THE CONTRIBUTION OF PERSONAL AND PROFESSIONAL LEADERSHIP QUALITIES IN MINIMISING WORKPLACE RELATED ACCIDENTS

by

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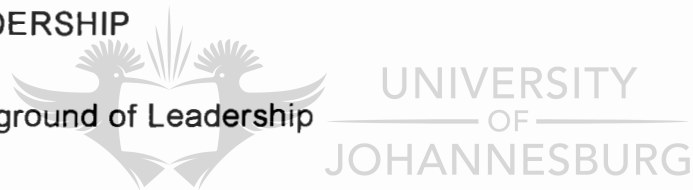
To my wife Susan, for your support and love

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- My children, Marike, Janelle, Gerhard and Mia. My wish for all of you is that you live a life of personal mastery and authentic self-expression, which creates value. Read chapter 3 and live by it.

- All the employees who have lost their lives at the mine. May your deaths serve as a burning platform and as change catalyst in order to prevent accidents and fatalities.

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AFRIKAANSE SINOPSIS

Baie argumente is al gevoer onder spesialiste oor hoe om ongelukke in gevaarlike werksomgewings te verminder. Ongeag die bydrae van verskeie gevalstudies, insette en probeerslae, bly veiligheid in gevaarlike werksomgewings `n kommerwekkende kwessie, meer spesifiek veral in die Suid-Afrikaanse Mynbedryf. Om dié rede was hierdie studie onderneem in `n ondergrondse harde rotsmyn, in die Noord-Wes Provinsie.

Leierskap speel `n baie belangrike rol in die gedrag van werknemers in die werksomgewing, en kan dus ook `n direkte impak lewer in die bekamping van werksverwante ongelukke en ongevalle.

Analitiese studies dui op die menslike faktor as een van die toonaangewende redes vir ongelukke in die mynbou bedryf. Die menslike faktor is na beraming verantwoordelik vir 87% van beserings in die Suid-Afrikaanse mynbou-industrie en slegs 11% hiervan hou `n direkte verband met die fisiese werksomgewing.

Die doel met hierdie studie is nie om `n antwoord vir alle mynbou-verwante ongelukke te kry nie, maar poog slegs om Persoonlike en Profesionele Leierskap (PPL) as raamwerk te gebruik om vas te stel of PPL `n bydraende faktor kan wees in die bekamping van mynbou-ongelukke en -sterftes.

Einstein het gesê dat geen noemenswaardige probleme opgelos kan word op dieselfde denkvlak as dié waarop hulle geskep is nie. Opsommend kan opgemerk word dat die probleme `n produk en gevolg is van huidige en historiese paradigmas. Daarom is dit belangrik om noemenswaardige veiligheidsprobleme op te los op 'n nuwe en diepere denkvlak. Die outeur hoop dat hierdie studie professionele mynbou-beamptes en leiers sal bystaan om die noodwendige paradigma-aanpassings en -verskuiwings te

kan maak en om menslike probleme uit `n meer vernuwende oogpunt te kan sien.

In die lig van bogenoemde uitdaging, sentreer die gestelde probleem in hierdie navorsingsessay om die volgende twee doelwitte:

- Om persoonlike, interpersoonlike en professionele leierskap te definieër, en om die belang daarvan vir gevaarlike werksomgewings te beskryf.
- Om moontlike leierskapskwaliteite te identifiseer wat nodig is om suksesvol te wees in gevaarlike werksomstandighede

Om die bogenoemde vrae te beantwoord is `n fenomenologiese benadering gevolg. Daar is ook van 'n literatuurstudie, woord- en konsepanaliese gebruik gemaak. Die leierskapspiramide van Smith is gebruik om dié problematiek aan te spreek.

Die belangrikste bevindings in hierdie studie is:

- Dat veilige en produktiewe toesighouers in ondergrondse werksomgewings optree in ooreenstemming met persoonlike, interpersoonlike en professionele leierskapsbeginsels.
- Dat leierskap in terme van outentieke uitdrukking van menswees gedefinieër behoort te work. Egte leierskap se fokus lê in waarde-ontwikkeling en -toevoeging.
- Dat PPL-leierskapsbeginsels `n substansiële bydrae tot `n veilige werksomgewing lewer.

- Dat die menslike faktor verantwoordelik gehou kan word vir 87% van alle beserings in die Suid Afrikaanse Mynbou industrie, en dat PPL 'n bydrae kan lewer tot die bekamping van ongelukke deur die menslike faktor anders te benader. Die PPL-leierskapspiramide bied besondere potensiaal om die uitdaging van swak-belynde "voorskrifte", gemik op die bekamping van ongelukke in gevaarlike werksomgewings, die hoof te bied.

- Dat daar 'n wanbegrip by bestuur bestaan oor hoe om die menslike aspek in ondergrondse mynbousituasies aan te spreek. In-diepte begrip van die menslike faktor word ook selde deur bestuur getoon.

- Dat PPL 'n funksionele benadering is en 'n leierskapsbenadering bied wat 'n substansiële bydrae in die bekamping van ongelukke in gevaarlike werksomgewings kan lewer.

ENGLISH SYNOPSIS

There has been considerable debate amongst specialists as how to minimise accidents in dangerous working environments. Irrespective of many contributions from a variety of studies, inputs and attempts, safety in dangerous working environments still remain a problem of great concern. This is equally true in especially the mining sector in South Africa. To this extent this study was conducted in an underground hard rock mine in the North West Province.

Leadership may play an important role in the behaviour of employees in the work place, and may therefore have a direct impact in minimising workplace related accidents and incidents.

Analysis indicated that it would be beneficial to focus on the real reasons for accidents in the mining industry i.e. the human factor. It was calculated that the human factor could be blamed for 87% of injuries in the South African mining industry, with 11% where a direct link exists with the physical working environment.

This study is not an attempt to provide an answer that will solve all mining related incidents and accidents. It is an attempt to use Personal and Professional Leadership (PPL) as framework in order to establish if PPL may be a contributing factor in solving accidents and fatalities.

Einstein once said, "The significant problems we face cannot be solved at the same level of thinking we were at when we created them". Suffice to say that our present problems are a product and consequence of our past and present paradigms.

Therefore in an attempt to solve the truly significant challenges, problems and opportunities of the safety dilemma, it is essential that they be addressed on a new and deeper level of thinking. It is hoped that this study will assist mining professionals and leaders to make the necessary paradigm adjustment and shift and to view human problems form a more innovative level of thinking.

In light of this challenge, the specific research problem tabled in this essay is centred in and around two aims of the study:

- To define the personal, interpersonal and professional leadership perspective and to describe its relevance to dangerous working conditions.
- To identify the possible leadership qualities needed for achieving success in dangerous working conditions

In order to answer these questions, the researcher followed a phenomenological approach to this study, as well as a literature review, word and concept analysis. The leadership pyramid was used as perspective in order to answer the research questions.

The following are the most important findings of the study:

- It has been found that supervisors who works productively and safely in underground working conditions portrays behaviour which is equitable to personal, interpersonal and professional leadership principles.
- It has been found that the definition of leadership needs to be redefined in terms of authentic expression. Authentic leadership focuses on creating value to self and others.

- It has been found that the PPL-leadership principles may substantially contribute to a safe work environment.

- It was calculated that the human factor can be blamed for 87% of injuries in the South African mining industry and that PPL can contribute in minimising accidents by addressing the human factor. The PPL leadership pyramid is perfectly positioned to live up to the challenge of misaligned "prescriptions" to curb accidents in dangerous working environments.

- There is a clear misconception by management on how to address people issues in an underground mining situation and that management actions seldom reflects an in-depth understanding of the human factor at play.

- PPL is functional in nature and provide a pyramid of leadership and influence, which may contribute substantially in minimising accidents in dangerous working environments.

CHAPTER 1

CONTEXT AND RESEARCH DESIGN

1.1 CONTEXT

There has been considerable debate amongst specialists as how to minimise accidents in dangerous working environments (Van Aardt 1995; Pitzer 1993; Flynn 1992). Irrespective of many contributions from a variety of studies, inputs and attempts, safety in dangerous working environments still remains a problem of great concern.

The author of this research essay has been doing observations over three years, in trying to establish successful and safe underground mining practices.   It is remarkable to note that, apart from technical considerations, a number of visible behaviours could be identified with negative impacts on safety performance. However subjective in nature, these observations, may provide valuable qualitative information with regards to effective and less effective operational and safety practices.

During observations (Heyneke 2001), it became clear that the following aspects were present in hazardous working environments where employees maintain high levels of production in a safe manner:

- The supervisor demonstrates a visible presence in the workplace.
- The supervisor continuously mentors and coaches his subordinates.

- The supervisor displays verbal communication which is rich in quantitative and qualitative data.
- The goals and objectives for the shift are expressed in clear terms known to every worker.
- The supervisor displays personal interest in his workers, knowing their strong, as well as weak points and knowing their names. He demonstrates an interest in their personal lives.
- A rhythm is present in the workplace, and everyone knows what is expected of him.
- Safety is the major concern and the seriousness of the situation is communicated on a regular basis to every person.
- The supervisor demonstrates his concern for safety by continuous inspection during the shift.
- The supervisor takes pride in the achievements of his working teams and demands a clean workplace.
- Training is taken seriously and deviations are rectified immediately.
- Risk assessment, prior, during and after the shift is continuous.
- The necessary equipment is in working order and readily available.
- The supervisor feels personally responsible for the total wellbeing of his employees.
- Abusive language and behaviour is not tolerated.
- Production targets are secondary to employee safety.

Leadership may play an important role in the behaviour of employees in the workplace. It may therefore have a direct impact on minimizing workplace related incidents and accidents. This research essay is expedited and concluded at an underground hard rock mine in the North West Province, hereafter referred to as the Mine. The Mine processes, refines and markets platinum and other platinum group

metals (PGM's) and base metals. The Mine employs an average of 25 000 people, including contract staff.

The Mine produces an average of 1 000 000 tons of ore per month. The Mine is a traditional mine, in the process of transformation. Traditional, in this instance, refers to a mine with vertical shafts, where underground activities are executed via drilling and blasting of the ore body. It also refers to a migrant labour force, with predominantly strong unionised factions. Transformation in this instance indicates a change in technology, a movement towards mechanisation and renewed people practices. It retains the distinction of being the only hard rock mine in the South African mining industry to have achieved 1 000 000 fatality free shifts on no fewer than 32 occasions (Department of Minerals and Energy 2002).

Despite this record, a number of employees have been killed in underground mining operations during the financial years of 2000, 2001 and 2002. This is unacceptable in terms of safety. Though underground sections showed an improvement in injury rates, they failed to improve on previous performance in reducing fatality rates and could not achieve to reduce the high incidents of accidents. More disturbing is the fact that 13 fatalities occurred during the financial year 2001 and for 2002 no less than 15 fatalities occurred.

The number of employees based at the Mine constitutes a microcosm of a community bound together by an expanding mining operation. Therefore, it leans itself to the ideal research situation, with reference to leadership and safety related matters. The geographical size of the mine is the equivalent to that of a small town with its associated infrastructure.

