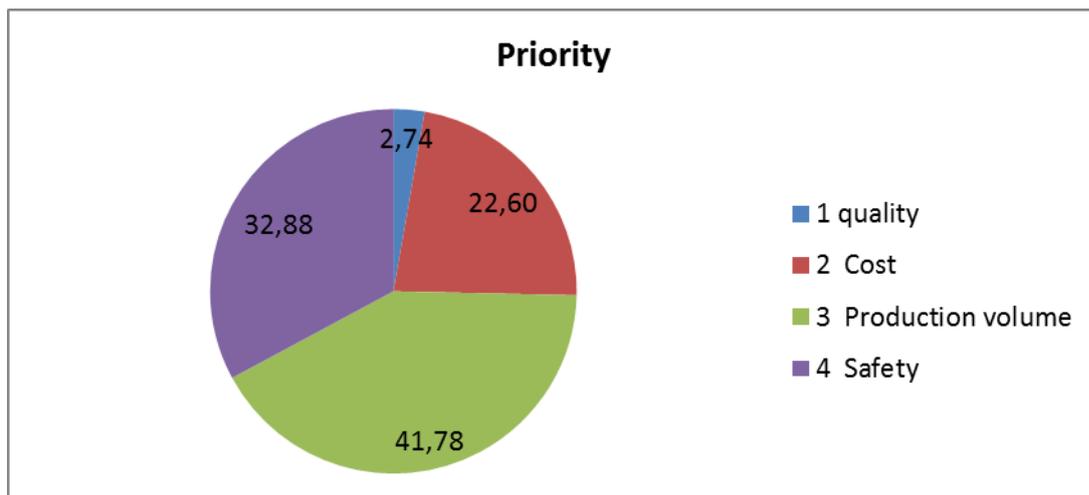


Figure 4.3 Graphical representation of the priority ranking

Discussion: According to feedback received, a higher percentage of participants regard production as the most important in operations, followed by safety. Cost efficiency and quality-customer focus occupy the last two priorities respectively. The researcher understands this as the participants are from an engineering and asset creation environment. The organisation has a separate customer services department.

The following questions dealt with the respondents' opinion on the Regional safety vision and the safety culture.

4.3. SECTION 2

Section 2 discusses all remaining questions, which are pertinent to the study. There are three groups of questions. The first group will concentrate on the safety vision and the second group will discuss the safety culture. The last group will discuss any other question the researcher feels is very important to determine attributes. The following attributes in this group will include communication, safety performance satisfaction, and safety integration in the operations, training, management commitment, and discipline.

4.3.1. Question 3

Questions 3.1 to question 3.5 dealt with the first section on the safety vision. The following figure will present the results from the above table in a bar chart format.

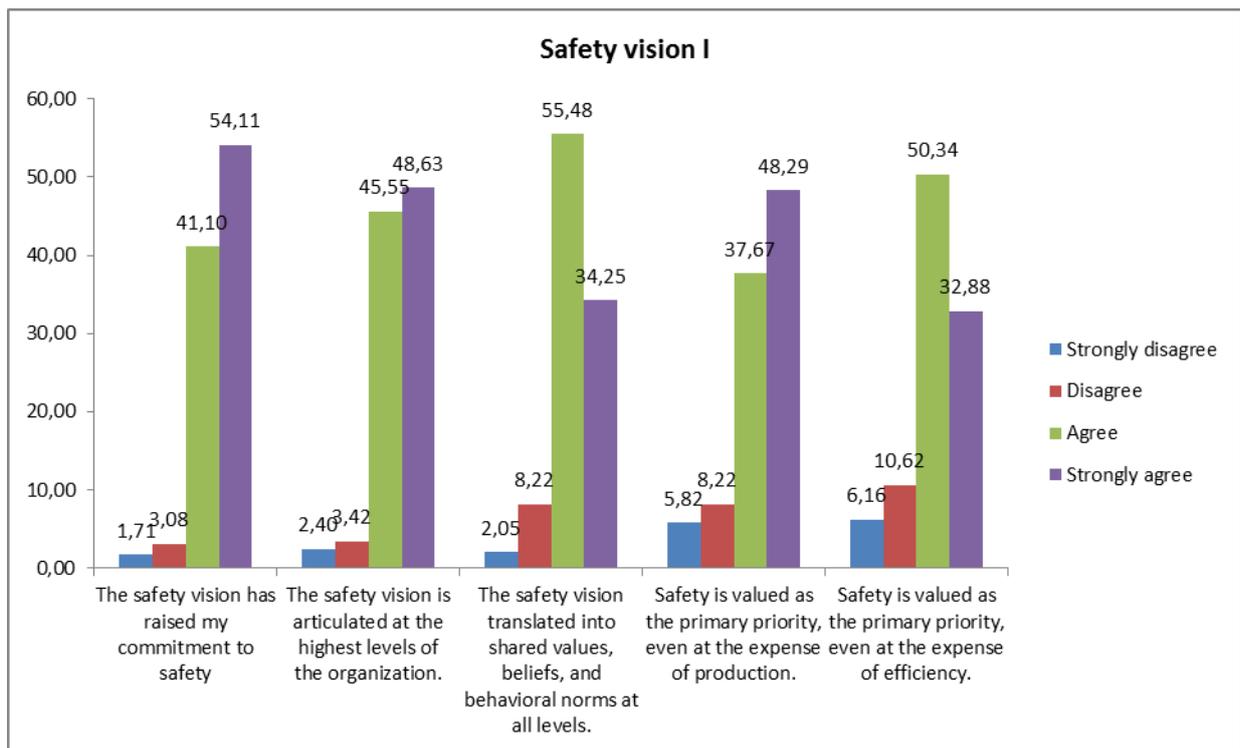


Figure 4.4 Safety vision questions

Most of the respondents (54.11%) strongly agree that the safety vision has raised their commitment to safety. From this group 48.63 per cent has a strong opinion that the vision is articulated at the highest level in the organisation, 55.48 per cent believe that the safety vision is translated into shared values, beliefs and behavioural

norms at all levels. Only 48.29 per cent strongly believe that safety is valued as the primary priority even at the expense of production, and lastly 50.34 per cent believe that safety is valued as the primary priority even at the expense of efficiency. Only a small percentage for each question had a negative opinion on the safety vision.

The results of a vision articulated at highest level can be seen in the work done by Watson *et.al.* (2005), who suggested from their studies that management who are perceived to value safety have an effect of lowering levels of employee safety incidents and risk taking thus encouraging a higher commitment level by employees to safety. Rudmo and Hale (2003) found from their studies that high levels of management levels through giving visionary leadership resulted in high levels of employee commitment, high levels of employee risk awareness and an increased management resource investment in health and safety. Bass (1985 cited in Bass & Bass 2008) found that implementing a safety vision and clearly articulating how its results may be achieved and acting consistently with its values included setting clear safety goals, setting performance standards and rewarding good safety performance. This resulted in employee raised safety commitment.

The next set of questions continues with the safety vision but concentrating on communication.

