

**THE EFFECTIVENESS OF ADULT TRAINING
AT A GOLD MINE**

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This study is dedicated to my Heavenly Father

**"My deep desire and hope is that I shall never fail in my duty,
but that at all times, and especially just now, I shall be full of courage,
so that with my whole being I shall bring honour to Christ..."**

Phil 1:20

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ABSTRACT

THE EFFECTIVENESS OF ADULT TRAINING AT A GOLD MINE

1. Introduction

Adult education and training, as part of the literacy programme of the country, is an important and developing field of activity and study. Today, the main responsibility for education and training of adults is taken by industry, with the focus on lifelong learning. It is initiated and financed by the company and has company goals. The process of education and training of adult workers enables those who were previously disadvantaged to achieve new skills and knowledge. The purpose of this study is to determine the effectiveness of adult training at a gold mine.

2. The aim of the study

A wider range of skills is required from workers, due to changes in the working place and a higher level of specialisation is required. This study aims to determine, by means of empirical research, whether adult education and training succeeds in preparing workers for the challenges and demands that face them.

3. Specific objectives of the study

This study will attempt to determine:

- the degree of improvement of practical skills of the worker in terms of production;
- to what degree there has been an improvement in the technical knowledge of the worker and
- the improvement in managerial skills of the worker who has been subjected to training.

4. Method and sample

A theoretical orientation was done regarding motivation and the application of motivational theories, lifelong learning as well as legislation and structures for adult based education and training.

The descriptive survey method was employed to process the data. The applicable data was collected by means of structured questionnaires, which were completed by adult workers who had been subjected to training. The questionnaire was carefully screened and protested. Unstructured interviews were conducted with unit supervisors to obtain certain important information.

The research was undertaken with a large Gold Mine in the Virginia district, which uses modern and intensive training programmes to train adult workers. Records of production results of the trainees are kept and this data was also used to evaluate different facets of the training. Random sampling was used to identify 20 respondents who had already been subjected to training. A total of 20 questionnaires were distributed and received, which was considered highly satisfying feedback. This was possible owing to the fact that all questionnaires were completed at a central point, with the help of the facilitator.

5. Core findings

Some of the major findings are reflected here.

- A convincing majority of the respondents indicated that they regard motivation as important;
- 90% of the respondents regarded money as the most important motivator;
- The two strongest demotivational factors indicated by the respondents were unfair treatment by supervisors and unachievable goals;
- Evaluation of the respondents' practical knowledge resulted in a rating of 68% of the answers given by respondents, to be correct;
- Results of testing of the component of technical knowledge were either average or above average;
- Production and safety as two of the technical components received distinctively high scores;
- Motivation and communication proved to be the strongest management skills the respondents had;
- Results of the technical knowledge per occupation revealed that the knowledge of respondents who were Teamleaders was distinctively high;
- When the production performance of the respondents is viewed over a 12-month period, an even but definite progress can be detected.

In the light of this study and its findings the conclusion can be made that the training was indeed effective and contributed to the development of the workers and their performance in the workplace.

6. Concluding remarks

Changes in the workplace are now taking place at a constantly increasing rate. These changes focus on continuous improvement in production and worker performance. It should not be thought that training is a cure-all for whatever problem the organisation is facing. Training is a means to an end. The ultimate objective of any form of training is the development of the workers by means of improving their knowledge and skills. The desire must also, however, be established with the workers to improve their individual skills and knowledge, via certain training programmes.

KEY TERMS

- Adult
- Training
- Effectiveness
- Motivation
- Productivity

OPSOMMING

DIE EFFEKTIWITEIT VAN VOLWASSE OPLEIDING AAN 'N GOUDMYN

1. Inleiding

Volwasse onderwys en opleiding vorm 'n integrale deel van die geletterdheidsprogram van die land en blyk 'n uiters dinamiese studieveld te wees. Die verantwoordelikheid van volwasse onderwys en opleiding rus hedendaags op die skouers van die onderneming. Groot nadruk word dan ook geplaas op die belangrikheid dat onderwys en opleiding 'n lewenslange leerproses behoort te wees. Die opleidingsprogramme word deur die onderneming gefinansier en het hoofsaaklik ondernemingsdoelwitte. Diegene wat voorheen minderbevoorreg was, word deur die proses van onderwys en opleiding in staat gestel om nuwe vaardighede en kennis aan te leer. Die doel van hierdie studie is dan om te bepaal hoe effektief die volwasse opleiding op 'n sekere goudmyn is.

2. Doel van die studie

As gevolg van die veranderinge wat in die onderneming beleef word, benodig werkers 'n wyer reeks vaardighede en gespesialiseerde kennis om in die werkplek te kan oorleef. Hierdie studie het ten doel om deur middel van empiriese navorsing vas te stel of volwasse opleiding wel daarin slaag om werkers voor te berei vir die uitdagings waarvoor hul te staan kom.

3. Spesifieke doelstellings met hierdie studie

Deur hierdie studie word die volgende gepoog:

- om vas te stel watter praktiese verbetering (gemeet i.t.v. produksie) vergestalt in die werkers as gevolg van opleiding;
- om presies te bepaal wat die verbetering in tegniese kennis van die werkers is en
- om die verbetering in bestuursvaardighede van die werkers wat opleiding ondergaan het, vas te stel.