1.2 PROBLEM STATEMENT AND AIM OF RESEARCH

In view of the above, specific research problems, which need to be addressed are:

- How do personal, interpersonal and professional leadership qualities possibly support safety in the work environment?
- What possible contribution can personal, interpersonal and professional leadership qualities make in assisting mining professionals and workers to manage safety problems?

In view of the research problem, the main aim of this research is to identify applicable leadership principles, which may contribute in preventing workplace related accidents.

In order to address the main aim of this study, the following specific aims are set:

- To define personal, interpersonal and professional leadership and to describe its relevance to dangerous working conditions,
- To identify the possible leadership qualities needed for achieving success in dangerous working conditions.

1.3 MOTIVATION FOR RESEARCH

The researcher has become increasingly aware of the moral issue of a mine manager's struggle in coping with the demands of zero fatalities. It is also obvious that work related accidents, from a financial perspective, are also unacceptable.

More and more demands are being made by a number of interested and effected parties, in certifying the described dilemma. Union officials demand participation in safety divisions; stakeholders demand world-class corporate governance, management demand profits, society demands fairness and families demand workplace safety. In a nutshell, all interested parties demand sustainable business governance. Business without sustainable governance will not be feasible in the future.

In order to deliver sustainable governance, businesses have engaged in a number of supporting activities, for example, corporate risk-management, socio-economic development, health related interventions, corporate governance, world-class benchmarks and most importantly, workplace related safety initiatives. As the rules for conducting business are ever changing, business leaders will also be judged by new measures (Becker, Huselidma and Ulrich 2001:16). One of the new measures certainly relates to workplace related safety. From the context described above, it can be deduced that this study is important and relevant. This study may model an improved approach to workplace related management of safety initiatives.

In view of the problem statement, aim and motivation for this research essay, attention will now be placed on leadership as a focusing agent for this study.

1.4 LEADERSHIP

1.4.1 Background of Leadership

Many descriptions, definitions, and meanings of leadership have been published (John and Newstron 1990). Leadership has generated much debate about its applications and research, spanning nearly 5 decades. Not everyone agrees on the definition of leadership (John and Newstron 1990).

In a profound publication (Journal of Leadership Studies 2002:117), a distinct summary of major leadership theories is described. Although the focus of this article is based on servant leadership, the summary provides for interesting reading and divides the evolution of leadership into three distinct phases:

1.4.1.1   Who the Leader Is (1910 – World War II)

It tracks leadership theories back to 1910 up until World War II. It emphasises the Great Man Theory, Trait Theories and Psychological Theories. In summary great leaders arise, but no coherent pattern of consistent traits have been verified. The general focus has been on things like intelligence, social maturity, inner motivation and human relationships.

1.4.1.2   What the Leader does (World War II – Late 1960's)

The emphasis moved during this period to Behavioural and Humanistic Theories, for example, Blake and Mouton's grid, Lickerts Behaviour Patterns, McGregor's Theory X and Y, Expectancy and Exchange Theories, as well as, Perceptual and Cognitive Theories.

1.4.1.3   Where the Leadership takes place (Late 1960's – Present)

This phase emphasises Hersey and Blanchard's Situational Leadership, as well as Fiedler's Contingency Theory and Evans' Goal Theory. Leadership needs to change as the situation changes, the leader acts in conformance to critical factors in the situation.

1.4.2 Leadership keywords emerging from recent publications

A number of publications by authors such as Senge (1994), Covey (1989), Cashmann (2000), Maxwell (2000) and Goleman (2002), reflect keywords indicative of a new paradigm of thinking about leadership. Keywords include: listening, empathy, healing, awareness, persuasion, vision, foresight, stewardship, growth, spirituality, sowing, inter-connectedness, moral, purpose, success, health, change, value and distinction.

Emerging from the above-mentioned keywords, it appears that the traditional definition of leadership needs to be re-defined.

Cashman (2002:20) describes leadership as the "authentic self-expression that creates value." According to Maxwell (2001:4), leadership is "Influence – nothing more, nothing less." Covey (1989:101) distinguishes leadership from management: "Management is doing things right; leadership is doing the right things." Cashman's definition of leadership implies that leadership is not seen as hierarchical but that every person in society by his level of leadership, creates value or destroys value. Authentic leadership focuses on creating value.

1.4.3 A Personal and Professional Leadership Perspective (PPL)

Pervin and John (1997:528) define the word paradigm as a model that is generally accepted by scientists in a specific field of study. According to

them, this paradigm determines the type of observation and methods of research. The broad paradigmatic perspective from which a study will be conducted, will include an exposition of the researcher's view about man, education and science as applicable to this study as well as validity and methodological considerations (Smith 1995:20).

Leadership, according to Charlton (2000:31), can be defined as the critical ingredient behind a successful endeavour – the difference between average and sustained excellence.

If the past few years, the development of a new perspective on leadership, known as Personal and Professional Leadership (PPL), has emerged.

The study will be undertaken from a PPL perspective, which can best be described as being a holistic view of the anthropological characteristics and life dimensions of a person, in relation to existential realities of a person's existence. Some of anthropological foundations which form the basis of this study, include:

- All human beings construct their own life and reality.
- Every person seeks a sense of meaning in life.
- Humans are born 'incomplete', and therefore the possibility of constant and never-ending improvement exists.
- Humans are responsible beings with the potential to choose their response to any given situation.

The aim of PPL is to provide personal, interpersonal and professional strategies and solutions to assist in realizing a person's potential, to find meaning and purpose in life, to add value to others' lives and to realise a fundamental human need - to leave a legacy.

PPL consists of personal, interpersonal and professional leadership. As this study is undertaken from a PPL perspective, it is important to realise that leadership manifests in the following contexts:

- Personal leadership forms the foundation of interpersonal and professional leadership and is an inside-out approach where a person accepts responsibility for his / her own life. This implies that he/she becomes more self-aware in order to achieve personal mastery and authenticity of the self (Cashman 2003:31).
- Interpersonal leadership focuses on connecting with others, to add value to their lives and to build relationships with the emphasis on servant leadership. This sowing of seeds that benefits others, will ultimately also benefit the self.
- Professional leadership deals with efficiency, effectiveness and competence in a work related environment.

PPL thus refers to the conscious, purposeful and life-long process of personal growth that is compiled and controlled by the individual himself/herself. The purpose is to establish balance between the spiritual, emotional, intellectual, work/financial, physical and social dimensions of the individual's life. The outcome of the above mentioned could result in a state of total wellness and vitality.

It can also be defined as the process of designing and developing personal, interpersonal and professional growth strategies, that will lead to progressively higher forms of responsible independence and effective interdependence (Covey 1990:43).

The most comprehensive definition of PPL is formulated by Smith (2001) as a scientific study of the ongoing commitment and accompaniment of the human being to valid and functional:

- Self-knowledge and self-awareness.
- Finding a purpose.
- Realising full potential (self-actualisation).
- Co-operation with and adding value to other people's lives (self-transcendence).
- Professional ability, skills and competence in terms of organizational efficiency and effectiveness.

In the context of this study, PPL may therefore be regarded as a possible contributing factor in minimising accidents.

Figure 1: PPL Focus

(K) - Knowledge: what to do and why

(S) – Skills: how to do

(A) – Attitudes, Values and Commitment: want to do
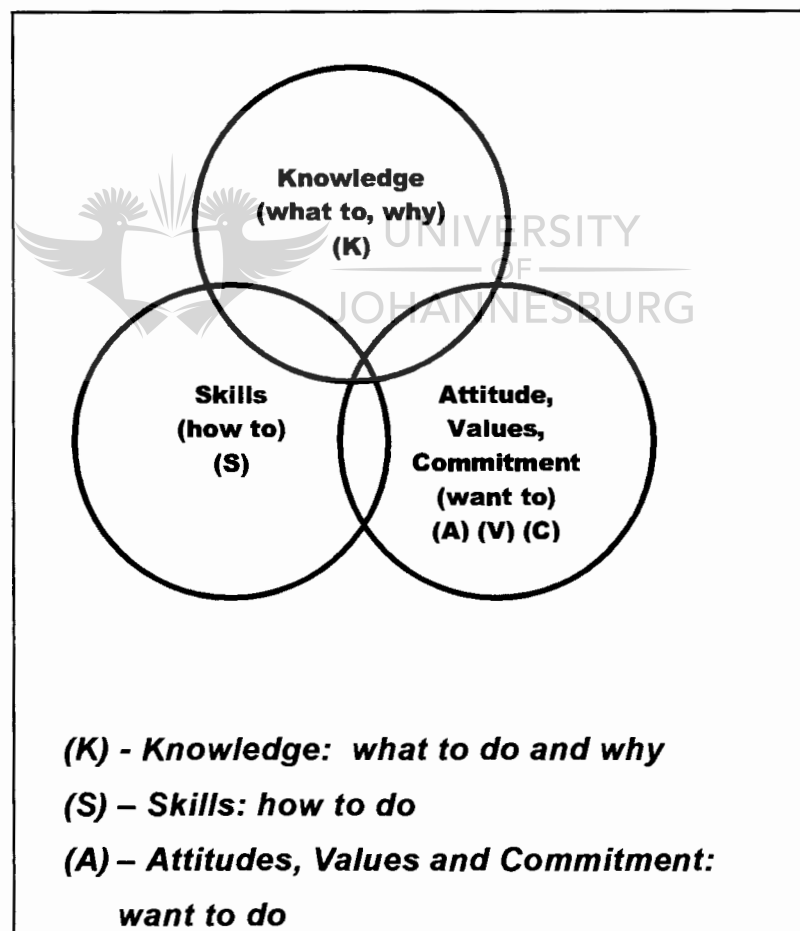
The PPL approach (figure1) *inter alia* focuses on the third level: Attitudes, Values and Commitment, with reference to the individual (personal leadership), relationships with other people (inter-personal leadership) and professional leadership (an awareness of and culture of personal responsibility and commitment to the organisation's vision and mission).

In view of the preceding description, PPL may be regarded as part of a possible answer in curbing mine fatalities in dangerous working environments.

1.5 RESEARCH METHODOLOGY

1.5.1 Research Strategy

A phenomenological approach to this study will be followed. Phenomenology describes "how one can orient to lived experience." A phenomenological approach, according to Van Manen (1990:5) implies: "... to question the way we experience the world, to want to know the world in which we live as human beings."

This study will therefore be conducted underground at the Mine and will aim to gain a thorough understanding of everyday experiences relating to working underground in dangerous environments. The nature and meaning of dangerous working environments in an underground situation will also be constructed.

1.5.2 Research Methods

To determine the meaning of personal and professional leadership, a **literature study** will be conducted. A literature study (Leedy 1998:14) is one of the general tools of research. This method will enable the reader to determine what work has already been published within the domain of personal and professional leadership, as it relates to safety in hazardous working environments.

Resources that will be used are books, journal articles, newspapers and internet articles. Clarification of concepts include word as well as concept analysis. According to Smith (1993:44), word analysis will enable the definition of unknown and vague words and concept analysis will support in the explanation of concepts within the context of personal leadership.
In this research essay, concept analysis will be expedited to:

- Bring clarity to the words: safety, hazardous working environments, personal and professional leadership.
- Gain insight into professional leadership.
- Gain insight in the use of personal and professional leadership concepts in the broader context of its application.