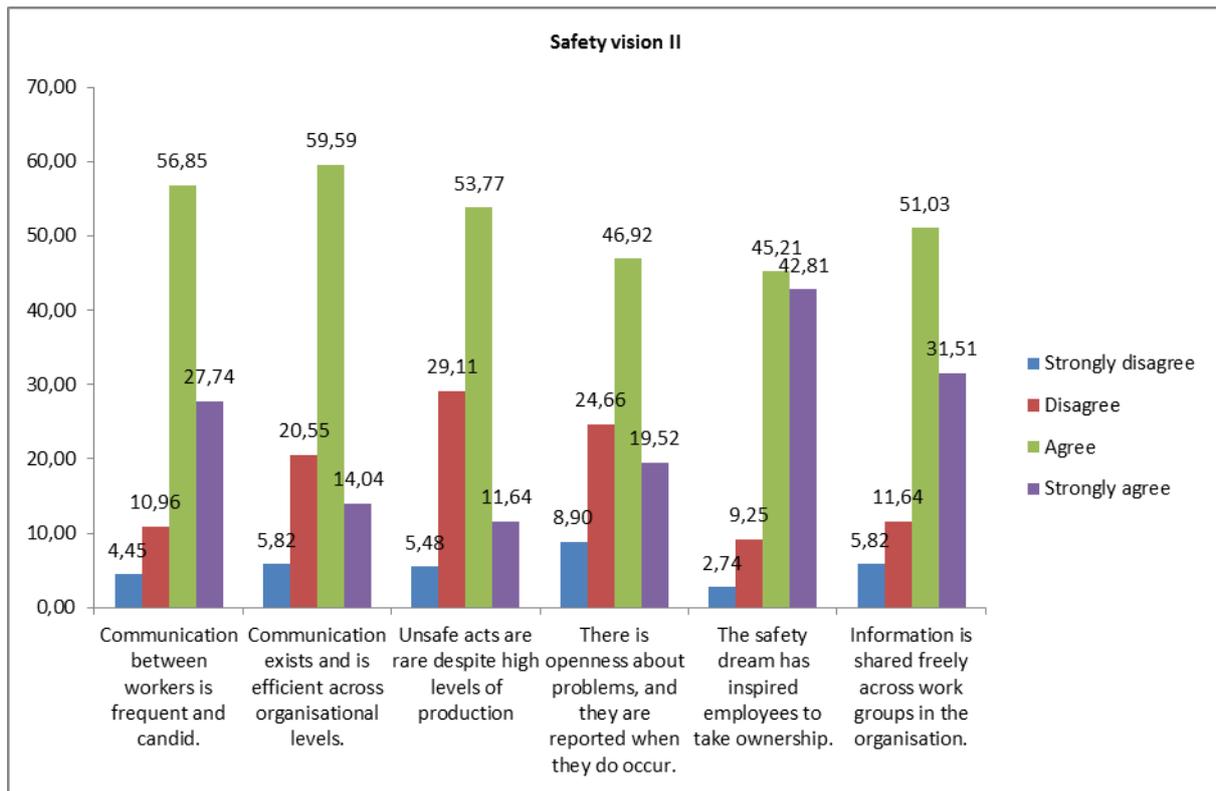


Figure 4.5 Safety vision

This section of the safety vision concentrated on existing communication about safety and related topics in the organisation.

From this group 56.85 per cent agree that communication between workers is frequent and candid, with 59.59 agreeing that communication exist and is efficient across organisational levels. A further 53.77 per cent of respondents agree that unsafe acts are rare despite high levels of production, 46.92 per cent agree that there is openness about problems and that they are reported when they occur.

Another 45.21 per cent of respondents agree that the safety dream has inspired employees to take ownership of their own safety with 42.81 per cent strongly agreeing.

According to the respondents, 51.03 per cent of them agree with 31.51 strongly agreeing that information is shared freely across work groups in the organisation. A 42.81 percent of respondents in this category strongly believe that the safety dream has inspired employees to take ownership of their own safety.

Park *et al.* (2001) found that when employees have a perception of a supportive leadership they tend to work safer. Flemming (2001) concluded in his studies that

when management leads by example businesses experience reduced levels of employee risk-taking, which means lower levels of safety incidents.

Muller (2005) then suggested that open and honest communication result in employees who are willing to raise their safety issues with management. These employees would normally have a positive perception that their safety issues will be acted upon.

The following set of questions deals with the organisations safety culture.