4. Metode en steekproef

Daar is van 'n grondige teoretiese ontleding gebruik gemaak om agtergrondskennis te verkry oor motivering en die toepassing van motiveringsteorieë, leer as lewenswyse, sowel as die wetgewing en strukture vir volwasse onderwys en opleiding.

Feitelike inligting is ingesamel deur middel van 'n opnameprosedure en die gebruikmaking van vraelyste en ongestruktureerde onderhoude. Die vraelys was eers aan vooraftoetsing onderwerp en is daarna deur volwasse werkers voltooi wat reeds aan opleiding blootgestel is. Ongestruktureerde onderhoude is met die betrokke toesighouers gevoer om sekere belangrike inligting in te win.

Die ondersoek is by 'n goudmyn in die Virginia distrik onderneem. Die betrokke goudmyn leen hom tot moderne en intensiewe opleiding van volwasse werkers. Daar word volledig rekord gehou van die produksieresultate van die werkers en die data is gevolglik ook gebruik in die evaluering van die verskillende fasette van die opleiding. Ewekansige steekproeftrekking is gebruik om 20 respondente te identifiseer wat reeds aan opleiding blootgestel is. 'n Totaal van 20 vraelyste is versprei en terugontvang, was as hoogs bevredigende terugvoering bestempel kan word. Die goeie terugvoering is moontlik gemaak deur die feit dat vraelyste amal by 'n sentrale punt voltooi is met die hulp van 'n fasiliteerder.

5. Kern van bevindings

Enkele van die hoofbevindings word hier weergegee.

- Die oorgrote meerderheid van die respondente het aangetoon dat hulle motivering as 'n belangrike aspek beskou;
- 90% van die respondente beskou geld as die belangrikste motiveerder;
- Die twee faktore wat die sterkste motivering teenwerk is onbillike behandeling deur toesighouers en doelwitte wat onbereikbaar is;
- 'n Evaluering van die respondente se praktiese kennis het in die beoordeling aangedui dat 68% van alle antwoorde wat deur respondente verskaf is, korrek is;
- Resultate van die toetsing van die tegniese kennis komponent was of gemiddeld, of bogemiddeld;
- Produksie en veiligheid was die twee tegniese komponente wat die hoogste tellings verkry het;

- Motivering en kommunikasie het geblyk die twee sterkste bestuursvaardighede teenwoordig te wees by die betrokke respondente;
- Resultate van tegniese kennis per beroep het aan die lig gebring dat Spanleiers se kennis op die hoogste vlak lê;
- 'n Oorsig van die produsieresultate oor 'n tydperk van 12 maande het 'n geleidelike, maar tog duidelike verbetering in prestasie getoon.

In die lig van hierdie studie en sy bevindinge kan die gevolgtrekking gemaak word dat die opleiding wel effektief was en bygedra het tot die ontwikkeling van die werkers as sodanig en hul prestasie in die werkplek.

6. Samevatting

Veranderinge in die werkplek neem teen 'n snelle tempo toe. Hierdie veranderinge is gefokus op die voortgesette verbetering van produksie en werkverrigting. Opleiding behoort egter nie gesien te word as die allesomvattende oplossing vir alle probleme wat in die onderneming ervaar word nie. Opleiding is slegs 'n middel tot 'n doel. Die uiteindelijke doelwit met enige opleiding behoort te wees om werkers te ontwikkel deur middel van die verbetering van hul vaardigheid en kennis. Die begeerte moet egter ook aangewakker word by die werkers self om hulle individuele kennis en vaardigheid deur middel van sekere opleidingsprogramme te verbeter.

SLEUTELTERME

- Volwassene
- Opleiding
- Effektiwiteit
- Motivering
- Produktiwiteit

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THE EFFECTIVENESS OF ADULT TRAINING AT A GOLD MINE

CHAPTER 1

INTRODUCTION, PROBLEM STATEMENT AND CLARIFICATION OF CERTAIN TERMS

1.1. Introduction

The United Nations declared 1990 International Literacy Year and the beginning of the Decade of Literacy. People all over the world reconfirmed their commitment to the belief that literacy is a 'good' thing. Yet their reasons for believing in the importance of literacy are very different and the apparently common cause disguises debates and questions at every level. Especially now in South Africa, concern about adult literacy has taken on a new urgency as the prospect of a new dispensation appears at least possible. Few would dispute the fact that literacy is a vital component in development and transformation. Its place, however, in the process is fiercely contested. Policy makers, planners, trainers, teachers, researchers and learners all have different ideas about what literacy means, what its benefits and consequences are, how it should be achieved, on what scale and why.

The industrial and commercial sectors are responsible for a considerable amount of literacy provision. Literacy classes are usually conducted as part of the internal training programmes of the organisations. Most often they are seen as part of basic skills training and part of person-power development plans – in other words, as part of the general upgrading and development of the workforce. In some cases literacy classes are provided by industrial and commercial organisations as part of their social responsibility programmes, although they are often motivated predominantly by a desire to improve productivity.