1.6 COURSE OF THE STUDY

This research essay is divided into **four** chapters.

Chapter One presents the research design. It presents the background to the study, problem statement, aim of the research and the methods used to achieve the aims.

Chapter Two focuses on the phenomenon of fatalities in the mining industry. It provides background to the relevance of safety, how the management of safety is carried out at the mine in focus. It also discusses the results of the latest interventions being applied to minimise underground fatalities. A list of deceased employees is given in order to illustrate the direct cause of accidents and a brief description of the injuries, as well as follow-up actions and lessons learned. Management's safety initiatives are also reflected and a summary analyses the impact of risk conditions identified, it's meaning to management, supervisor and workers. At risk behaviour is also analysed, it's meaning to management, supervisors and workers.

Chapter Three's focus turns to the PPL perspective, its definition and application, as it relates to underground mining and its associated dangers in executing work. It focuses the attention on a new approach to leadership and its impact on employees and productivity. Chapter 3 also focuses on the PPL pyramid and its application possibilities in dangerous working environments.

Chapter Four provides a summary of the information contained in the previous chapters. It will discuss findings and possible solutions.

CHAPTER 2

THE PHENOMENON OF FATALITIES IN THE MINING INDUSTRY

2.1 INTRODUCTION

In Chapter One, the debate amongst specialists as how to minimise accidents in dangerous working environments was discussed. The author also pointed out that a number of observations have been made representing a productive and safe working environment. As postulated, leadership may play an important role in the behaviour of employees in the work place and may therefore have a direct impact in minimising work place related incidents and accidents.

In view of chapter one and in view of the research problem as defined in 1.2, this chapter will focus foremost on the phenomenon of fatalities in the mining industry. It provides background to the relevance of safety in the mining industry. It then proceeds to describe the management of safety at the mine in focus. This involves a description and results of the behaviour of employees as well as identified interventions. A detailed analysis of deceased employees is also provided. This chapter also provides an analysis of the risk conditions at the Mine the at -risk behaviour and current interventions applied at the mine.

The framework of this chapter will lay the foundation on which the researcher will build, aiding the attempt to meet the third part of the aim of the study and thereby assist in answering the research question.

2.2 THE RELEVANCE OF SAFETY IN THE MINING INDUSTRY

The South African mining industry is currently going through a very difficult but exciting phase. Demands are put forward to this industry from nearly all angles. As a labour intensive industry, the changes started with new movements in the labour legislation during the 1980's. This made a significant impact on the overall performance of the mining industry.

During the political transitional period of the 1990's, employers also had to deal with other external aspects; of which the increase in **production costs were the most severe**. High interest and inflation rates were the reason for many marginal mines to close down, to the detriment of thousands of employees. In order to survive, employers were faced with the harsh reality of having to **reduce production costs while increasing productivity**. Obvious changes were made in terms of labour size and production processes were mechanized as far as possible. Initially, most of the operations were successful in their efforts. However, with an inflation rate still too high and an ever-increasing demand for higher wages, it was a matter of time before new initiatives would be required to escape the threats of failure once again.

Apart from these financial issues, another issue of a **moral nature** emerged strongly during the early 1980's, i.e. safety performance in the mining sector. Safety (Glendon and McKenna 1995:319) may be considered to be inclusive of damage, disease, injuries, accidents, harm, risk and hazard or danger.

Cyril Ramaphosa, the former Secretary General of Congress of South African Trade Unions (COSATU) coined a phrase during the memorial service for the victims killed during the 1986 Kinross disaster: "An injury to one is an injury to all." This disaster, in which 177 employees were killed during an underground fire, can be regarded as the watershed for

combating injuries in the mining industry. The National Union of Mine Workers published a document during September 1986 under the heading, 'A thousand ways to die: the struggle for safety in the gold mines' and made the following comments: "Since the first day that the NUM was born, safety was on top of our list. As I have said again and again; You've got to be alive or uninjured to earn the wages. For us, health and safety comes first. When the NUM started in 1983, 604 workers were killed in gold mines. Last year, in 1985, 539 workers were killed. So we can see that we are slowly winning the struggle. But we have a long way to go. We will not rest as long as our people are dying underground. For us, every death is one too many" (Ramaphosa 1986:2). The international world also started to view the South African occupational safety progammes and legislation as inadequate, given the nature of the industry.

Mining operations found themselves in an awkward position, having to increase production more cost effectively, but with more stringent safety measures to be taken to reduce the unacceptably high rate of injuries. **Many interventions (Robertson 1993:3) were embarked** upon to get to grips with the management of especially occupational safety. The overall results achieved were similar in most of the cases: good results were achieved initially, but within a short period of time the results would slip again. New developments, associated with mechanized mining techniques, worsened the position as employees now had to deal with a more hazardous environment.

Following the Kinross disaster, the holding company of Kinross Gold Company, Gencor S.A, embarked on different initiatives to improve their safety performance. Two main drives can be distinguished. The first was to focus very strongly on the production environment, with all efforts being made to ensure that this environment was as conducive to high levels of safety and production performance as possible. This intervention was followed for a number of years with some remarkable success, initially. As

time passed by, it became obvious that safety performance started to slip once more.

Analysis indicated that it would be more beneficial to focus on the real reason for accidents in the mining industry, i.e. the human factor. It was calculated that the human factor could be blamed for 87% of injuries in the South African mining industry, with 11% where a direct link exists with the physical working environment. Only 2% of injuries occurred due to aspects related to nature, such as earthquakes and floods (Odendaal 1989:11). With this information in hand, a new intervention was embarked upon by which the attitudes of employees were evaluated, followed by strategic action plans to change negative attitudes into positive attitudes. It was believed that this would have a positive impact on safety performance. This approach also received positive results, but once again only for a limited period of time. The outcome sent a clear message to employers that no "quick fixes" were available to counter the challenges faced (Flynn, 1992:308). A number of quick fixes were available in the market place, for solving problems relating to safety performance, but although most may have eliminated some of the cosmetic causes, it failed to address and remove the chronic illnesses of overall organisational performance. The quest was still on for a more ingenious initiative to face these challenges.

The tension increased even further when a new act came into play during 1996, the Mines Health and Safety Act, Act No. 29 of 1996. The act was promulgated, following an in-depth investigation by the Leon-Commission, on health and safety performance in the South African mining industry. The management of health and safety was no longer regarded as a management prerogative, but all efforts were to be made to promote a culture of health and safety in the mining industry and to improve health and safety training provided in the mining industry. The co-operation with regards to health and safety between the state, employers and their representatives, was regarded as the reasonable approach to be followed.

The pressures on the mining industry that were alive during the late 1980's and the 1990's, is still an issue of concern. In Figure 2 the fatality curve for the Mine is displayed (Management Report 2003). Despite all efforts made, the tendency is very clear: occupational injuries are still a real problem. A permanent solution is still unavailable. **Efforts to increase productivity are also increasing, despite safety challenges**.

Figure 2:   Frequency of all injuries
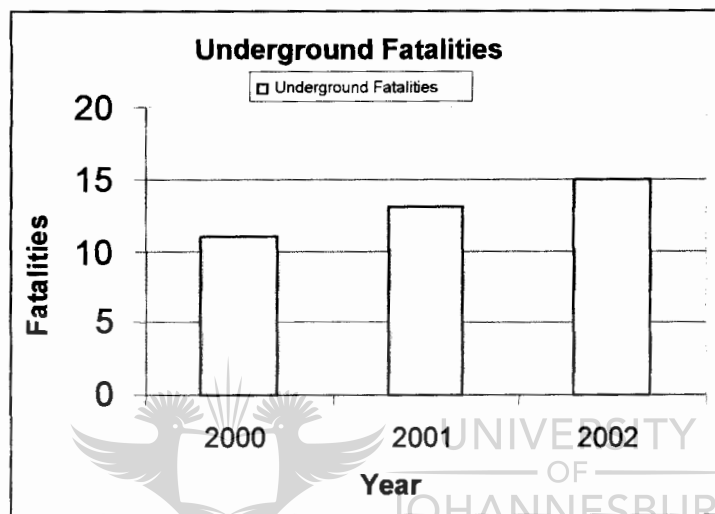
2.3   *THE MANAGEMENT OF SAFETY*

Safety management at the Mine is controlled via strict policies and procedures. These policies and procedures originated from the latest laws on mining, as issued by the Directorate of Mineral and Energy (Mine Health and Safety Act: 29 of 1996).

Within the ambit of these policies and procedures many interventions have been embarked upon. Interventions such as technical training, risk assessment, quality audits, underground audits, training of line managers, as well as structured safety meetings, including accident reports and investigation (see table 3).

Minor accidents, as starting point, are reported and a statistical report system gets calculated on a weekly basis. Trends are analysed and action plans are mapped out and activated. Despite all of the above-mentioned initiatives, no remarkable decline in the accident rate is reported. It is obvious that the human element has received very little attention via the structured interventions. However, the Mine, embarked on a "People Based Training" intervention at the start of 2002, hereafter referred to as People Safety Programme. The "People Based Training" basically identifies risk behaviour, documents the at-risk behaviour and uses the information as a launch platform to influence the behaviour of employees towards a safer environment.

This intervention, however, saw 2002 as a poor year in terms of safety performance with a total of 15 fatalities.

2.4   RESULTS OF THE PEOPLE BASED APPROACH

It is not the aim of this study to concentrate on "People Safety Programme", however, the reported at-risk behaviours of employees and the subsequent interventions flowing from the People Safety Programme may provide valid information.

The latest report (November 2002) reports the following safety profile amongst 18000 fulltime employees. The summary below concentrates on the behaviour as well as interventions identified and does not reflect quantitative information:

2.4.1 At-risk conditions identified

- Incorrect installation of underground support.
- Incorrect face preparation and early examination into the workplace underground.
- Incorrect temporary support underground.
- Working in an unsupported area.

2.4.2 At-risk behaviours

- Failure to warn.
- Inadequate on the job training.
- Using faulty equipment.
- Disregarding of mining standards.
- Failure to identify hazards / failure to recognize hazards.
- Failing to "lock-out" unsafe areas.
- Taking of short cuts.
- Taking up of unsafe positions.
- Using unsafe equipment / using defective equipment.
- Failing to make safe (physical conditions).
- Lack of knowledge.
- Insufficient training.
- Failure to report and to maintain standards.
- Non-adherence to procedures.

2.4.3 Current interventions

- Early entry examination procedures.
- Drop the Rock Campaign.
- Stop Fatals Totally Campaign.
- Jumping Dust Road Show.
- Winch erector training.
- Team leaders re – training.
- Re – training in roof bolt installation.

Apart from mismatched behaviours and interventions as reported in the latest report (Management Report 2002) the safety situation, as far as fatalities are concerned, has worsened. Below is a report of fatal accidents (Management Report 2002).