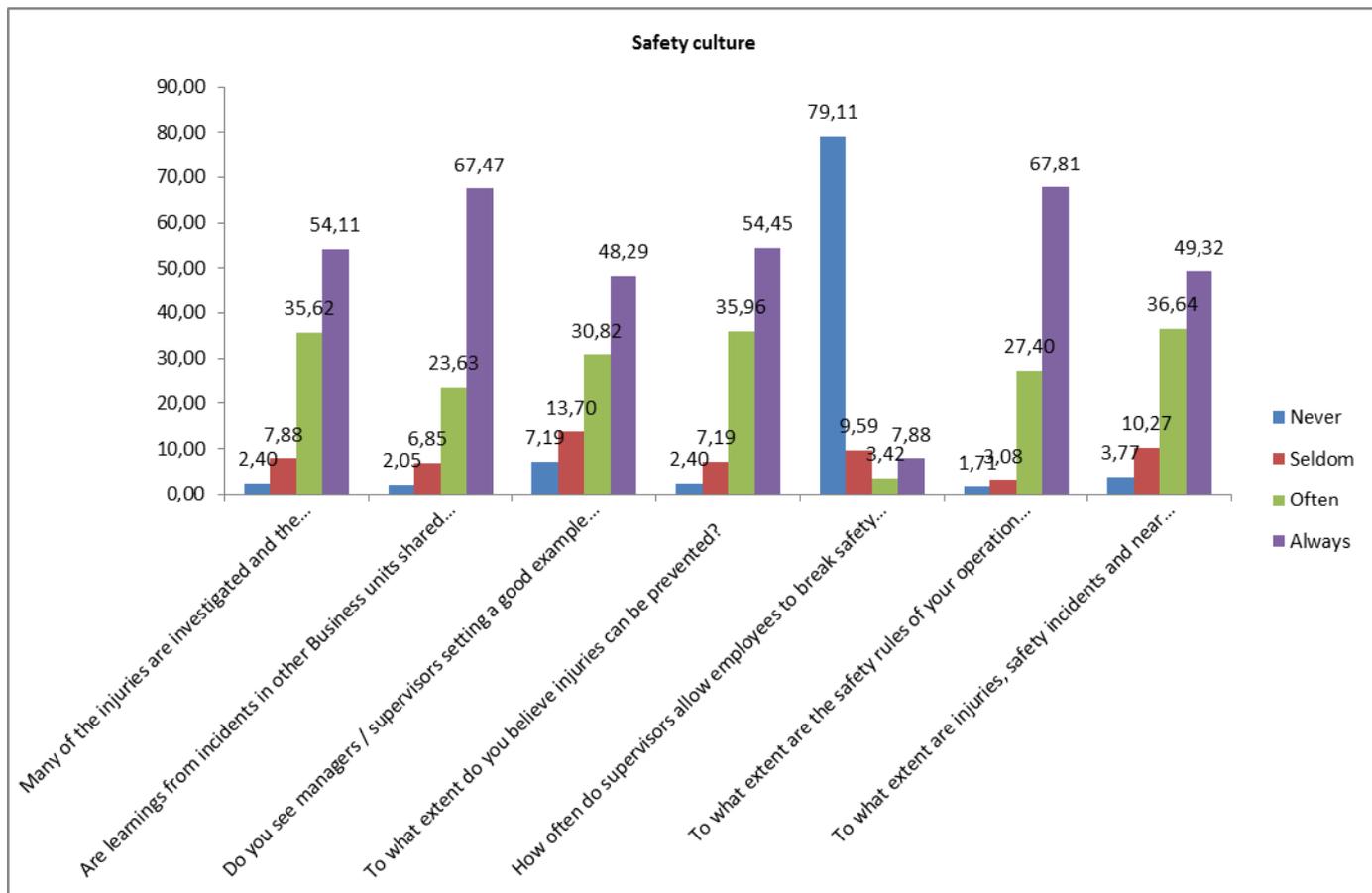


Figure 4.6 Safety culture in the organisation

Respondents in this set of questions gave their opinion on the safety culture in the organisation. In this section, 54.11 per cent of respondents believe that many of the injuries are always investigated and recommendations implemented. A further 35.62 per cent of respondents believe that many of the injuries are often investigated and the recommendations implemented.

A 67.47 per cent of respondents agree that learnings from incidents in other business units are always shared with them and a further 23.63 believe that the learnings are often shared with them.

Of the total number of respondents, 48.29 per cent see managers and supervisors as always setting a good example when it comes to their own safety behaviour, and 30.82 per cent see managers and supervisors often setting a good example when it comes to their own safe behaviour.

On their belief system, a 54.45 per cent of participants believe that injuries can always be prevented with a further 35.96 per cent believing that injuries can often be prevented. A further 67.81 per cent of respondents believe that safety rules of their operation are always obeyed with a further 27.40 per cent believing the safety rules of their operations are often obeyed.

Lastly, 41.32 per cent of respondents believe that injuries, safety incidents, and near misses are investigated and recommendations always acted upon, while a further 36.64 per cent believe that these incidents are often investigated and recommendations acted upon.

There is however is smaller percentage of participants who have an opposing view for each of the questions.

Kelloway and Barling (2010) suggest that when safe behaviour is not enforced and management do not talk about safety and do not communicate that safety is priority, it will have a detrimental effect on safety performance.

The next question dealt with the integration of safety in the operations.

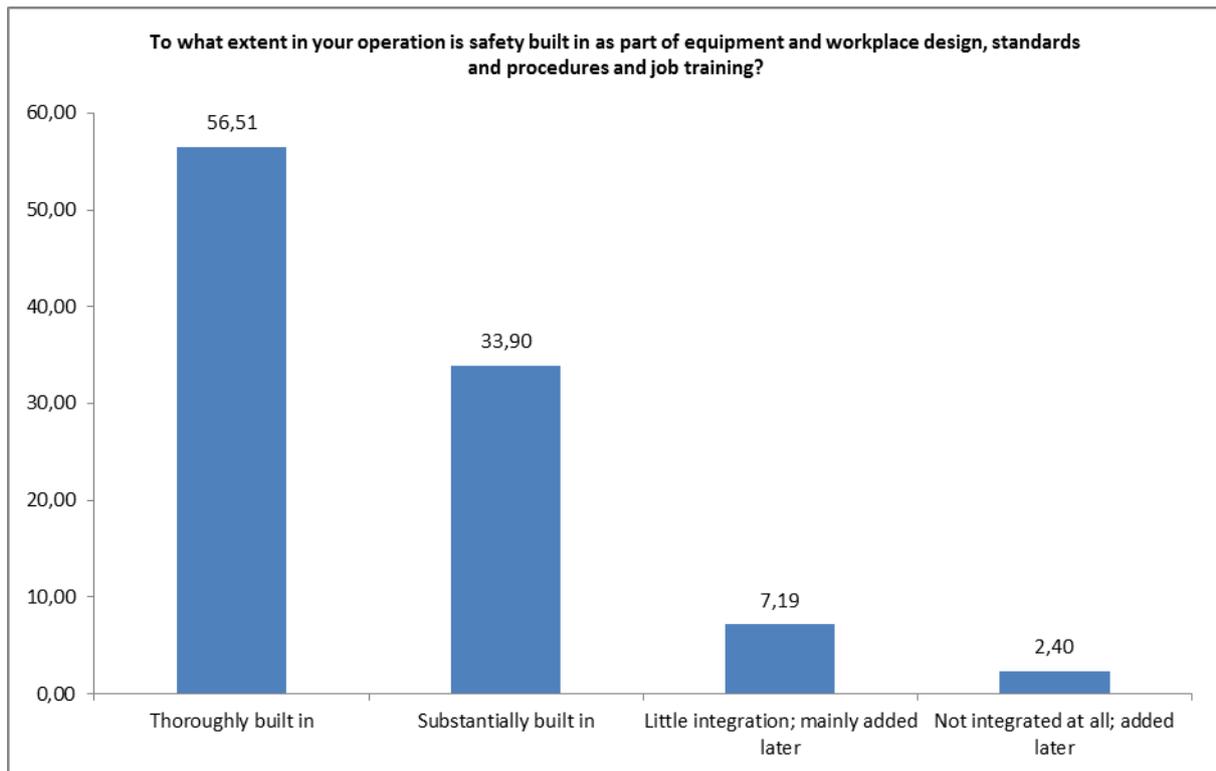


Figure 4.7 The extent at which safety is built into operations

This question attempts to determine the opinion of the respondents to what extent safety is built-in to their operations, from design to process implementation and maintenance.

56.51 per cent of the respondents believe that safety is thoroughly built-in and a further 33.90 per cent believe safety is substantially built-in as part of equipment, workplace design, standards, and procedures, including training in their operations. Only 2.4 per cent believe that safety is not integrated in their operations at all, with 7.19 per cent of the opinion that there is little integration.

In the following question, the participants respond on disciplinary action taken against non-compliance.