In South Africa, the question of who will provide literacy training, the scale to be used, the approach on which it must be based on and the methods and materials to be used is crucial. It cannot be assumed that under a new dispensation the state will, should, or can accept complete responsibility for the provision of adult education and training. It is highly unlikely that the new South Africa will have the resources to take control of literacy work.

When adult literacy work in the twentieth century is viewed from a distance, there is no doubt that mass campaigns will stand out as the most distinctive. In terms of sheer numbers reached, mass campaigns implemented by national governments have by far

done the most to reduce adult illiteracy in the world. Nevertheless, when the dust has settled, the number of illiterates successfully completing classes tells us little about what literacy really means to its beneficiaries. Neither do statistics tell us about the uses and consequences of literacy nor about its durability, especially in a non-literate or oral context. Literacy alone seldom achieves miracles or even dramatic results and is too often seen as a panacea to solve complex problems.

1.2. Problem statement

Adult education and training, as part of the literacy programme of the country, is an important and developing field of activity and study. As children and as adults, we are all engaged in learning on a daily basis, whether we realise it or not. We are also increasingly involved in more formalised forms of learning – that is, in education and training. Many thousands of people are currently employed to assist and guide the learning of other adults: as teachers or trainers, as lecturers or facilitators, as advisors or managers.

Today, the main responsibility for education and training of adults is taken by industry, with the focus on lifelong learning. It is initiated and financed by the company and has company goals. The process of education and training of adult workers enables those who were previously disadvantaged to achieve new skills and knowledge. These programmes often involve the adult student's personal goal. *The question that needs to be answered, however, is whether theoretical training produces more skilled and better equipped workers.*

1.3. Objectives

1.3.1. General objectives

Owing to the fact that the working environment is becoming more complicated every day, workers need to be more skilled and trained to be able to survive. This study aims to determine whether adult education and training succeeds in preparing workers for the challenges and demands that face them. The required results and information will be obtained by means of research at a specific gold mine.

1.3.2. Specific objectives

Once workers have undergone training, more is expected from them. It must be taken into consideration that those workers who successfully complete their training are promoted to a higher post level in the hierarchy of the organisation. Not only do they have to perform their daily tasks better, but they also have the responsibility of taking charge of subordinates (a team).

To be effective in their work these workers need to be more skilled in terms of their work (practical skills and technical knowledge) and be able to successfully cooperate with individuals and groups in the organisation (managerial skills). They must be able to communicate with other colleagues and subordinates, be able to prevent conflict or to resolve it, and to motivate workers to do their best.

Taking into account the roles that are being fulfilled by the subjects of this study, certain managerial skills have been identified, which, seem to be crucial in the execution of their tasks. These skills are: a) motivation, b) discipline, c) leadership and d) communication.

This study will attempt to determine:

- the improvement of practical skills of the worker in terms of production;
- to what degree there has been an improvement in the technical knowledge of the worker and
- the improvement in managerial skills of the worker who has been subjected to training.

1.4. Empirical research

Chapter 4 deals in detail with the research design and therefore only broad guidelines are stated here.

The descriptive survey method was employed to process the data. The applicable data was collected by means of structured questionnaires, which were completed by adult workers who had been subjected to training. Where necessary, unstructured interviews were conducted with unit supervisors to obtain certain important information.

The research was undertaken at a large Gold Mine in the Virginia district, which uses modern training programmes to train adult workers. All training programmes used are

accredited with the Mining Qualifications Authority (MQA) and programmes are subjected to annual quality surveys done by the Chamber of Mines. It should also be mentioned that the above mine facilitates the training and monitors each candidate's progress very strictly. Up to date records are being kept of the data of all facets of the training.

Furthermore, the given results will be explained in Chapter 5 in conjunction with Chapters 2, 3 and 4.

1.5. Describing terminology

1.5.1. Effectiveness

Van Niekerk (1992:8) describes the relationship between effectiveness and efficiency in the following way:

- Effectiveness is the achievement of a certain goal, in other words the correct task was completed irrespective of the methods and techniques followed to achieve the goal.
- Efficiency on the other hand implies that the correct method or techniques were followed to complete a task or to achieve a certain goal.

Therefore: Effectiveness is the accomplishment of a desired objective. Efficiency is the optimum relationship between input and output ...the killing of a housefly with a sledgehammer may be effective, but is not efficient.

1.5.2. Productivity

- Van Niekerk (1992:6), describes the aim of the improvement of productivity as the optimum combination and maximum utilisation of all the production forces active in the organisation, so that only those costs which are economically unavoidable will be used in order to maximise the profitability of the organisation over the long term.
- "a mathematical ratio expressing the relationship between the total volume or cost of production inputs divided by the total volume or cost utilised in the production input to produce a specified percentage of results" (Botes, 1994:283)

One can therefore come to the conclusion that the term 'productivity' is derived from an economical principle and that it is being used in the business world to indicate the relationship between input and output. Productivity can be seen as a criterion for measuring the effectiveness of an industry or part of an industry according to certain set standards.