Table 1:   Report of Fatal Accidents

Date of Fatal Accident (and date of death if different)	Occupation	Direct Cause of Accident	Brief Description of Incident and Details of Any Other Parties Injured	Immediate Follow-up Actions to Prevent Recurrence, and Lessons Learned
Friday, 4 January 2002 at 11h45	Stope Cheesa	Fall of Ground	Whilst the deceased was preparing the stope face to charge up with explosives, a large rock from the hanging wall fell, fatally injuring him.	All work in the area has been stopped. The area has been cordoned off until an alternative mining method has been established.
Tuesday, 8 January 2002 at 22h30	Electrician Artisan Assistant	Caught by winch motor's fan blades	The deceased was fatally injured when he started a winch whilst leaning against the winch motor's end after connecting it. There was no cover over the motor's fan and the fan blades caught him.	No further work to be done until the motor cover has been replaced. All electrician artisans and assistants will be re-instructed that assistants are not permitted to switch on power supplies.
Wednesday, 6 March 2002 at 12h35	Construction Team Leader	Fall of Ground	During drilling operations a slab from the hanging wall fell and injured the deceased. Traversing a pothole caused the slabbing. The deceased died on the way to hospital.	The Miner and Shift Supervisor have been suspended. The support design of the hanging wall will be modified. Reinforce emergency procedures. All emergency procedures to be rehearsed and enforced.
Injured Saturday, 16 March 2002 at 18h00. Died Sunday, 31 March 2002 at 08h20	Stope Timber	Head struck on conveyor super-structure	During a belt splicing operation, the deceased, was climbing over the belt when the chain block anchoring the counterweight broke. The counterweight movement caused the belt to whiplash and the deceased's head struck the steel structure.	Whilst working on the belt, the tension in the belt must be released by moving the counterweight to the lowest limit. Only correct equipment must be used with strict adherence to standards and procedure.
Friday, 26 April 2002 at 07h15	Stope Cheesa	Fall of Ground	The deceased was preparing the face when a fall of ground occurred.	Area barricaded off. Reassessment of all support procedures.
Wednesday, 8 May 2002 at 18h15	Dump Truck Driver	Drowning	Whilst the deceased, was attempting to move the pump forward he fell from the tube being used into the water of unknown depth and drowned.	Restricted access to area. Review of all operational procedures.

Date of Fatal Accident (and date of death if different)	Occupation	Direct Cause of Accident	Brief Description of Incident and Details of Any Other Parties Injured	Immediate Follow-up Actions to Prevent Recurrence, and Lessons Learned
Injured - Friday, 18 May 2002 at 03h30. Died - Monday, 20 May 2002 at 16h30	Development Team Supervisor	Truck and Tram Incident	It is stated that the deceased was traveling inside a Loco Guard Car. The car struck a ventilation column and its canopy was torn off. The deceased sustained serious injuries during this incident, from which he subsequently passed away.	Development end stopped pending full investigation and review of all operational procedures.
Monday, 10 June 2002 at 12h40	Stope Timber	Fall of Ground	Whilst removing temporary support prior to the installation of roof bolts a fall of ground associated with slips and domes in the hanging wall occurred fatally injuring the deceased.	Area barricaded off pending Senior Management and Fall of Ground Task Force Inspections. Support standards and procedures to be re-emphasised and re-communicated.
Tuesday, 9 July 2002 at approx. 11h30	General Labourer	Fall of ground	The deceased was found in a strike panel that had been barricaded off. He had been fatally injured in a fall of ground that had taken place while he was barring down.	Area barricaded off pending investigations by senior management and DME inspectorate.
Saturday, 12 January 2002 @ 09h50. Died- Monday, 24 June 2002*. (*Reported in July as notification of death not communicated in June)	Semi-skilled boilermaker	Falling object	The deceased was working at the base of a structure. Persons working above dislodged a grating, which fell, severely injuring the deceased who was rendered paraplegic. His process of rehabilitation was nearing completion when he died suddenly from apparent pulmonary complications 5½ months later.	Area cordoned off at time of incident. Full investigation done. Danger of falling objects re-communicated to all personnel.
Tuesday, 06 August 2002 (time unknown)	Artisan Assistant	Apparent suicide (SUPPORTED BY SAPS BUT AWAITING CONFIRMATION BY DME)	The deceased removed some clothes and used his reflective vest to tie a pneumatic ore tip cover operating handle in the "open" position (these covers fail to the "closed" position) and jumped into the tip. The event was not witnessed.	Area barricaded off until SAPS permission given to return tip cover to normal (safe) position.
Wednesday, 07 August 2002 at 12h15	Piping, Tracks and Ventilation	Struck by a piece of drill steel	The deceased appears to have struck a partly sawn length of drill steel with a hammer. A portion struck him violently under the chin resulting in intra-cranial bleeding and his subsequent death. The event was not witnessed.	Work activities suspended pending investigation.
Monday, 26 August 2002 at 14h45	Development Team Leader	Explosives	Whilst charging up F23/26 level SPD (Strike Production Drive) the blast of Raise 36 holed into the SPD, fatally injuring the deceased.	Area barricaded off pending investigation.

Date of Fatal Accident (and date of death if different)	Occupation	Direct Cause of Accident	Brief Description of Incident and Details of Any Other Parties Injured	Immediate Follow-up Actions to Prevent Recurrence, and Lessons Learned
Monday, 28 October 2002 at 10h45	Piping, Tracks and Ventilation	Explosion	Whilst the deceased was cutting old ventilation pipes in the return airway an explosion occurred fatally injuring him.	. Immediate audit by external auditors on in-house systems. . Early morning meetings with the teams to be re-enforced so as to ensure the proper planning of daily tasks.
Friday, 01 November 2002 at 11h18	Stope Cheesa	Fall of Ground	Whilst de-sludging drill holes a fall of ground occurred fatally injuring the deceased.	Pending investigation

It becomes clear, from the above that no single recipe can be formulated in isolating workplace accidents and fatalities. Furthermore, it is evident that little or no relationship exists between the follow-up actions to prevent recurrence and lessons learned. No observerable correlation could be found between the behavioural side as reported and the lessons learned.

Recent interviews with mining experts reveal interesting information. Both experts have cited "leadership" as a contributing factor in curbing accidents (Coetzer and Rudolph 2002). In this instance they referred to care, ensuring adherence to standards, supervision, foresight and presence of leadership amongst employees. The credibility of the leader also seems to be reinforced by the above-mentioned characteristics of the leader.

Gert Ackerman, a senior manager at Impala Platinum (Ltd) (The Star 2002:3) said: " We work in an industry where people have come to tolerate fatalities."

2.5 ANALYSIS OF RISK CONDITIONS, AT-RISK BEHAVIOUR AND CURRENT INTERVENTIONS

As stipulated earlier, no visible correlation could be found between lessons learned and the causes of fatalities. In order to create meaning from all the information presented, an attempt to analyse possible causes are presented in the tables below. An analysis of direct at-risk conditions identified is provided below in Table 1. At-risk condition in this regard refers to the physical workplace, as it is observed.

Table 2:   Direct at-risk conditions identified

Direct at-risk conditions identified	The possible role management could play in causing the direct at-risk condition	The possible role the supervisor could play in causing the direct at-risk condition	The possible role the worker could play in causing the direct at-risk condition
Incorrect installation of underground support	No alignment between production, safety and reward.	No care	No responsibility
Incorrect face preparation	No alignment between production, safety and reward.	No care	No responsibility
Incorrect early examination	No alignment between production, safety and reward.	No care	No responsibility
Incorrect temporary support	No alignment between production, safety and reward.	No care	No responsibility
Working in an unsupported area.	No alignment between production, safety and reward.	No care	No responsibility

The direct at-risk conditions identified may be caused by no alignment between production outputs, safety output and reward output, as it applies to the management style of the manager. This means that the manager could not influence the people to work safely.

The supervisor, in this regard, shows no care regarding the direct at-risk conditions identified and should be able to see the deviations immediately, as it is his job to inspect the surroundings underground. In turn, the worker shows no or poor responsibility for his own life. Question remains, why is this situation there?

The answer may be found in analysing the direct at-risks behaviour of underground workers. An at-risk behaviour in this regard refers to the behaviour of employees leading to incidents and accidents. Table 2 displays the information.

Table 3:   **Direct at-risk behaviour identified**

Direct at-risk behaviour identified	The possible role management could play in causing the direct at-risk behaviour of employees	The possible role the supervisor could play in causing the direct at-risk behaviour of employees	The possible role the worker could play in causing the direct at-risk behaviour of employees
Failure to warn	Absence of alignment	No mentoring and coaching	No value of work
Inadequate on the job training	Absence of alignment	No mentoring and coaching	No value of work
Using faulty equipment	Absence of alignment	No mentoring and coaching	No value of work
Disregarding standards	Absence of alignment	No mentoring and coaching	No value of work
Failing to identify hazards etc.	Absence of alignment	No mentoring and coaching	No value of work
Failing of short-cuts / unsafe positions	Absence of alignment	No mentoring and coaching	No value of work
Using unsafe equipment	Absence of alignment	No mentoring and coaching	No value of work
Lack of knowledge	Absence of alignment	No mentoring and coaching	No value of work
Failing to report and maintain standards	Absence of alignment	No mentoring and coaching	No value of work
Non adherence to procedures	Absence of alignment	No mentoring and coaching	No value of work

In analysing the direct at-risk behaviour of underground employees, the following may be deduced: it seems that management still does not align the consequences of accidents with reward, for example, a person disregarding safety standards should be disciplined, removed from

underground, retrained and only then be allowed to continue working underground.

The supervisor still does no mentoring and coaching underground. That is the role of proper supervision: To instill a culture of meaning in work. The worker, in this regard, displays no value attached to his work situation. How is it possible that any person will find it acceptable to work with this type of direct at-risks behaviour underground?

Table 4, below juxtaposes the current interventions, which are provided to employees, in order to minimise accidents and fatalities underground, against the areas in which the intervention may have an impact.

Table 4: Current Interventions and its impact

Current Interventions	Impacting On			
	The persons responsibility for his own safety	The person caring for himself and others	The conditioning to work towards safety	The technical Competence of the individual
Back to Basic training	None	None	None	Yes
Early entry examination training	None	None	None	Yes
Drop the Rock Campaign	None	None	None	None
Stop Fatals Totally Campaign	None	None	Yes	None
Jumping Dust Road Show	None	None	Yes	None

Current Interventions	Impacting On			
	The persons responsibility for his own safety	The person caring for himself and others	The conditioning to work towards safety	The technical Competence of the individual
Winch erector training	None	None	None	Yes
Team leader re-training	Yes	Yes	Yes	Yes
Re-training in roof bolt installation	None	None	None	Yes
Zero Tolerance Campaign	Yes	Yes	Yes	None
Meetings and feedback sessions	None	Yes	Yes	None

It can be deduced that the current interventions have little relation to the impact they are supposed to have. Only those blocks marked in dark colour may be regarded as having an impact. However, it is remarkable to note that the Mine has gone to such lengths by providing and by applying the "People Safety Programme". As far as the researcher is concerned this is vivid proof of the sincerity in their approach towards minimizing accident in the work place.

2.6 CONCLUSION

2.6.1 Direct at-risk conditions identified

It is evident that the initial cause of direct at-risk behaviour is not identified via a qualitative viewpoint. The actual quality of this information represents the following: Workers exhibit no or poor work responsibility, supervisors demonstrate no or poor care for workers and teams. Management demonstrate no alignment between production, safety and reward.