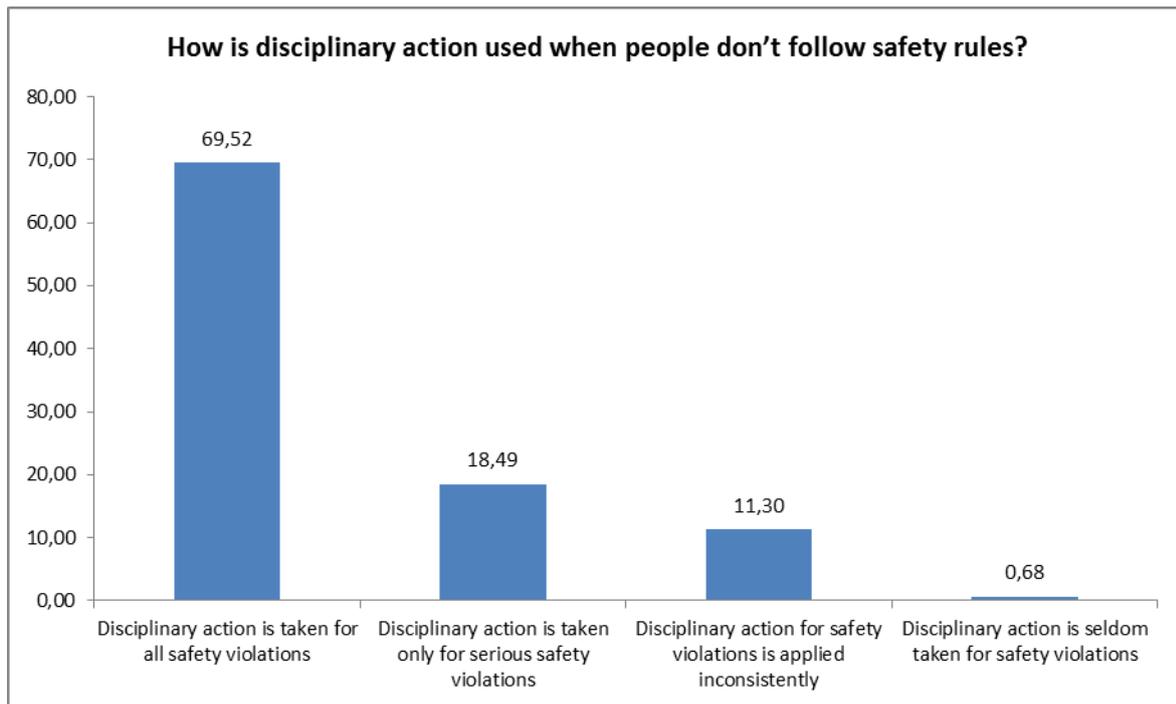


Figure 4.8 Disciplinary action taken against non-compliance

This question shows inconsistency in the application of discipline for safety violations. Here, only 69.52 per cent agree that disciplinary action is taken for violating all safety rules. A small 18.49 per cent believe disciplinary action is taken only for serious safety violations. The other 12.98 per cent either believe that there is an inconsistency in applying disciplinary action for safety violations. A very small percentage of about 0.18 believe that disciplinary action is seldom taken.

Kellolway and Barling (2010) found that management who does not enforce discipline on safety related non-compliance have a detrimental effect on safety performance. Probst and Estrada (2010) also agreed by stating that enforcement of safety policies leads to a lower number of incidents, thus a lower level of injuries. Cigularor *et al.* (2010) also suggested that a reduced level of employee risk behaviour is as a result of positive safety behaviour which is also enforced.

The following question concentrated on empowerment of respondents to ensure their environment is safe.

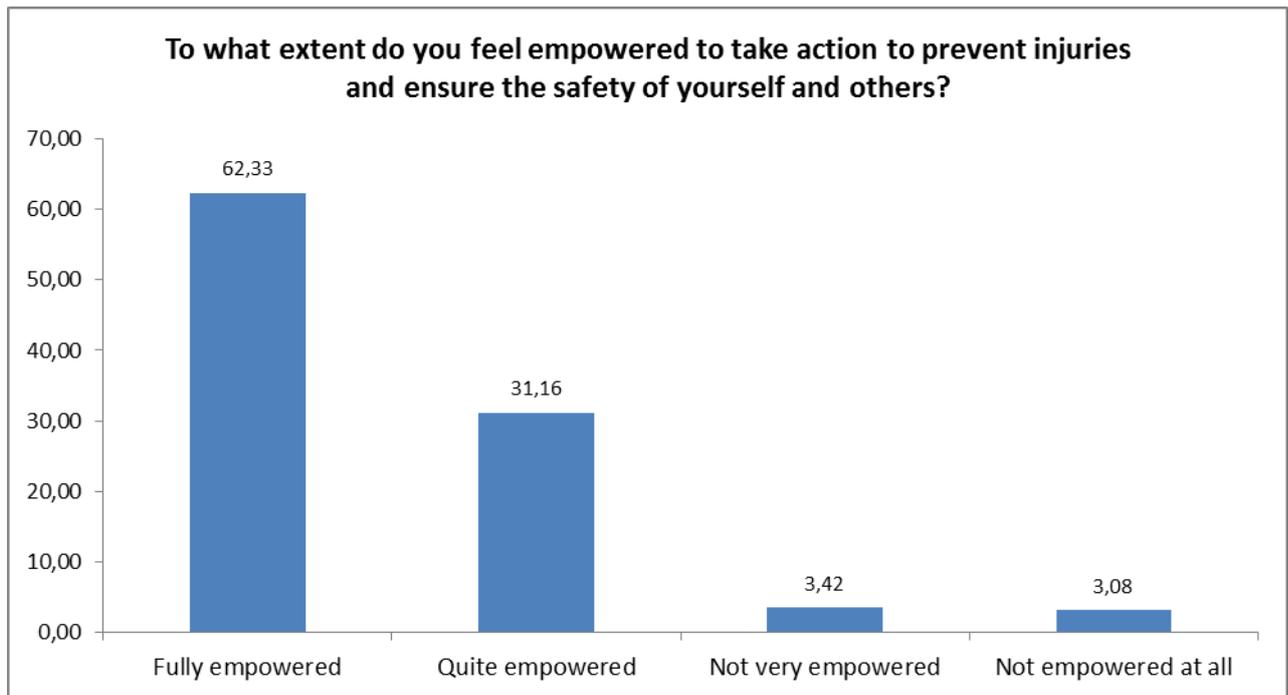


Figure 4.9 The extend of empowerment to prevent accidents

Sixty two per cent of the respondents feel that they are fully empowered to take action to prevent injuries and ensure the safety of self and others, 31.16 per cent feel that they are quite empowered to take the same action with 3.42 per cent believing that they are not very empowered. Only 3.08 per cent believe that they are not empowered at all to take action to prevent injuries and ensure the safety of themselves and others.

The following question dealt with safety training in the past two years.