1.5.3. Training

- "Training may be described as the systematic and organised process by which the employee acquires the knowledge, skills, attitudes and information necessary to achieve the objectives of the enterprise - and his or her own too" (Marx *et al*, 1998:488).
- "to make a person proficient with specialised instruction either by initiation training as a new recruit or by development training in specific courses..." (Botes, 1994:286).
- "In general sense, training refers to the organization's efforts to improve a person's ability to perform a job or fill an organizational role ... Its primary objective is the acquisition of specific skills and fairly detailed knowledge" (Orpen, 1976:238).
- "The transfer or gaining of technical knowledge, related skills, values and attitudes in order to develop proficiency and to develop a person's natural aptitude and abilities to improve his capability as a worker or entrepreneur. Such training generally takes place outside the school, and is more often than not directed towards the needs of a specific individual, employer or group of employers" (Coetzee, 1992:297).
- To summarise, it can be said that training can be seen as a process of teaching the employee new knowledge and skills, which will not only enhance organisational productivity and effectivity but will also address the needs of the employee and increase the employee's standard and quality of life.

1.6. Conclusion

It should not be thought that training is a cure-all for whatever problem the organisation is facing. The effectiveness of an organisation's training course needs to be examined. In this study the researcher will aim to indicate whether the trainees have learnt whatever the training course is designed to teach them. Since there is often a marked difference

between 'taking in' what is taught in a training course and putting it into practice on the job, with consequent improvements in performance, measures should be taken of the practical performance of the trainee as well. This can result in a discovery that a training course may be successful in terms of what the trainees learn during the course, but unsuccessful in that what they learn is not reflected in better performance.

CHAPTER 2

MOTIVATION AND THE APPLICATION OF MOTIVATIONAL THEORIES

2.1. Introduction

“The company of today is not the company of yesterday” (Spencer & Pruss, 1992:7).

The attitudes of managers and entrepreneurs at the beginning of the twentieth century were very different from those at the end of the century. The needs of individuals, and more importantly the recognition that committed, motivated people create in every respect of their companies, is a concept that comes from the last half of the century. A company where everyone had a place and knew it, where the job was all that mattered and individual expression was for after work hours, is a museum piece; today a company recognises that it must be an environment where people can develop themselves.

2.2. Clarifying terminology

2.2.1. Motivation

- The term motivation was originally derived from the Latin word *movere*, which means ‘to move’.
- Steers and Porter (1975:5) select the following as a representative definition for the term motivation:
“... how behaviour gets started, is energised, is sustained, is directed, is stopped, and what kind of subjective reaction is present in the organism while all this is going on.”
- Berelson & Steiner (1964, as quoted by Steers and Porter, 1975:6) described motivation as follows: “A motive is an inner state that energises, activates, or moves and that directs or channels behaviour toward goals”.
- Gellerman (1968, as quoted by Steers and Porter, 1975:6) provided yet another view of motivation with his definition: “...to steer one’s actions toward certain goals and to commit a certain part of one’s energies to reaching them”.
- “...literally meaning the creation of movement or to stimulate or create a desire to work or act” (Botes, 1994:281).

To summarise, it can be said that motivation deals with:

- i) what energises human behaviour;
- ii) what directs or channels such behaviour; and
- iii) how this behaviour is maintained or sustained

2.2.2. Motivational factors

“Motivational factors are ones that refer to states of the organism that are relatively temporary and reversible and which tend to energise or activate the behaviour of organisms. Primary motivation refers to those factors that have these properties without any special learning experiences and which are thus characteristic of all normal members of the species” (Logan, 1969:149).

The interpretation of the above definition implies that motivational factors are inherently part of organisms, and that these factors are responsible for activating the organism to behave in a certain way. All organisms are born with basic needs, which are responsible for primary motivation.

2.2.3. Primary versus secondary motivation

Logan (1970:166) distinguishes clearly between primary motivation and secondary motivation.

- Primary motivation

“...refers to unlearnt motivational dispositions – conditions which tend to arouse the organism without special training or experience”. The most important of these to the student are pain, hunger, thirst and sex.

- Secondary motivation

“...refers to drives that have been learned or acquired by the organism rather than ones that arise from biological needs without prior experience”. Secondary motivation is not secondary in the sense of being of lesser strength or significance than the primary drives; indeed, in a successful culture, secondary motivation provides the predominant source of

energy for our behaviour. 'Secondary' means that these drives are dependent on strength of learning, on an historical relationship with the primary, unlearned drives.

2.2.4. Intrinsic versus extrinsic motivation

Kleinbeeck *et al.* (1990:68) explains intrinsic motivation as "... this is equated to 'internal' motivation ... opposite to this is extrinsic or 'external' motivation".

Certain qualities are awarded to the above explanation of intrinsic and extrinsic motivations by Kleinbeeck *et al.* (1990: 68).