2.6.2 At-risk behaviour identified

The at-risk behaviour presents itself as a result of the following: Workers attach little or no value to their work. It is seen as mechanistic. Supervisors do not exhibit mentoring and coaching skills and management do not align production, safety and reward to the benefit of the safety of the worker.

2.6.3 Current interventions

Current interventions do not place enough emphasis on the personal and individual responsibility. By doing so, not enough emphasis is placed on the individual to exhibit responsibility and care for his own safety. It is evident that supervisors do not exhibit behaviour of a caring nature. Current interventions, therefore, do not address personal and individual responsibility as well as sufficient emphasis on caring for people.

2.7 **SUMMARY**

This chapter provided an overview of the phenomenon of safety and fatalities in the mining industry. The management of safety at the Mine has been discussed, its interventionist approaches as well as "People Based Safety".

The results of the People Based Safety report has been reflected. Despite this, work related injuries have increased during 2002.

The accompanied management initiatives have also been reported. It seems that little or no relationship exists between possible causes of accidents and the traditional training interventions to minimise them.

Chapter 3 focuses on the nature of Personal and Professional Leadership (PPL) as a potential solution in solving fatalities in dangerous working environments.

CHAPTER 3

PERSONAL AND PROFESSIONAL LEADERSHIP

3.1 INTRODUCTION

This chapter is devoted to a PPL perspective, its definition and application possibilities, as it relates to underground mining and its associated dangers in executing work in a hazardous working environment.

This chapter also focuses attention on a new approach to leadership (PPL) and its impact on employees and productivity. It highlights the PPL pyramid and its application possibilities in dangerous working environments.

The relevance of PPL is reflected in its application possibilities as it relates to minimising accidents in hazardous working environments.
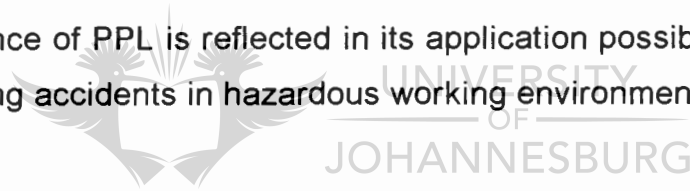
3.2 PROBLEM AND PURPOSE

In Chapter One (1.1), the visible observations made in a productive and safe working environment were described. As also mentioned in Chapter 1, the aim of this research essay is to identify applicable PPL principles, which may contribute in preventing workplace related accidents.

In Chapter Two, the importance of solving fatalities in dangerous working environments was described. Reference was made to research indicating that as much as 87% of injuries in the South African mining industry are attributable to the human factor.

Section 2.3, described in detail, the fatalities encountered at the Mine and the endeavours (Section 2.4) to prevent further accidents and fatalities.

In this chapter, however, the focus will be on the perspective of PPL, its definition and application possibilities, as well as the role it may play in minimising accidents. It focuses the attention on PPL as a new approach to leadership and its impact on employees, specifically:

- The role PPL can play in enhancing safety.
- The difference leadership can make in preventing accidents.
- The proof of PPL and its value for safety and production.

3.3 A PPL PERSPECTIVE

3.3.1 A View on Leadership

The term "leadership" has been used in many instances to attribute a leader and his behaviour to external influences such as charismatic, well spoken, positional power and many more Maxwell (1993:30). It is said that if the leadership dimension is not properly in place, a company simply cannot be successful (Manfred and De Vries 2002:3). Sashkin and Sashkin (2003:7) give their version of the Tao Te Ching (the source of many sayings). Their version is as follows:

- Some leaders accomplish a great deal and are loved and praised by followers.
- Lesser leaders use threats and fear to get results.
- The worst leaders use force and lie; they are despised.
- But of the best leaders, when the work is done and the goal attained, the people say, "We did it ourselves!"

The PPL context however approaches leadership from another angle. Cashman (2000:18) points out that leadership is not simply something we do, **LEADERSHIP IS AN EXPRESSION OF WHO WE ARE.** It is out, being in action. We lead by virtue of who we are. To invest in leadership development is to invest in personal and interpersonal growth. To the PPL practitioner, leadership is not mastery of 'something' e.g. mastery of the skill to be a dynamic public speaker, mastery of strategic planning, mastery of consistent achievements, but is usually seen as mastery of ourselves (Cashman, 2000:19).

According to Cashman (2000:20) the essence of leadership is authentic self-expression that creates value. Covey (1989:132) says that personal leadership is not a singular experience; it is an "inside-out" approach and means to start first with the self. Even more fundamentally, to start with the most inside part of the self - with your paradigms, your character and your motives.

According to Smith (2003:2): "Leadership from the inside-out is about our ongoing journey to unfold and to express our purposeful inner life to make a more positive impact on the world around us."

In view of the description of leadership, PPL expresses its perspective on three levels, namely: PERSONAL, INTERPERSONAL AND PROFESSIONAL LEADERSHIP (See chapter 1, section 1.4.6).

3.3.2 *Personal Leadership*

For the PPL practitioner, **PERSONAL LEADERSHIP**, means authentic self-expression, which creates value, which is a non-singular experience, which starts with the self. It is purpose driven and connects the human being with its emotional side (Le Roux and de Klerk 2001:10) as well with its spiritual side (Pearsall 1998:7).

Personal leadership is used as a synonym with personal mastery or self - mastery. The focus on personal mastery (Smith 2003:2) entails to changing circumstances, critical life choices, attitude and success, potential awareness and success, purpose mastery, balance mastery, self – renewal, values, time management, health and well-being, strategies for potential realisation, as well as personality types, its implications for self actualisation, interpersonal relationships and professional effectiveness.

3.3.3 *Interpersonal Leadership*

Goleman (1996:39) defines interpersonal intelligence as the ability to understand other people, what motivates them and to work co-operatively with them. Gardner (In Goleman 1996:39) noted that the core of interpersonal intelligence includes the "capacities to discern and respond appropriately to the moods, temperaments, motivations and desires of other people." PPL according to Smith (2003:4) believes that it is futile to improve relationships with others before improving ourselves. If we want to be more effective with others, we first need to be more effective with ourselves. Instead of focusing on finding the right partner (in business or friendships) **seek to be** the right partner. Practice being what you wish others to become (Cashman 2000:121). **Interpersonal leadership** is about self-expression that makes a difference, which enriches the life of others. The core of effective relationships, according to Cashman (2000:121), is **authenticity**. Authenticity is the core relationship around which synergy and trust grows.

Interpersonal leadership, amongst others, will result in good and healthy interpersonal relationship at work, home, with family, colleagues and friends as well as on a social level.

3.3.4 Professional Leadership

Professional leadership, from a PPL perspective, is about the study of the strategic application of human resources in organisations. Human resources, according to Wickens (1999:5) are the human capital of business and organisations. Many authors (Cascio 2000; Porter 1985; Pfeffer 1998) have dealt with this issue. Leadership in commerce is a commodity that has been described by many authors (Vicere and Fulmer 1997:22). Hamilton (1993) stipulates that: "The long term health of any organisation depends on the quality of people (on all levels) who assume its leadership."

The professional leader (Maister 1997:15-22) is characterised by the following:

- Character, principle and value based.
- Leading by example and service leadership.
- Empower and support employees.
- Visionary and focused on the management of change.
- Managing of diversity and team effectiveness.
- Managing of successful execution of company goals and objectives.

Personal leadership precedes professional leadership. Intrapersonal and interpersonal leadership builds on the foundation of professional leadership. The specific focus of professional leadership is on the employee as leader in its (professional) work context.

Professional leadership, in PPL context focuses on the "soft" aspects of the organisation, such as attitudes, values, perceptions, vision, mission and code of behaviour in the organisation.

Professional leadership focuses on the covert, invisible, subjective and "soft" issues in a work context. It deals with attitudes, values, feelings, conflicts, power and with the alignment of the employee to the vision and mission of the company. Professional leadership does not deal with policies, procedures, products and technology.

In view of the description of personal leadership, interpersonal leadership and professional leadership, integration between the three levels is possible. This integration (3.3) clearly illustrates how the person (authentic self-expression) relates to teamwork, friends and colleagues and individual alignment in a work context.

This is relevant because each level is interlinked to another level. The levels cannot function on their own because of the central role the individual plays in each. This is vividly illustrated in figure 5 below:

3.4 THE INTEGRATION OF THE PPL LEADERSHIP PERSPECTIVE ON THREE LEVELS

The above mentioned personal, interpersonal and professional leadership levels can be integrated as illustrated in Figure 3 below.

Figure 3: The Integration of the PPL leadership Perspective on Three Levels.
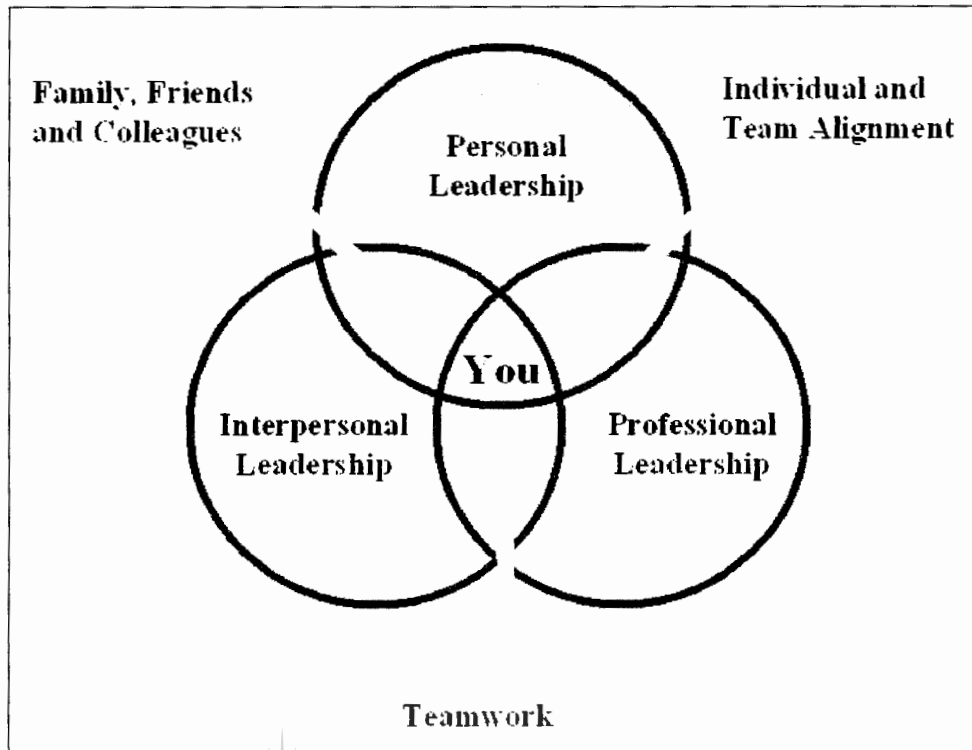
A stupendous cornerstone for the integration of the PPL leadership perspective on the three levels, namely the performance / performance capacity balance (Covey 1989: 54-57) should be noted. According to Smith (2002:5), the PPL perspective will only be concluded if implementation and execution ability on all three levels exists with a specific and positive consequence.