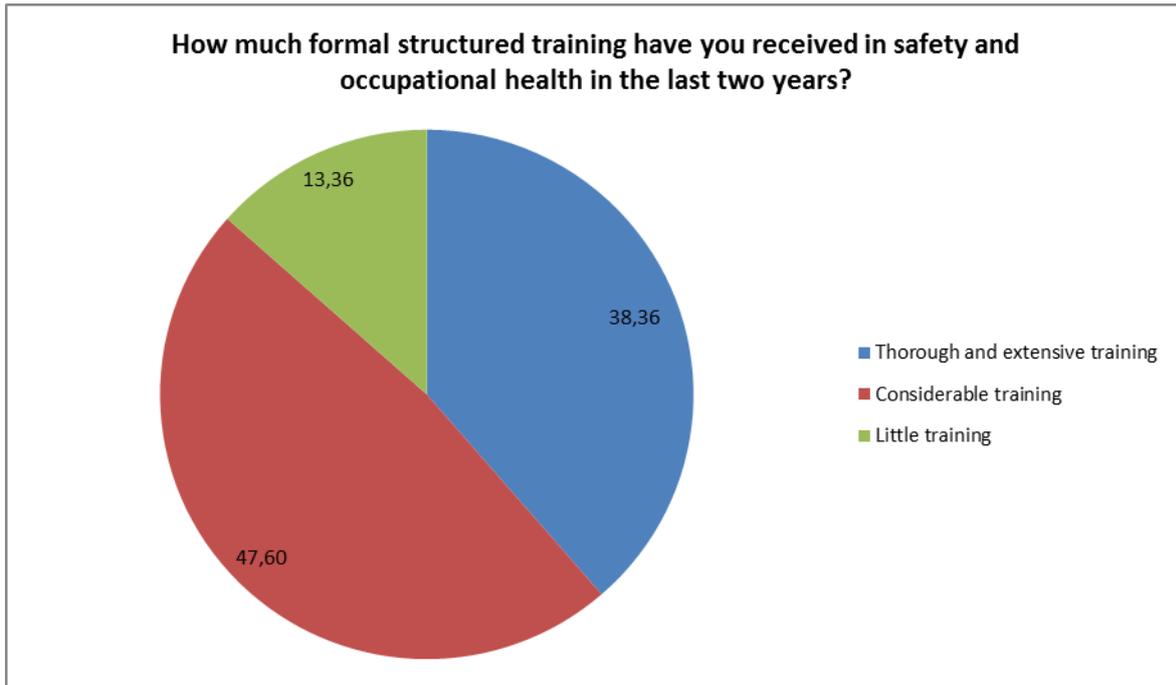


Figure 4.10 Formal training

A low 47.6 per cent of respondents confirmed that they received formal structured safety and occupational health training in the past two years, 38.36 per cent of the respondents feel that they have received thorough and extensive training in the past two years. This is however in contrast to 13.26 per cent of respondents who claimed to have received little training in safety and occupational health.

The following question (last) concentrated on the level of satisfaction the respondents feel about their organisation's overall safety performance.

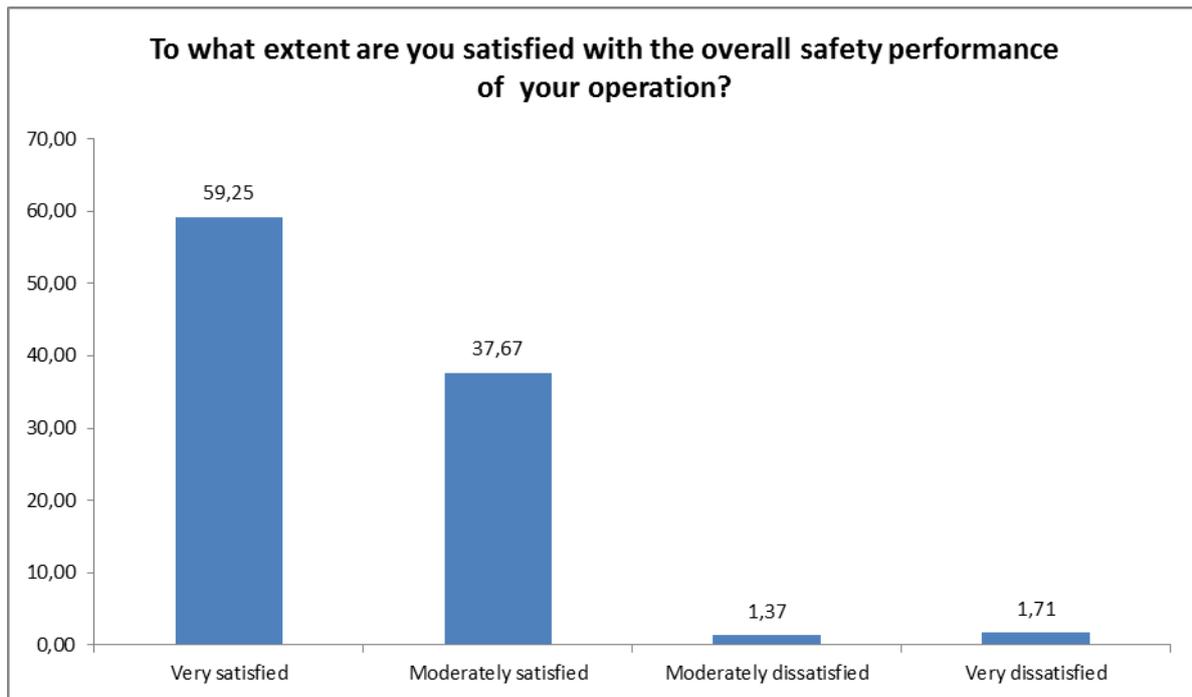


Figure 4.11 Overall safety performance

This question determines the extent at which respondents are satisfied or not satisfied about the safety performance of their operations. For this question, 59.25 per cent of the respondents are very satisfied with the overall safety performance of their operations. 37.67 per cent of the respondents believe that they are moderately satisfied with the overall safety performance of their operations. A very small percentage (1.71%) of the respondents is dissatisfied with the overall safety performance of their operation.

The following section will deal with the analysis and interpretation of the data. This section will concentrate on the main results, which would be reported by means of descriptive statistics, factor analysis, and correlation analysis.

4.4. INFERENCE STATISTICS

Factor values

A 4-point scale represented questions regarding safety culture and safety vision (Q 3.1 to Q 3.18). The researcher added the responses and divided by the number of respondents giving a MEAN (average) value ranging from 1.00 to 4.00 with 2.00 the middle value. The closer the MEAN is to 4.00 the more positive the respondents are

regarding this specific issue. Because we are working with categorical variables, we cannot interpret the mean as is. Therefore, the MEAN for each question must be changed into a factor value (FV) or an Average Score. The FV is then calculated. A MEAN of 2.00 is therefore equal to an FV of 0.5 (or 50%). A high FV (> 0.5) indicates that the majority of the respondents agree with or are in favour of whatever is in the statement or question.

For satisfaction, in question 23, a high FV (> 0.5) indicates that the majority of the respondents are satisfied with the overall safety performance. The vision is supposed to assist in creating an environment where the safety performance of the organisation is conducive and employees suffer no harm.

The researcher calculated the average scores to compare safety culture and safety vision for the demographic groups, comparing responses from different locations, job levels, as well as different priority levels. The group with a higher value showed more support than the other groups. The researcher used ANOVA to test these results.