- The first qualification coincides that intrinsic motivation would imply that a student at school or an employee at a company works *on his/her own force*. A teacher or a manager does not need to occupy her or himself with this. Actually, she or he would not be able to exert any influence, because he or she is not intrinsically motivated: It originates 'within' the person. Extrinsic motivation would relate in particular with setting deadlines and with getting material and immaterial rewards. Both the student and the employee manifest certain behaviour, because they may get or avoid other outcomes in their 'environment' that come within reach as an effect of the results of their behaviour.
- A second qualification to be mentioned: Extrinsic motivation implies an *instrumental* relationship between behavioural results and desired outcomes. The person is not vitally interested in his/her very behaviour, but in particular in the outcome that results from it.
- A third qualification: Often there is a *normative* component involved. Intrinsic motivation is frequently considered as being positive, good, constructive, 'as it should be'. Extrinsic motivation, on the contrary, has negative connotations: It is 'allowed' as inevitable in the case of absence of intrinsic motivation, but in essence it is not constructive and of secondary importance.

Van Dyk (1992:151) differentiates between extrinsic motivation and intrinsic motivation in the following way:

- "Extrinsic motivation occurs outside the learning situation, e.g. by means of marks, diplomas and trophies."

- “Intrinsic motivation is inherent in the learning situation. When a student is directly involved in the subject matter, resulting in spontaneous interest, he becomes intrinsically motivated.”

It is clear that intrinsic and extrinsic motivation is viewed as being opposite to one another. It can therefore be said that the difference between extrinsic and intrinsic motivation lies in the source of the motivation. Extrinsic motivation comes from a source surrounding the learning situation, but which is not part of the learning situation itself. With intrinsic motivation on the other hand, the source of motivation can be within the learning situation.

2.2.5. Perfectly intrinsically motivated

“People who really enjoy the activity and will work at it for the whole time period without needing any extrinsic reward to keep at it” (McCormick and Ilgen (as quoted by Buckley & Caple, 1995:145)).

2.2.6. Perfectly extrinsically motivated

“Those for whom the task holds no interest and who will work on it only if forced to do so through the promise of extrinsic rewards” (McCormick and Ilgen (as quoted by Buckley & Caple, 1995:145)).

2.2.7. Imperfectly intrinsically motivated

“Persons who enjoy the task for a while but not for the whole time allocated to it. Therefore, they work only up to a point, after which they will have to receive extrinsic rewards for working on it any longer” (McCormick and Ilgen (as quoted by Buckley & Caple, 1995:145)).

2.3. The nature of motivational theories

Theories of motivation focus on the behaviour of the individual in relation to his/her surroundings. The various approaches to human behaviour provide a more complete picture of human behaviour. The theories discussed in this chapter are chosen because they provide helpful elements to support the research. The study of the theories of motivation also helps to discover the relationship between motivation and job satisfaction and work performance.

There are different ways of looking at the theories of work motivation, because behavioural scientists approach work motivation different viewpoints. The historically older theories of work motivation can be identified as the instinct, the hedonistic and the drive theories.

The 'contemporary' theories of motivation can be divided into two broad approaches – **content theories** and **process theories**.

Luthans (1992:156) mentions the following characteristics of the content theories:

The content theories of work motivation (a) attempt to determine what it is that motivates people at work, (b) are concerned with identifying needs/drives and how these needs/drives are prioritised, and (c) are concerned with the types of incentives or goals that people strive to attain in order to be satisfied and perform well. Thus they focus on **what motivates** people and attempt to explain those specific things, which acutely motivate the individual to work. These theories are concerned with identification of people's needs and their relative strength, and the goals they pursue in order to satisfy these needs (Tosi *et al.*, 1994:207 and Mullins, 1995:251). For example, increased pay can improve satisfaction and performance.

The process theories of work motivation stress the **thought processes** that individuals engage in when choosing between different courses of action that they can follow when trying to satisfy their needs. Process theories thus place emphasis on the "how" – the actual **process of motivation** and attempt to identify the relationships among the dynamic variables which make up motivation (Mullins, 1995:251 and Tosi *et al.*, 1994:207). Table 2.1 gives an explanation of the different theories, which form part of these two broad approaches.

Table 2.1 Motivational Theories

Content theories	Process theories
▪ Maslow's hierarchy of needs model	▪ Goal-setting theory
▪ Alderfer's ERG theory	▪ Reinforcement theory
▪ Herzberg's two-factor theory	▪ Expectancy theory
▪ McClelland's theory of achievement motivation	▪ Equity theory

2.4. Models of work motivation

The following sequential models of motivation as discussed by Spangenberg (1994:139) and Buckley & Caple (1995: 144) logically arrange and highlight the **content motivation theories**.

2.4.1. Needs and need-related models

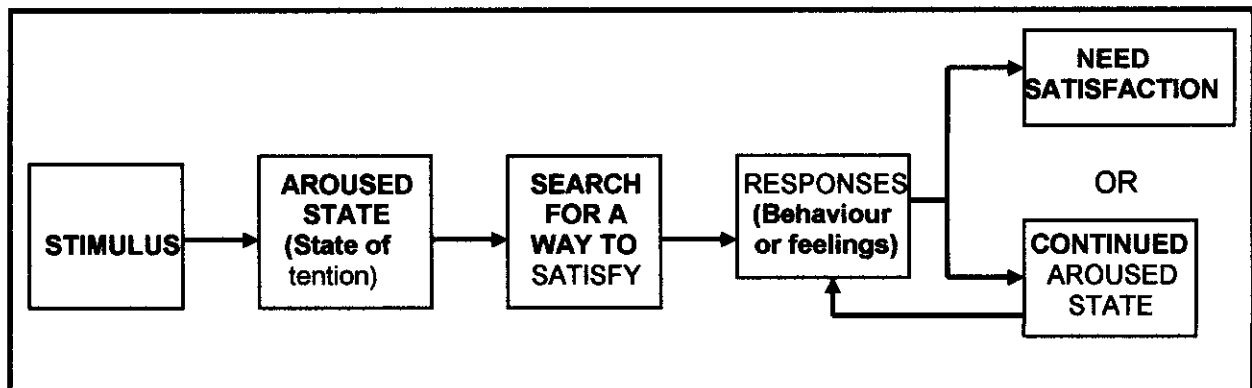
People have psychological as well as physical needs, the most fundamental of these being self-esteem. The nature and operation of these are characterised by the following:

- i) Needs are cyclical, i.e. they are never permanently satisfied. Life is a dynamic, non-static process.
- ii) Needs can normally be only partially satisfied (for example chronic hunger), whether by choice or involuntarily.
- iii) Need frustration is experienced as pain, discomfort, or illness.
- iv) Different needs entail different degrees of urgency, e.g. need for air!
- v) Needs exist even if the individual is not aware of them, for example, the need for vitamin C.
- vi) People can take action in anticipation of needs, before they cause pain or illness.
- vii) A need can lead to many different actions. For example, people may try many things to get self-esteem.
- viii) A given action can stem from more than one need, e.g. earning money may be promoted by a variety of needs.
- ix) Even though actions are ultimately motivated by needs, they may not in fact lead to need satisfaction

2.5. The content theories of motivation

A content theory explains the behaviour aspects of people in terms of specific human needs or factors – the 'drive' behaviour. According to Tosi *et al.* (1994:216), needs theories assume that people engage in particular behaviour to satisfy their needs – that is, unsatisfied needs dominate an individual's thinking and energise them to act (see Figure 2.2). When a person encounters something, it can evoke certain needs that must be satisfied. This creates tension within the person and he or she searches for ways to satisfy these needs. This result in certain behaviour – if the action is sufficient, the state or arousal decreases or otherwise more action will follow.

Figure 2.1 A needs approach to motivation



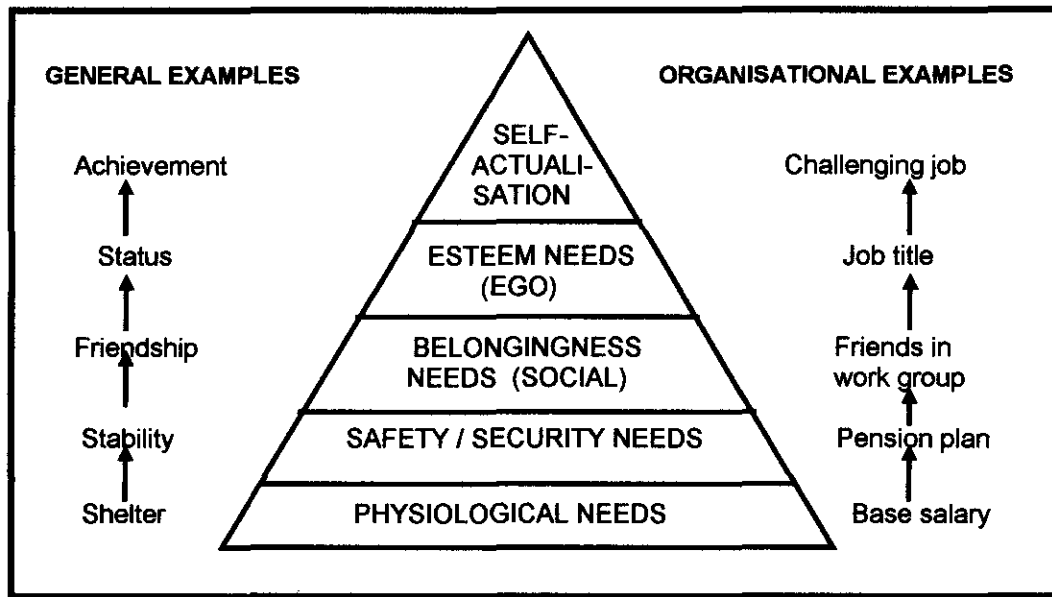
Source: Tosi et al. (1994:216)

2.5.1. Maslow's Needs Hierarchy

The best-known need theory is Maslow's Needs Hierarchy. Abraham Maslow developed a hierarchy of needs in the late 1960's. Maslow, was born in Brooklyn, New York, April 1, 1908, and died June 8, 1970. He was a founder of humanistic psychology in the 1960's. Educated at the City College of New York, Cornell University, and the University of Wisconsin, Maslow believed that mechanical forces do not control people (Lichtenberg, et al. (1992)).

Maslow's theory (first published in 1943) proposed that a person's motivational needs could be arranged in a hierarchical order of importance. This hierarchical order is depicted in Figure 2.2.