It should be noted that a real life problem serves as an activator, which leads to a particular behaviour, which in turn leads to a consequence, impact of the consequence and outcome. To this extent, Albert Ellis (In Corsini, 1984:196-238) postulated a Rational-Emotive Therapy Model, modified by Smith (2003:1) into a Behaviour model that is described in 3.4 (Figure 4 below).

3.5 THE BEHAVIOUR MODEL OF SMITH (derived from Albert Ellis)

Albert Ellis postulated a Rational–Emotive model, modified by Smith (2003:3) into a behaviour model which can be explained as follows:

Figure 4: The Behaviour Model of Smith
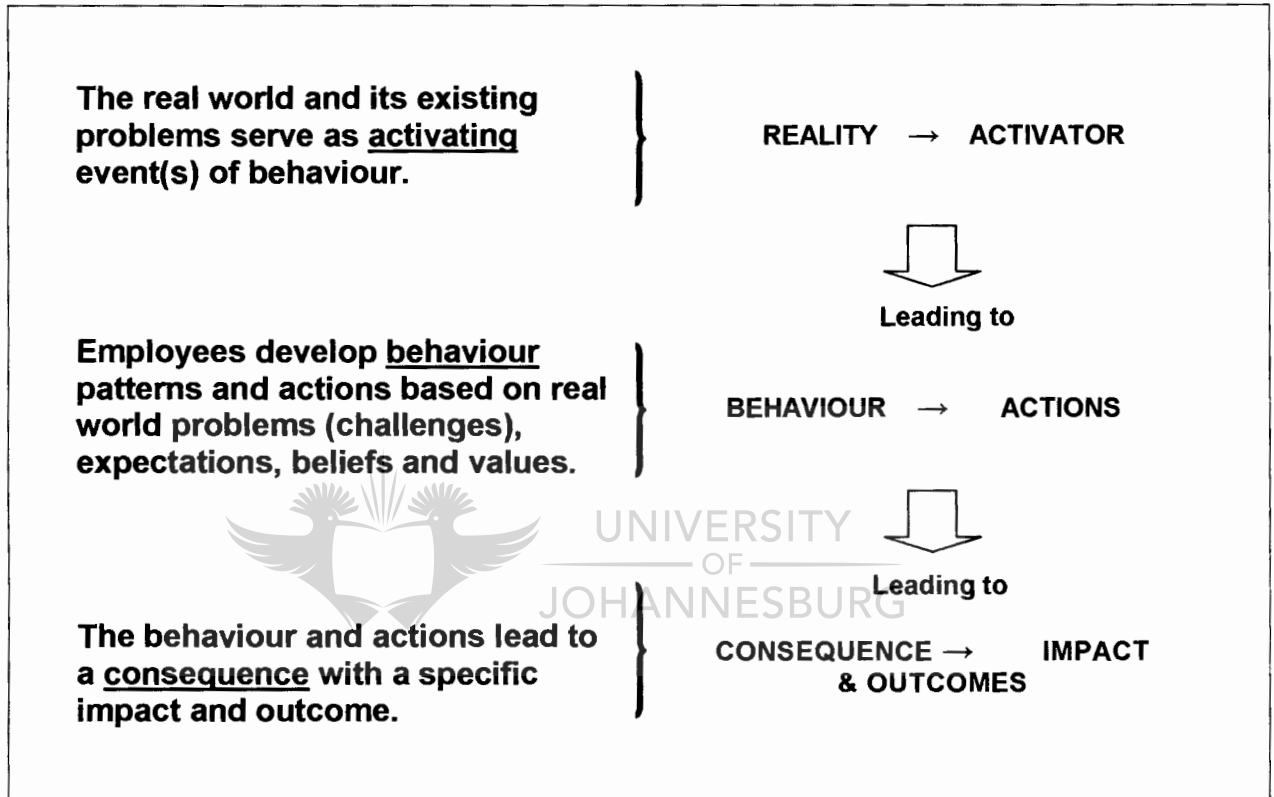
This model suggests that the real world and its associated realities should be understood before an attempt is made to change the behaviour of individuals (See Chapter 2, Table 3). Expression of the authentic self also presents itself in real world situations. This is equally true in a dangerous work environment. The employee is constantly faced with everyday real life problems e.g.: Personal problems, intrapersonal problems and professional (work) problems. These problems may have a direct influence on safety and productivity e.g.:

The worker may live in a squatter camp and as a result may be deprived of nutrition, sleep, hygiene and shelter which, as a result, may have an impact on the workers' ability to concentrate and his well-being in general. The real life problem may develop into unacceptable safety behaviour, such as lack of concentration, no care attitude, feeling of no hope, short-cuts to underground, poor ability to execute physical tasks and irritability. The consequence may be a fatal accident, associated with detrimental impact on employee morale, safety records and a deprived family.

Work pressure may also serve as an example: production pressure may lead to an accident. The activator may be delivery of a certain task, which in reality, may not be "short-circuit" (behaviour). This may lead to an expectation that safety rules and regulations may be ignored and the consequence may be an accident.

Ellis's model vividly illustrates the activator (real world problem), behaviour (expectations of the employee) and consequence (outcome, effect and impact). Smith integrated Ellis' model with the Pyramid of Leadership and Influence, more specifically at the Behaviour phase of Ellis' model, as illustrated in Figure 5 below. Behaviour can be modified by living the Pyramid of Leadership and Influence. The nature of the Pyramid of Leadership and Influence is explained in paragraph 3.6.

Figure 5:   The Integration of Ellis' model with the Pyramid of Leadership and Influence

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┌─────────────────────────────────────────────────────────────────┐
│  ┌──────────────┐      ┌──────────────┐     ┌────────────────────┐│
│  │  Activators  │─────▶│  Responsible │────▶│ •  Consequence     ││
│  │              │      │  Behaviour   │     │ •  Circle of Influence││
│  └──────────────┘      └──────────────┘     │ •  Safe work environment││
│                                             └────────────────────┘│
│                          Competence                                │
│                                                                    │
│                           Caring                                   │
│                                                                    │
│                          Character                                 │
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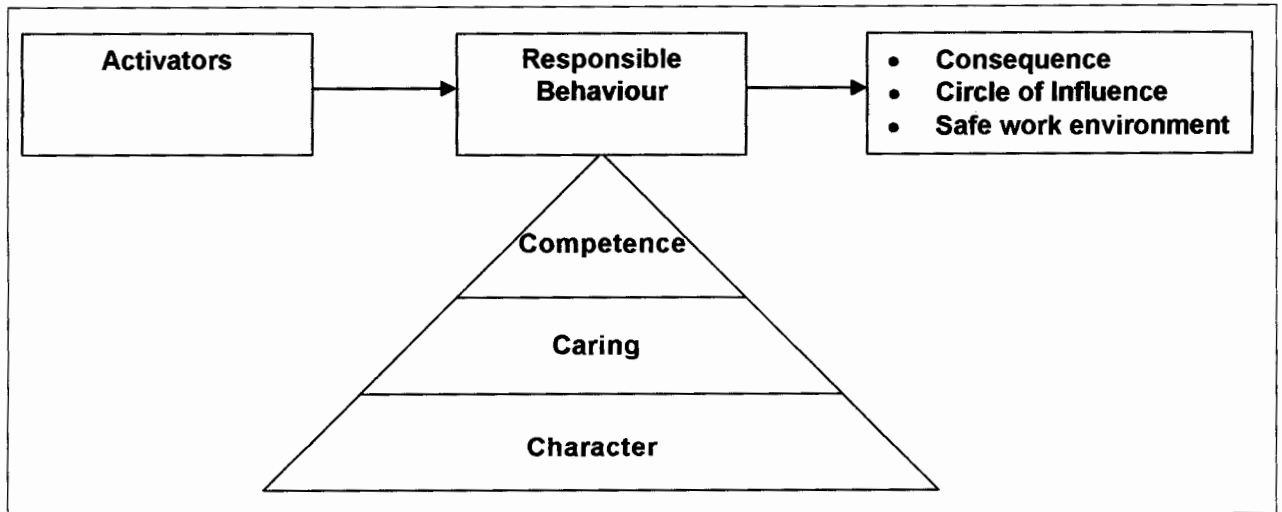
3.6   A   BLUEPRINT   FOR   PREVENTING   ACCIDENTS: THE LEADERSHIP CHALLENGE –THE PYRAMID OF LEADERSHIP AND INFLUENCE

In Chapter One (1.1), observations with reference to a high level of productivity and safety were described and in Chapter Two (2.3 and 2.4) a description and analysis were made about at-risk conditions, behaviours and current interventions at the Mine.

In view of the observations and descriptions and in view of the PPL perspective as well as Smith's Behaviour Model, attention will now be focused on the **Pyramid of Leadership and Influence (The Pyramid)**, as a representation of the possible solution that PPL may contribute in solving the safety dilemma.

- As mentioned earlier, PPL takes as its core focus the concept "leadership" from an Intrapersonal, Interpersonal and Professional perspective.
- The Personal, Interpersonal and Professional Leadership finds its root in the Greek model of Ethos, Pathos and Logos.

- This Pyramid of Leadership model contains the essence of authentic leadership expression and PPL, amongst others, involves a study of the pyramid at its three levels.

The pyramid will now be discussed and illustrated in Figure 6 in order to indicate how PPL can contribute substantially to minimising accidents in dangerous work environments.

3.7 THE PYRAMID OF LEADERSHIP AND INFLUENCE

The pyramid can be best depicted on three levels. The three levels are consequential and serve as a building block for the next level. The three levels represent the intrapersonal (personal leadership), the interpersonal (relationships) and professional level. Figure 6 below, depicts the Pyramid.