Table 4.7 Factor values

Variables		Safety vision	Safety culture	Satisfaction
Location	Bloemfontein	0.754	0.756	0.337
	Welkom	0.792	0.773	0.369
	Harrismith	0.760	0.750	0.410
	Virginia	0.798	0.797	0.298
	Vrede	0.832	0.830	0.375
	Hoopstad	0.851	0.875	0.250
	Alma	0.876	0.821	0.364
	Bethlehem	0.752	0.760	0.389
	Bultfontein	0.795	0.770	0.321
	Reitz	0.538	0.905	0.417
	Bohlokong	0.779	0.787	0.435
Thabong	0.755	0.789	0.425	
		Safety vision	Safety culture	Satisfaction
Job level	Management	0.781	0.788	0.353
	Supervisor	0.796	0.802	0.398
	Employee	0.776	0.781	0.362
		Safety vision	Safety culture	Satisfaction
Priority	1	0.727	0.732	0.281
	2	0.812	0.779	0.341
	3	0.761	0.768	0.393
	4	0.781	0.811	0.349

Reliability

The research involves constructing two variables, safety culture and safety vision, by summing up a number of relevant question responses. Therefore, a reliability test is important to determine whether all items should be included in constructing the scale

variable. A Cronbach alpha coefficient was calculated to determine the reliability of the variable used as well as to test whether or not the items used for a construct/variable actually measured that particular construct. For a reliable scale, the value must be above 0.5. From the constructed variables the Cronbach's alpha are both greater than 0.5.

The Cronbach results yielded the following results on the following table.

Table 4.8 Cronbach's Alpha

Variables	Cronbach's Alpha	N of Items
Safety vision	0.831	11
Safety culture	0.599	7

Conclusion

The constructs are reliable because they have a Cronbach alpha coefficient above 0.5. Based on the results, safety vision and safety culture variables were constructed. These were constructed by summing up all the responses of the relevant questions associated with each of the 2 variables. For safety vision Questions 3.1 to 3.11 were used and for safety culture Questions 3.12 to 3.18 were used.

Analysis of variance (ANOVA)

From a glance, the average scores calculated in this section indicate some differences in safety culture and safety vision among different groups i.e. job level and priority. Nevertheless, an analysis of variance (ANOVA) was done as a formal test in order to determine whether these differences in average scores reported above are statistically significant. In other words, this is a test on whether or not perceptions on safety culture and safety vision differ among the 3 job level groups as well as among the 4 priority groups. It is important to note that ANOVA is used when one wants to see if the group means of interval variables differ from one another, and it is used when you have 3 groups or more to compare.

For conclusions on whether the variables are different or not we looked at the p-value and compared it to a value of 0.1 (10%). If the p-value is less than 0.1 then there is a significant difference among the groups. If the p-value is greater than 0.1 then there is no significant difference among the groups.

Table 4.9 Job level and priority

	Job level	
Safety vision	0.317	0.729
Safety culture	0.961	0.389
	Priority	
Safety vision	3.393	0.018
Safety culture	3.752	0.011

For job level groups the p-value for safety vision is 0.729 and is greater than 0.1. This means that the perceptions on safety vision are the same across the different job levels. Similarly, safety culture has a p-value that is greater than 0.1 (i.e. 0.389) which means that the perceptions on safety culture are the same across the different job levels.

For priority groups, the p-value for safety vision is 0.018 and is less than 0.1. This means that there are significant differences in the perceptions on safety vision among the priority groups. Furthermore, there are also significant differences in the safety culture perceptions among the 4 priority groups, indicated by a p-value of 0.011, which is less than 0.1.

Post Hoc Tests

Considering that there were significant differences in perception on safety vision and safety culture among priority levels, a further test determined which of the priority groups have different perceptions. The test used in this case is the Tukey test.

This test involves testing significant differences between two priority groups at a time.

Table 4.10 Safety vision and culture

Safety variables	Priority groups	Mean Difference	P - value
Safety vision	2 3	2.245	0.020
Safety culture	3 4	-1.198	0.016

For safety vision, the significant difference is between priority level 2 and priority level 3. This means that these two priority levels have significantly different perceptions on safety vision. For safety vision, priority level 2 has a higher perception of safety vision than priority level 3.

From the mean difference we can see that the perceptions are higher or more positive for priority level 2 than priority level 3.

For safety culture, the significant difference is between priority level 3 and priority level 4. This means that these 2 priority levels have significantly different perceptions on safety culture. For safety culture, priority level 3 has a higher perception of safety culture than priority level 4.

From the mean differences we can see that the perceptions are lower for priority level 3 than priority level 4.

Correlation and regression tests

Test of Normality

In order to test for a correlation, a test had to be conducted to show whether the 2 variables, safety vision and safety culture, are normally distributed.

The study looked at the p-value and compared it with a significance level of 0.1. If the p-value is less than 0.1, the researcher can conclude that the variable is not normally distributed. If the p-value is greater than 0.1, the researcher can conclude that the variable is normally distributed.

Table 4.11 Kolmogorov-Smirnov test

Kolmogorov-Smirnov test		
Variables	Statistic	P-value
Safety vision	0.063	0.007
Safety culture	0.108	0.000

Conclusion

The p-values are less than 0.1, which means that both variables are not normally distributed. This means that the researcher cannot use Pearson's correlation coefficient to test for the relationship between safety vision and safety culture.

Instead, the researcher used the Spearman's Rho, specifically for variables that are not normally distributed.

Correlation Spearman's Rho

The correlation Spearman's Rho tests whether or not there is a relationship between vision and safety culture. The researcher looks up the p-value and compares it with a significance level of 0.1. If the p-value is less than 0.1, the researcher can conclude that a relationship exists between the variables.

Table 4.12 The Spearman's Rho test

Correlation coefficient*	P-value
0.387	0.000

Conclusion

The correlation coefficient is 0.387, which is a positive relationship and has a p-value of 0.000, which is less than 0.1. This means that there is a significant positive relationship between safety vision and safety culture.

Regression

This test helps the researcher to establish whether safety vision has an influence on safety culture. In other words, testing whether or not a safety vision has contributed to a safety culture in the industry.

The researcher finds the p-value of the coefficient of safety and compare with a significance level of 0.1. If the p-value is less than 0.1, the researcher can conclude that the safety vision had an influence on safety culture.

Table 4.13 Regression

Variables*	Coefficient	t -statistic	P-value
Intercept	14.347	13.082	0.000
Safety vision	0.222	6.996	0.000

* - Dependent Variable: Safety Culture

Model summary

R-square 0.144

Dubin-Watson 1.568

Conclusion of the test

The p-value for safety vision is 0.000, which is less than 0.1. This means that an electricity supply industry's safety vision has an influence on its culture. The positive coefficient mean as that a positive safety vision contributes positively to a safety culture.

4.5. CONCLUSION FROM ALL TESTS

This chapter presented the empirical results of the research, it completed and presented the descriptive statistics and reliability analysis.

From these results the following conclusions were reached:

- 1) That the tests on the data received, revealed that the study results are both reliable and valid.