Figure 2.2 Maslow's hierarchy of human needs



Source: Mullins (1995:251), Gordon (1996:116) and Moorhead & Griffin (1989:110)

The most important needs appear at the bottom of the hierarchy. This implies that some needs take precedence over others or, to put it differently, that at a certain point in time, some needs are more important than others. This means that at a certain point in time the physiological needs are more important than the safety needs. A case in point is a situation in which a person is so hungry that he/she is only concerned with satisfying the need for food – he/she is not concerned with the need for security (safety). Luthans (1992:157) points out that Maslow believed that once a given level of need is satisfied, it no longer serves to motivate. The next higher level of needs has to be activated in order to motivate the individual.

Note that in the original theory the security needs were also known as safety needs, and the **belongingness** needs were known, as the **love** needs. Nowadays the belongingness needs are also known as **social** needs, the **esteem** needs are also known as **esteem and status** or **ego** needs and the **self-actualisation** needs are also known as **self-fulfillment** or **self-realisation** needs.

Following is a closer look at these different needs:

- **Physiological needs**

Lichtenberg, *et al.* (1992), states that from the moment we are brought into the world, we are all faced with needs for basic substance: food, drink, warmth, etc. These needs are the strongest and are the basic initial motivator. Unless we have these it is difficult, yet unlikely, that an individual can survive. At this level, an individual's natural inclination as an extrovert or introvert may be at play, with greater or less stimuli to be satisfied. According to the theory, physiological needs represent the most basic level in the hierarchy. As long as these needs are not satisfied to a reasonable degree, they tend to dominate a person's behaviour. That means that such a person will concentrate all his/her efforts on satisfying those needs. Also, the next level of needs does not play an important role in human behaviour unless these physiological needs are fulfilled to a reasonable degree. What is also important is the notion that once a person's physiological needs are satisfied to a reasonable degree, they stop influencing his/her behaviour and therefore stop acting as "motivators".

In organisational settings the pay/salary a person receives helps to satisfy the physiological needs. Unless the pay/salary is of such a nature (magnitude) that it at least allows the person to survive, he/she will concentrate his/her behaviour on the satisfying of the physiological needs. For such a person all other things will be of no or very little importance. On the other hand, once the physiological needs are satisfied to a large degree, they stop influencing behaviour. This means that once a person receives enough pay/money to satisfy his/her physiological needs, (more) money will not motivate the person any further. Is this true? One must take into consideration that money can be used to satisfy a whole array of other (higher) needs. This is perhaps one of the reasons why pay/salary (money) is sometimes called the "problematic" motivator.

Rothmann and Sieberhagen (2002:89), explains that when organisations allow their employees to take tea/coffee/lunch breaks, they are enabling their employees to satisfy basic physiological needs. When a person takes a tea/coffee break in the presence of other people, such a person is also able to satisfy certain social needs, for example through social talk. The same might happen in the case where the organisation makes provision for fitness programs and employees have the opportunity of doing exercises in the company of others.

- **Safety/security needs**

These needs reflect a desire for protection against loss of shelter, food and other basic requirements for survival. These are safety and security, freedom from pain and physical attack, protection from danger and deprivation, and the need for predictability/order. In his original theory Maslow stressed the importance of both **emotional** and **physical safety** (Luthans, 1992:156). This means that once the basic physiological needs are met, the person seeks a secure environment, one that is free from threats of physical or psychological harm. In the work situation safety and security needs concerns the handling of hazardous materials, smoke in the workplace, employment guarantees, company benefit plans, pensions, medical and dental benefits.

As in the case of physiological needs, once these safety/security needs are met, they no longer act as “motivators” of human behaviour.

- **Belongingness and love needs**

Maslow theorised that the belongingness/social/love needs come to the fore once the physiological and the safety/security needs are met. Social needs refer to the need to **affiliate** with other people. It refers to the need to have friends, to be loved by others and to be accepted by other people. Of course, these needs can to a great degree, be met outside the work situation, for example in the presence of family members and friends. Rothmann and Sieberhagen (2002:90), state that, because an employee spends quite a lot of time at work, these needs should also be satisfied in the work situation. In this case the (work) group of which the individual is a member plays a very important role in satisfying these needs. Also, an employee may be a member of an informal group at work. Although informal groups sometimes are dysfunctional as far as work performance is concerned, they do play an important role in helping to satisfy social needs of employees. This implies that social interaction between members of formal work groups as well as members of informal groups should not be discouraged – with the provision that this social interaction does not become dysfunctional (Rothmann & Sieberhagen, 2002: 90).

Baron and Greenberg (as quoted by Rorthamann & Sieberhagen, 2002:90) point out that research has shown that social needs are especially likely to be aroused when job security is threatened. This happens when a merger of two or more organisations or the take-over of one organisation by another organisation becomes a possibility. Such circumstances increase the possibility that some employees might lose their jobs. In such circumstances

one will find that there is a heightened search by employees of the company of others employees in order to gather information. Under these circumstances the satisfaction of both the physiological and the safety/security needs is threatened, and that they (once again) become important. This phenomenon is in accordance with the basic propositions of Maslow's theory.