Figure 6:   The Pyramid of Leadership and Influence
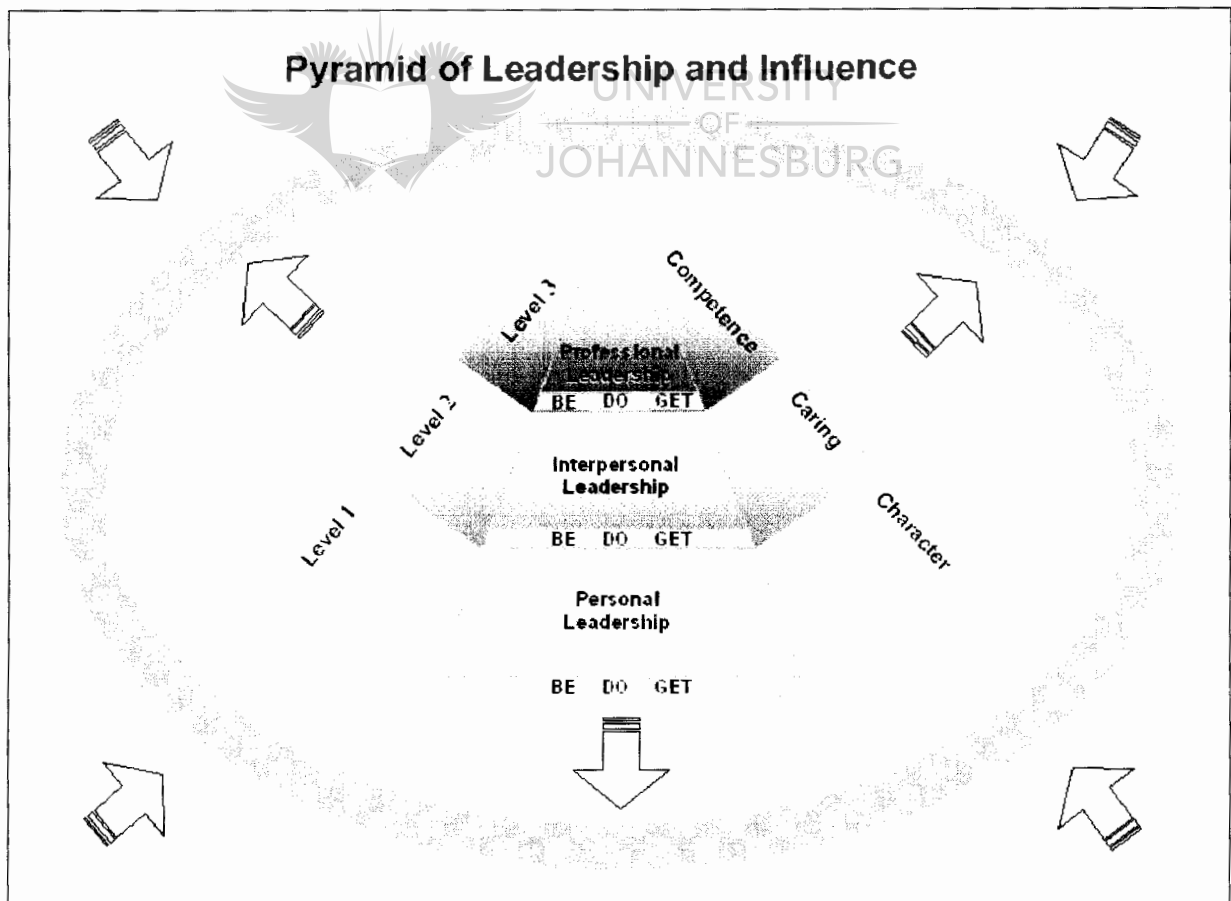
The Pyramid can now be applied to assess PPL's potential in solving accidents and fatalities. The application will be described in detail below (3.7.1.1 to 3.7.1.3).

3.7.1 *LEVEL ONE: PERSONAL LEADERSHIP*

The Personal Leader

The personal leader expresses authentic leadership, which creates value. His attitude is positive and linked with integrity, which produces a personal environment, which is conducive to a win culture. His BE-ing is aligned to all of these factors.

Such a person does (behave) as follows: walk the talk, think solutions and not problems, is optimistic and exhibits well being (value added BEHAVIOUR). Such a person is rewarded with personal security and consistency. A positive culture emerges.

The essence of self-mastery (Smith 2003:2) is as follows:

- Becoming connected with one's inner core, authentic self-expression and finding and living ones purpose in life and thereby finding meaning.
- Becoming aware of existential realities (real life problems) that either complicate or add quality to one's life.
- Awareness of the importance and potential of one's intrapersonal life dimensions: spiritual (core), physical, emotional and intellectual intelligence.
- Finding harmony and balance between one's authentic self / True – North and the expectations and pressures of one's daily existence.

- The optimal realisation of ones inner potential in the optimal synergy with ones environment (people and circumstances).

- A principle–centred, character–based, inside–out approach to life. Inside-out means to start with the self, the inner harmony, beliefs, values, character and attitude (Covey 1989:42).

The Reality at the Mine

The opposite is evident as described in Chapter Two (2.3.), for example, non-adherence to procedures, failure to report and maintain standards, failure to make safe, short-cuts, disregarding of standards, failing to warn. The worker, thus, exhibited no or little responsibility with regards to his own safety.

The supervisor did not ensure proper adjustment between production, safety and rewards. These actions contradict level one of the Pyramid. This suggests that a cognitive dissonance on level one of the Pyramid exists.

According to the Pyramid, success will not be possible at the professional level (level three) in the absence of an effective functioning level one (personal leadership). The Return on Investment (ROI) will be minimised at level two and level three. It may be deduced that productivity will also suffer as a result.

The circle of influence of those individuals and workplaces will decrease over a period of time. This means the focus and energy of the workers will not be focused on real issues such as safety, productivity, and teamwork. Their circle of concern (Covey 1999:82) will increase. Proactive people (Covey 1999:83) work on things they can do something about. The nature of their energy is positive, enlarging, and magnifying, causing their circle of influence to

increase. Covey (1999:83) says: "Reactive people focus their efforts in the circle of concern. They focus on the weaknesses of other people, the problems in the environment and over circumstances they have no control. Their focus results in blaming and accusing attitudes, reactive language and increased feeling of victimisation."

3.7.2 LEVEL TWO: INTERPERSONAL LEADERSHIP

The Interpersonal Leader

Level two of the Pyramid deals with interpersonal relationships and is a vital building block in all spheres of society.

It speaks to friends, colleagues, workgroups, family members and is a very important issue in a mining environment because of the nature of teamwork in underground conditions.

The mastery on this level implies a BE-ing that is caring (in a team context), passionate, genuine as a servant leader to his fellow colleagues. Behaviour resulting from such an approach is: acknowledgement, supportive, respect for others and results in appreciation and loyalty, effectiveness, energy and team performance.

PPL (Smith 2003:2) focuses on discovering the essence of sound relationships. It takes as its starting point, two anthropological realities, the need of self-realisation and the need of acceptance and recognition by others. Relationship mastery has a focus of discovering the essence of relating to others, in view of the ever-present relationship paradox, the dissonance between the Self and the Other, between self-realisation and building sound fulfilling relationships.

A starting point of PPL's interpersonal leadership perspective is that it is futile to strive to improve relationships with others before finding peace and harmony with the self.

The Reality at the Mine

In contrast, the findings in Chapter Two (Table 2) suggest the opposite of mastery at this level. It suggests an absence of alignment, no mentoring and coaching and little value attached to the work situation. Such a situation may lead to serious organisational problems, for example: poor productivity, poor safety and even poorer people relations and teamwork.

3.7.3 LEVEL 3: PROFESSIONAL LEADERSHIP

The Professional Leader

Professional leadership is the third level of the pyramid that focuses on the workplace with its emphasis on:

- The importance (worth) of work for meaningful existence.
- Credible leadership.
- Servant leadership.
- Competent leadership.

The professional (leadership) perspective also investigates the expression of Personal and Interpersonal Leadership with special reference to spiritual fulfilment at work and finding a balance between the self, one's principles and values, one's primary and secondary relationships and effectiveness in the workplace.

Professional leadership (Smith 2003:2), in the PPL context, represents a departure from the traditional view of professional effectiveness, which was synonymous with status, power and output (production at all cost). Professional leadership in the PPL context is based on the precepts of spiritual fulfilment at work, relationship building, teamwork, mutual respect, appreciation, empathetic listening, commitment towards a common mission, win-win, synergy, conflict resolution, professional effectiveness and other related principles and values.

Professional leadership implies a Be-ing, which is competent, focused and committed in the work environment.

The behaviour of such a person represents accountability, ability to prioritise, learning, capacity creation, value added to the organisation, good judgement, live the values of the company and exhibit empowerment.

The return on investment of such an employee, results in respect and trust for the individual and company. It provides direction and influence.

The Reality at the Mine

In Chapter Two (Table 4) it is clearly illustrated that the third level of the pyramid is not in place. This situation leads to a misalignment between the other two levels of the pyramid. This situation may also cause accidents and fatalities because of the traditional viewpoint that workers are seen as a factor of production output. It is conclusive that level three of the pyramid will not be in place if the other two levels are not intact. The Pyramid is summarised below in Figure 7.

Figure 7: THE PYRAMID

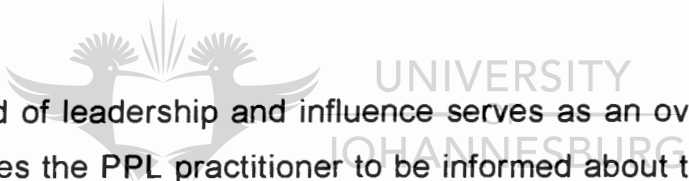| ACTIVATORS (REALITIES)	BEHAVIOUR (CHALLENGES)		CONSEQUENCES (OUTCOMES)
	BE	*DO*	*GET (ROI)* *CONSEQUENCES*
	COMPETENT FOCUSED COMMITTED	LEARN/ACCOUNTABILITY PRIORITISE/CREATE CAPACITY ADD VALUE/LIVE VALUES/ EMPOWER	RESPECT & TRUST DIRECTION INFLUENCE
	CARING SERVANT LEADER PASSIONATE	GIVE ACKNOWLEDGEMENT SHOW RESPECT SUPPORT	APPRECIATION AND LOYALTY EFFECTIVENESS ENERGY/PERFORMANCE
	AUTHENTIC /TRUE SELF POSITIVE IN ATTITUDE INTEGRITY	WALK YOUR TALK THINK SOLUTIONS GENUINE	SECURITY & CONSISTENCY POSITIVE CULTURE RESPECT/ACKNOWLEDG EMENT

3.8 THE RELEVANCE OF PPL AND ITS APPLICATIONS POSSILIBILTY IN DANGEROUS WORKING ENVIRONMENTS

Glendan and McKenna (1995) say: " Organisational problems cannot be fitted into traditional discipline based categories". They argue the fact that a new paradigm is necessary. An overview approach is necessary in which the whole picture is informed by problem solving activities that incorporate many varieties of human behaviour. Thus, there are micro (individual, psychological), macro (managerial, organisational) and intermediate (group, team) levels.

These levels are to be managed by professionals and line managers responsible for managing and developing employees and safety in dangerous working environments.

It is with reference to the above that PPL contributes substantially in solving the safety dilemma. PPL provides a framework that integrates the Micro (personal leadership), the macro (professional leadership) and the intermediate (interpersonal or team leadership). In 3.3, the framework has been discussed and it was pointed out that Smith (2002:5) provided the means for integration, execution and implementation that may substantially contribute an answer to the safety dilemma.

Ellis' Behaviour Model provides for understanding of activating events, the behaviour as a result of the activating events and the consequence of the behaviour.

The Pyramid of leadership and influence serves as an overview approach, which enables the PPL practitioner to be informed about the whole picture, which incorporates many variables of human behaviour in dangerous work conditions. The Pyramid clearly illustrates the ramifications on the personal, interpersonal and professional levels. In other words, the Pyramid also illustrates the negative consequences as described in 3.7.1.1, 3.7.1.2 and 3.7.1.3.

It is in this area that PPL deliver a substantial contribution in:

- Enhancing safety and productivity (increased circle of influence).
- Pointing out the difference leadership can make in preventing accidents.
- Proving the value of PPL in the search for improved safety and production.

3.9 *SUMMARY*

In view of the central focus of PPL, the study of PPL (Smith 2003:3) wishes to contribute to:

- Authentic self-expression that adds value to self and others and thereby leaves a legacy.
- Meaningful human existence through value and purpose awareness and finding the balance in living one's values and fulfilling one's purpose.
- Progressively higher levels of self / potential realisation, in alignment with credible leadership, servant leadership and competent leadership.