- 2) That there is a difference of perception amongst employees on their understanding of priorities. The priority differences were on perceptions of safety and production with respect to vision and culture.
- 3) That there is a relationship between a vision and culture.
- 4) That there is a positive relationship between a safety vision and a safety culture.
- 5) That the safety vision had an influence on the safety culture, and finally
- 6) That the safety vision is positively contributing to the safety culture.

The next chapter illustrates recommendations and conclusions regarding the profile of the region.

CHAPTER 5

5.1. INTRODUCTION

This study set out to explore the concept of whether a compelling safety vision has an influence on organisational safety culture from an electricity distribution perspective (Eskom North Western Region). The general theoretical literature on this subject, specifically on the concept of the influence visions have on culture, is still inconclusive. Various organisations and institutions are continually studying safety visions and safety culture without an emphasis on the vision's impact.

This study's primary objective was to investigate the influence of the NWR safety vision on its safety culture. The secondary objective of this study was:

- To provide an overview on safety visions' influence on culture.
- To evaluate a vision from an electricity supply industry's perspective.
- To evaluate a safety culture from an electricity supply industry's perspective.
- To determine the relationship between a safety vision and a safety culture from an electricity supply industry's perspective.

The previous chapter presented the results and findings of the study. This chapter will discuss, in light of the literature reviewed in the previous chapters, the recommendations, limitations of the study, opportunities for further studies, and the conclusions reached.

5.2. SUMMARY

Chapter one gave a background to the study. It highlighted the need for the study, its importance, and the possible contribution to the body of current knowledge. The chapter explained the organisation and the reasons that formed the basis for the research. Also discussed in the chapter was the importance for the utility to have a good safety culture.

Chapter two focused on vision and safety visions, organisational culture, and safety culture. This chapter discussed the relationship between a compelling vision and the

influence it has on an organisation and its culture. A detailed discussion followed on safety culture and its design and development. This gave the researcher an opportunity to discuss the Eskom NWR safety vision and the desired culture.

Chapter three discussed the research methodology for the study. Also discussed were aspects such as research design, sampling, and the measuring characteristics of the research and the instruments to be utilised.

In chapter 4 the study was conducted by collecting data using a quantitative survey methodology. Quantitative data from the Eskom NWR employees, supervisors and management was collected, analysed and ranked according to frequencies and percentages of items. This data was analysed and interpreted. The data collected from respondents, represented their perceptions regarding their priorities, the safety vision, the safety culture, and their satisfaction on the current overall organisational safety performance.

The study identified a sample of 350. From this, 291 respondents returned their completed survey questionnaires. Management returned 5.82 per cent, supervisors returned 7.53 per cent, and the rest of the employees returned 86.64 per cent of the 291 survey questionnaires. Studies by Krecie and Morgan (1970) regarding sample sizes for research activities decided the numbers for the survey.

The researcher will now discuss the findings of the study.

5.3. FINDINGS

The quantitative results suggest that employees consider production more important than safety. The study did not expect this result as the organisation's policy is that there is nothing more important than safety in its operations. This policy is emphasised at every opportunity that management gets.

Also suggested by the study is that the perceptions across different job levels is the same on the safety vision and culture but there is a significant difference among priority groups on their perceptions of the safety vision and the safety culture. The quantitative results suggest that there is a significant relationship between the safety vision and the safety culture and most importantly, the study suggests that safety

vision has contributed positively to a safety culture. The study suggests that the vision is articulated at the highest level of the organisation's management. This has thus translated into shared beliefs, norms, and values.

The study suggested that communication exists across all levels, is open and candid. The employees believe in the prevention of injuries, obeying safety rules and not deviating.

The study also confirmed that safety is built-in operations; the vision has elevated employee commitment to safety, and employee empowerment to take any action to prevent accidents. The employees feel very satisfied with the overall safety performance of the organisation.

This study supports the literature in chapter two. This conclusion came from, amongst others, the work that Shi and Schiuro (2012) did when they found that there is a relationship between safety performance and culture and that this relationship is both qualitative and quantitative. Holt *et al.* (2013) also confirmed in their study that clear visions could have a positive catalytic change in organisational culture. The Times 100 (2013) also reported that a vision statement can have an effect in changing a culture. Kantabura (2010) also reported in his report that powerful visions have significant impact on employee culture and satisfaction.

The following section will concentrate on the recommendations from the study.

5.4. RECOMMENDATIONS FROM THE RESEARCH

5.4.1. Recommendation 1: Priorities

The difference between employees who believe production takes priority over safety is significant and has to be addressed. This is an unexpected result but the researcher recommends that a further qualitative study where in-depth analysis should be conducted to establish the cause of the differences.

It is evident from the study that there exist differences in priority perceptions. It could be that employees did not understand the questions, especially when the issue of

priority is company policy. Management has forever stressed that safety takes priority over production and everything else; this is dictated by policy also.

Confusion might have developed from the performance dashboards or key performance indicators. These show safety as having a weighting of 20% of the total performance.

5.4.2. Recommendation 2: Safety vision and safety culture

The research study suggested that there is a significant and positive relationship between vision and culture. To strengthen workplace safety the role of management in leading the organisation on its vision has to be further emphasised. Management has to continue to give employees guidance and leadership on all the contents of the safety vision until a new vision is established or the current one is changed to suite current circumstances. Employees always expect leadership to give direction and this cannot stop because it is found that there is a positive relationship. Now that the relationship has been empirically established, it is imperative for management to continue with all interventions that were established with the development of the vision.

According to Beng (2012), leadership's role is fundamental to developing the overall culture within companies. Senior management must set the tone principles and adopt a hands-on approach towards management of work safety and health. It is thus important that senior management does not only establish a vision but adopts a hands-on approach in engendering a strong safety culture. Since the NWR, vision has contributed positively towards the organisation's safety culture, it is expected of leadership to know their role and obligations and work tirelessly towards the final realisation of their safety vision, which is encapsulated in a notion of zero harm. Leadership is effective when visible; the NWR leadership can demonstrate this by personally taking the lead in workplace safety by upholding all the core safety values and actively engaging the employees on policy and risk management. This recommendation will set the correct attitudes and promote a positive culture in the organisation.

5.4.3. Recommendation 3: Training and development

It also found that opportunities exist for further safety training. It appears from the research that safety training can be enhanced to improve on workplace safety competencies. Management must also be included in this.

Management must also regularly upgrade their worksite safety competencies. They should be able to do risk assessments, and review the worksite safety with employees. The reviews are essential to establish the worksite safety journey. Training and developing management will give them skills that are conducive to safety management. This will also assist on creating positive perceptions that management value safety, which will in turn be an encouragement to staff to continue to take safety seriously and get trained themselves. The importance of having leadership training is also important in that leadership should review the cases and regularly determine how future processes and decision-making may improve.

5.4.4. Recommendation 4: Communicating the vision

It seems there are no visible issues regarding communication, but the researcher feels that this must also be strengthened. There is no better way of improving safety performance other than good communication skills. Management is very important in this category. Management should be given the necessary interventions and tools to be able to communicate the organisations vision.