A Personal and Professional Leadership perspective (Smith 2002:3) entails a study of the awareness of the fundamental problems facing mankind in the context of our personal realm, our relationships with people and our professional environment. PPL confirms the ability and potential of all human beings, irrespective of race, colour, gender and creed. Humans can excel and succeed in all dimensions of life – be it spirituality, physically, emotionally, intellectually or in their relationships with people, The freedom of choice, based on self-awareness as well as conscious and intrinsic motivation forms the backdrop against which a person can overcome determinism and open the doors to self-fulfilment.

This chapter then, was devoted to a PPL perspective and its application possibilities in underground work conditions. This chapter focused the attention on PPL as a contributing factor to minimising accidents in dangerous work environments. It is also stipulated that PPL may contribute substantially in the quest towards minimising fatalities in the mining industry.

Chapter Four, hereafter, will conclude the research essay and will provide a summary of the findings and present recommendations.

CHAPTER 4

SUMMARY, FINDINGS, RECOMMENDATIONS AND CONCLUSION OF THE STUDY

4.1 INTRODUCTION

This chapter will focus on establishing whether the research problem and aim, as defined in 1.2, has been addressed sufficiently in this study. In addition to this, the researcher will summarise the essence of the research as per the previous chapters, as well as the subsequent findings and conclusions thereof, in an attempt to meet this objective. There is also discussion of other issues relevant to the subject of executing work in an underground working place. To conclude, certain recommendations for further research will be presented.

4.2 SUMMARY AND FINDINGS OF THE STUDY

In Chapter One, we indicated that safety in the mining industry remains an area of concern. The researcher also indicated that a number of observations in safe and productive underground environments were made. These observations represent a certain amount of successful behaviour or behaviour rules being applied by the supervisor such as a clean workplace and other visible performance characteristics

In order to verify these observations the researcher has postulated that leadership may play an important role in minimising workplace related incidents and accidents. An underground hard rock mine in the North West Province has been selected to conclude the research.

Leadership has evolved as a subject matter over a number of years and has been summarised into three areas of importance namely Pre- World War Two Theories, with a general focus on entities such as intelligence, social maturity, inner motivation and human relationships. The Post World War Two period until the late 1960's moved to the Behavioural and Humanistic Theories, as well as the Perceptual and Cognitive Theories. The last area of importance concentrates mainly on situational leadership that says that leadership needs to change as the situation changes and that the leader acts in conformance to critical factors in the situation.

It is important to note that Chapter One also indicated new leadership keywords emerging from recent literature, for instance, listening, empathy, healing, awareness, purpose, spirituality, stewardship. Emerging from these keywords, it seems that the traditional definition of leadership is in need of redefinition. Cashman's definition of leadership (2002:20) implies that leadership is not seen as hierarchical but as authentic expression of the self. Authentic leadership focuses on creating value.

Personal and professional leadership has been formed into an approach of thinking and executing leadership principles (Smith 2002:1). It focuses on personal leadership, interpersonal leadership and professional leadership. In view of the preceding description of leadership, the role of these principles (personal, inter-personal and professional leadership) emerged as focusing agent to the minimizing of fatalities in dangerous working environments.

Chapter One (1.2) provided the problem statement and aim of the research. Two research questions, which had to be addressed, were:

1. How do personal, interpersonal and professional leadership qualities support safety in the work environment?
2. What possible contributions can personal, interpersonal and professional leadership qualities make to assist mining professionals and workers to manage safety problems?
3. To what extent can personal, interpersonal and professional leadership make a contribution towards safety in the work environment?

In view of the research problem, the main aim of this research was to identify applicable leadership principles, which may contribute in preventing workplace related accidents.

A Phenomenological approach to this study was followed. Research methods included a literature study and a word and concept analysis.

In order to address the main aim of this study, the following specific aims were set:

- To define personal, interpersonal and professional leadership and to describe its relevance to dangerous working conditions.
- To identify the possible leadership principles needed for achieving success in dangerous working conditions.

Chapter Two focused our attention to the phenomenon of fatalities in the mining industry and highlighted in specific the following important issues:

- Production costs in the mining industry are an issue of great concern to management.
- Poor management of production costs may lead to mine closures. In other words, production costs need to be reduced while productivity is increased.
- Fatalities in the mining industry are now an issue of a moral nature.
- Many interventions were embarked on in order to reduce mining accidents.

The above-mentioned issues may tend to focus the attention of mining employees on the technical aspects of mining and not on the human factor. Chapter Two also pointed out that 87% of injuries underground were attributed to the human factor. Cyril Ramaphosa, the former Secretary General of Congress of South African Trade Unions (COSATU) introduced the moral nature of underground fatalities by coining a phrase during the memorial service for the victims killed during the 1986 Kinross disaster: "An injury to one is an injury to all".

Chapter Two also provided an in-depth examination of the results obtained from the "people based training approach" being executed at the Mine. Chapter Two also provided an in-depth analysis of employees fatally injured at the mine and pointed out that little or no relationship exists between follow-up actions after an accident and lessons learned from a specific accident. In order to create meaning from all the information provided, the direct at-risk conditions identified were analysed in order to deduce possible causes. It is found that poor alignment between production, safety and reward exists. This points toward the role that management is playing in the direct at-risk conditions. The supervisors displayed a no care attitude and the employees displayed a no responsibility attitude.

The direct at-risk behaviours that were identified also provided evidence of the absence of alignment from management, a no mentoring and coaching attitude from supervisors and a no value attachment to the work situation by the employee. The relevance of this chapter is found in reflecting the dilemma mine managers are facing in trying to curb accidents.

In Chapter Three we saw the in-depth analysis of the PPL approach and perspective. The PPL focus area according to Smith (2001:2) also focuses on the self-awareness of man and the uniqueness and wonder of being, the potential as unique person, the importance of attitude, the importance of energy, responsibility of the individual and various life dimensions as well as the harmony between those life dimensions.

The essence of PPL is imbedded in three distinct characteristics namely: personal leadership, interpersonal leadership and professional leadership. The value of PPL is about the human being and its being in society as well as business. In 3.3, a PPL perspective was summarised. It should be noted that PPL differs from traditional psychology and its area of study as far as the following areas are concerned: PPL focuses on the re-discovery of the self, who the self is and what the important issues for the self are. It also focuses on emotional and spiritual life. It facilitates harmony between the emotional, physical, spiritual and psychological dimension of the human being.

In Chapter Three (3.7), the link between PPL and accidents has been clearly demonstrated as well as the possible leadership principles needed (3.7.1, 3.7.2 and 3.7.3). By doing so the second aim of the research has been met, namely: to identify the possible leadership principles needed for achieving success in dangerous working conditions.

Ellis' Behaviour Model (3.5) clearly illustrated that real world problems serve as an activator, which leads to a certain behaviour, which leads to a specific consequence.

This model may shed new light on the behaviour of people in dangerous working environments.

A blueprint for preventing accidents in 3.6 namely the leadership challenge, the pyramid of leadership and influence, answered the three specific research problems as set out in 1.2. It proves clearly that the pyramid of leadership and influence can support safety in the work environment. It also proves that PPL can assist mining professionals and workers to manage safety problems. It provides personal leadership as an integrated approach, whereby leadership can contribute substantially to solving accidents.

PPL in this regard provides applicable leadership principles as set out in 3.3 (3.3.2, 3.3.3 and 3.3.4) and as such PPL may be regarded as a possible contributing factor in minimising accidents in dangerous working environments.

4.3 *SUMMARY OF FINDINGS OF THIS STUDY*

The findings of this study have already been extensively described in both Chapters Two and Three. Therefore, only the findings that have a direct bearing on the specific objective of this research essay (as defined in 1.2) will be presented in this Chapter.

These findings, which resulted from the research conducted in Chapters 2 and 3, will furthermore be portrayed in an integrated manner.

- It has been found that supervisors who work productively and safely in underground working conditions, portray behaviour which is equitable to personal, interpersonal and professional leadership principles (3.3).
- It has been found that the definition of leadership (3.3.1) needs to be redefined in terms of authentic expression. Authentic leadership focuses on creating value.
- It has been found that the leadership principles as described in 3.3 may substantially contribute to a safe work environment.
- It was calculated that the human factor can be blamed for 87% of injuries in the South African mining industry and that PPL can contribute to minimising accidents by addressing the human factor (3.8). The PPL Leadership Pyramid is perfectly positioned to live up to the challenge of misaligned "prescriptions" to curb accidents in dangerous working environments.
- There is a clear misconception by management on how to address people issues in an underground mining situation (2.5 Table 4) and that management action seldom reflects an in-depth understanding of the human factor at play.
- PPL as focus area has much to offer in aligning the human element to professional work practices (3.3 to 3.8).
- PPL is functional in nature and provides a pyramid of leadership and influence, which may contribute substantially in minimising accidents in dangerous working environments.

It is furthermore clear from the above that the findings of this study have indeed met the requirements of the objective of this research essay as described in 1.2. In addition to describing the challenges of working safely underground, a link between the way people behave in dangerous working situations and their reactions have been established (3.5). In addition to this PPL has been established as a contributing factor in minimizing fatalities in dangerous working environments.

4.4 AREAS FOR FURTHER RESEARCH

As mentioned in 1.5, a Phenomenological Approach was followed in determining the applicability of PPL in dangerous working situations. With this in mind, the following recommendations with regards to further research can be made concerning the subject of this study:

- The human factor should be researched with specific reference to its definition and functionality in working environments.
- To develop a quantitative profile of a leader in an underground working situation which is regarded as a safe and productive worker.
- To develop a safety profile for an underground leader.
- To research the applicability of PPL in the field of human risk management and to express human risk and the impact of PPL via qualitative means.
- The impact of the functionality of PPL should be studied over a given period of time and the results should be correlated with business impact.
- To develop a workable model that could assist organisations in developing "safe leaders" underground.
- To establish a department in companies which studies the human factor in incidents and accidents.

4.5 SHORTCOMINGS OF THIS RESEARCH ESSAY

It is the subjective impression of the researcher that cognizance should be taken of the following shortcomings:

- Little or no literature exists with specific reference to leadership as contributing factor in eliminating and / or minimising accidents in the mining industry.

- It was difficult to obtain applicable data about the mine's safety statistics and the statistics were rejected as part of this research essay because of its non-standardised definitions and poor record keeping.

- A quantitative analysis could have been added in order to support the phenomenological approach of this study. The limited scope of this research essay did not make this possible.

4.6 CONCLUSION

This research essay involved the safety dilemma which mining professionals are faced with and pointed out that this moral dilemma could be addressed by applying the PPL principles. PPL is regarded as a contributing factor in minimising accidents in dangerous working environments. It must be pointed out that the PPL approach is new and should be marketed to Executives in order to be utilised in practice.

Within these realities, the conclusion is that PPL provides a new level of thinking about tomorrow's (safety) problems.

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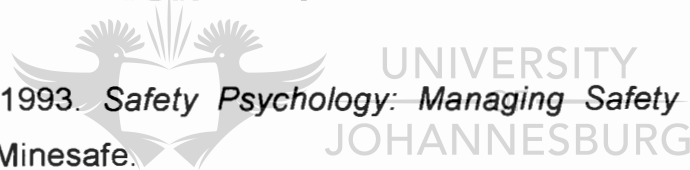
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