To maximise performance outcomes, managers should communicate the vision, motivate, and empower employees to act on it. As leaders, they are also expected to align organisational systems to support it. Communication in many occasions results in good working relationships. Leaders should know how to pay attention to issues that might derail the train on the journey as per the vision statement.

Risk control information should be correctly conveyed and practiced, two-way communication should be implemented with vigour, and the importance of open and honest communication cannot be underestimated. Face-to-face discussion should be encouraged because they encourage personal contributions where employees would feel valued and empowered. Employee involvement is very important for the success of the expected outcomes of the vision.

5.4.5. Recommendation 5: Motivating employees

Employees have indicated that they are motivated by the safety vision but it is also not good to leave it there. Employees have to be empowered to act on the vision and assist themselves and the organisation to achieve its objectives. Management must enhance their efforts in sharing the objectives and use the vision to direct the daily operations by ensuring that all safety talks include discussions around where the business is going with its safety programs.

Shared visions with characteristics and correct content will give positive direction not only to employees but also to customers and stakeholders. Staff will use the shared values of vision statements to be motivated and feel empowered. If business imperatives align properly to the vision statement, there will be an improved staff satisfaction. Management who actively communicate their vision through own actions empower and motivate staff.

The following section will discuss the problems or limitations that the researcher encountered during the research.

5.5. LIMITATIONS OF THE STUDY

The low level of management participation is of concern. The limitations that arose from this study give opportunities for further research studies. Because the researcher made use of quantitative methodology, it was not possible to explore fully all issues. It could be that the employees did not fully understand the question on priorities as designed in the quantitative studies.

Had it been possible in the current research to include both quantitative and qualitative approach, the researcher could have gained greater insight into the reasons why there were significant differences on priority groups as far as the vision and culture is concerned?

Qualitative data may also have made it possible to identify new items to include in a subscale designed to comprehensively as it was experienced in groups.

5.6. OPPORTUNITIES FOR FURTHER RESEARCH

During the period of conducting the study, various other topics connected to the study came to the attention of the researcher. Because these topics were not the problem questions at the start of the study they are now considered opportunities to be further explored.

5.7. CONCLUDING REMARKS

The organisation should benefit from the findings of the study. The study has indicated a general positive attitude of employees towards their safety. They also seem to understand and support their safety vision. The journey mooted in their vision seems to be progressing according to design, which is in line with the objective of the study to investigate the influence of the safety vision statement on the organisational safety culture.

The concern raised of a lower than expected management response must be addressed with senior management since literature has indicated that for visions to be successfully implemented the support of management is vital. Thus, addressing this subject matter expects of management to lead in participation. The benefits of a good safety culture are not only beneficial to the company on its bottom line but also affect employees and their families.

The results will be of particular interest to senior management because there was no study conducted since the inception of the safety vision some four years ago. Results will encourage senior management to continue with their quest to strengthen safety throughout the organisation, by employing compelling safety visions.

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APPENDIX A – QUESTIONNAIRE

SAFETY EXCELLENCE PROGRESS AND PERCEPTION SURVEY

General Instructions - **PLEASE READ BEFORE CONTINUING!**

This survey will help assess the state of safety in the Eskom North Western Region. Your answers are completely confidential. They are combined with the answers of others and are not reported individually.

Answer all the questions honestly and objectively as they relate to your immediate work area, whether that is an office, operating facility, etc.

Do not mark more than one answer to a multiple-choice question, or your answer will not be usable.

Mark your answers with a tick mark x

If you have comments, please write them on the page provided at the end of the survey.

SECTION A

Where do you work?

Please indicate the location you are working at as well as your job level.

This will assist in identifying areas of excellence as well as areas of concern.

Location		Age	
Job Level		Years in service	

Gender	
Race	

On which job level do you work?

	1. Management
	2. Supervisor
	3. Employee

1. Indicate the priority **you personally** give to the following items.

(Rank in order from 1 to 4, with the item you think is most important marked 4 and the least important marked 1)

Item: Your Personal Priority

1 Quality, Customer Focus	
2. Costs, Efficiency	
3. Production Volume	
4. Safety	

SECTION B – SAFETY VISION

Select one option at each of the questions below

SD = Strongly Disagree

D = Disagree

A = Agree

SA = Strongly Agree

Questions	SD	D	A	SA
1. The safety vision has raised my commitment to safety				
2. The safety vision is articulated at the				

Questions	SD	D	A	SA
highest levels of the organisation.				
3. The safety vision translated into shared values, beliefs, and behavioural norms at all levels.				
4. Safety is valued as the primary priority, even at the expense of production.				
5. Safety is valued as the primary priority, even at the expense of efficiency.				
6. Communication between workers is frequent and candid.				
7. Communication exists and is efficient across organisational levels.				
8. Unsafe acts are rare despite high levels of production				
9. There is openness about problems, and they are reported when they do occur.				
10. The safety dream has inspired employees to take ownership.				
11. Information is shared freely across work groups in the organisation.				

SECTION C – SAFETY CULTURE

Select one option at each of the questions below

A= Always

O= Often

S= Seldom

N= Never

Questions	A	O	S	N
12. Many of the injuries are investigated and the recommendations are implemented.				
13. Are learnings from incidents in other Business units shared with you?				
14. Do you see managers / supervisors setting a good example when it comes to their own safe behaviour?				
15. To what extent do you believe injuries can be prevented?				
16. How often do supervisors allow employees to break safety rules and procedures?				
15. 17. To what extent are the safety rules of your operation obeyed?				
18. To what extent are injuries, safety incidents and near misses investigated and the recommendations acted upon?				

SECTION D

19. To what extent in your operation is safety built in as part of equipment and workplace design, standards and procedures and job training?

- 1. Thoroughly built in
- 2. Substantially built in
- 3. Little integration; mainly added later
- 4. Not integrated at all; added later

20. To what extent do you feel empowered to take action to prevent injuries and ensure the safety of yourself and others?

(This includes stopping work, shutting down equipment, and making suggestions or taking steps to fix the safety of the job, knowing that you'll be supported by your supervisor for your action).

- 1. Fully empowered
- 2. Quite empowered
- 4. Not very empowered
- 5. Not empowered at all

21. How much formal structured training have you received in safety and occupational health in the last two years?

- 1. Thorough and extensive training
- 2. Considerable training
- 3. Little training

22. How is disciplinary action used when people don't follow safety rules?

("Disciplinary action" could range from a verbal warning through to more severe action such as separation / dismissal).

- 1. Disciplinary action is taken for all safety violations.
- 2. Disciplinary action is taken only for serious safety violations.
- 3. Disciplinary action for safety violations is applied inconsistently.
- 4. Disciplinary action is seldom taken for safety violations.

23. To what extent are you satisfied with the overall safety performance of your operation?

- 1. Very satisfied
- 2. Moderately satisfied
- 3. Moderately dissatisfied
- 4. Very dissatisfied

GENERAL COMMENTS:

Thank you for participating in the survey.