- Esteem/ego needs

These needs can be divided into two groups, namely self-esteem needs and needs concerning (receiving) esteem from others. The first group is concerned with needs which are related to a person's **self-value** and **self-respect**. These include the need for achievement, independence, freedom, knowledge and confidence. The second group is concerned with needs that are related to **reputation** or **prestige** that others ascribe to the person. These include the need for status, recognition, attention, respect and appreciation by others (Barnard, 1995:42). People who value esteem needs, strive to demonstrate self-efficacy (a judgement an individual makes about his or her competence and ability to perform a task or accomplish a goal) (Gordon, 1996:117).

If an organisation in any way recognises the achievements of an employee, the esteem/ego needs of the employee are satisfied. The only problem might be that there is little opportunity for the employee to achieve. Barnard (1995: 42-43) is of the opinion that esteem/ego needs are seldom fully satisfied, especially at lower levels of organisations. Therefore, organisations have to take a closer look at their existing management practices in this regard.

- Self-actualisation

The self-actualisation/self-realisation needs are found at the top of the hierarchy of needs. These needs are aroused only after all the lower-order needs are met. This need implies the realisation of one's full potential and **becoming all that one is capable of becoming**. At this level of need-fulfillment the individual wants to develop his/her potential to the fullest. It also reflects an individual's desire to grow – this includes the opportunity to be creative on the job, or desire for autonomy, responsibility and challenge. This can be achieved through training. One can expect that when the educational level of people increases they will tend to seek opportunities for self-actualisation (and not necessarily out of the need for a bigger salary). According to Rothmann & Sieberhagen (2002: 93), this implies that organisations should cater for the needs of these people, by creating

conditions in which these needs can be met. This is all the more important when the lower-level needs of these people have been met and when we accept that Maslow's notion that a satisfied need is not a motivator of behaviour.

Spangenberg (1994:141) brings the theories of Luthans (1992) and Deci & Ryan (1985) into context with the theory of Maslow. Luthans contended that neither the hierarchical concept, nor the number and the names of the levels are important. What is important is that the people in the workplace have different motives, some of which are of a high level. According to Luthans needs such as *esteem* and *self-actualisation* are important components of work motivation.

Relevance of Maslow's need theory

Maslow's theory has been criticised as being too simplistic and that needs do not necessarily follow in the suggested order. Barnard (1995:45-46) states that the hierarchy is often upset, because of special circumstances and people's preferences. It is also important to mention that motivation varies over time and according to circumstances and that it is influenced by a wide range of individual, social, cultural and situational variables (Mullins, 1995:250). Barnard adds that social and cultural environments also have a substantial influence on people's needs. It is also said that these needs overlap and have the tendency to re-occur. Despite the rather simplistic nature of the need hierarchy model, according to Mullins (1995:252), it does provide a convenient framework for viewing the different needs and expectations of people at work. What the theory of Maslow does do is to make one aware of the diverse needs of humans in organisations. The theory also identifies main employee needs which organisations should satisfy. These needs seem to form a suitable basis for Section B of the questionnaire measuring employee motivation.

The rest of the content theories of motivation will be examined in order to determine their ability to supplement Maslow's five needs.

2.5.2. Alderfer's ERG theory

Clayton Alderfer developed an alternative needs theory, known as the ERG theory. He reduced Maslow's hierarchy into three types of needs: existence, relatedness and growth (ERG) needs (Gordon, 1996: 119). The **existence** needs are concerned with survival or physiological well-being of the individual, and they correspond with Maslow's physiological and safety/security needs. The **relatedness** needs are concerned with interpersonal and

social relationships, and they correspond with Maslow's social needs. The **growth** needs are concerned with a person's desire for personal development, and they correspond with Maslow's social esteem needs and self-actualisation needs.

Like Maslow, Alderfer's theory states that unsatisfied needs dominate behaviour and motivates an individual to act in a certain way. According to Gordon (1996:119), individual differences in various needs may be associated with differences in an individual's developmental level as well as differences in group experiences. The ERG theory, therefore, implies that people are concerned with lower-order needs first, then, if an organisation provides adequate wages, benefits, and security, the person will develop higher-order needs. According to Rothmann & Sieberhagen (2002: 103), there are also important differences between the theories of Maslow and Alderfer. According to the ERG theory, more than one need may be in operation at a given moment. This implies that a lower level need need not be substantially gratified in order for a higher need to come into operation. A more important difference is the fact that Alderfer in his theory included a **frustration-regression dimension**. The frustration-regression dimension implies that if an individual is unable to satisfy a higher level need, the individual's desire to satisfy a lower level need increases. The ERG theory does, however, as does Maslow's theory, include a satisfaction-progression dimension. This dimension implies that after satisfying one level of needs the individual moves to the next (higher) level of needs.

Relevance of the Alderfer's ERG theory

Although this theory is more consistent with our knowledge of individual differences among people, it is too simplistic. In practice, this theory is not easily translated to the work situation. Individual needs differ, ultimately influencing what motivates the person. "Ways to satisfy needs are learned through socialisation, and so people differ with respect to the needs that are important to them" (Tosi *et al.* 1994:218). People will, therefore, seek situations that are more rewarding to them and avoid those that do not offer any rewards. Alderfer's ERG theory has limited use for this study. It does not identify any new needs to supplement Maslow's five needs and no further discussions will take place.

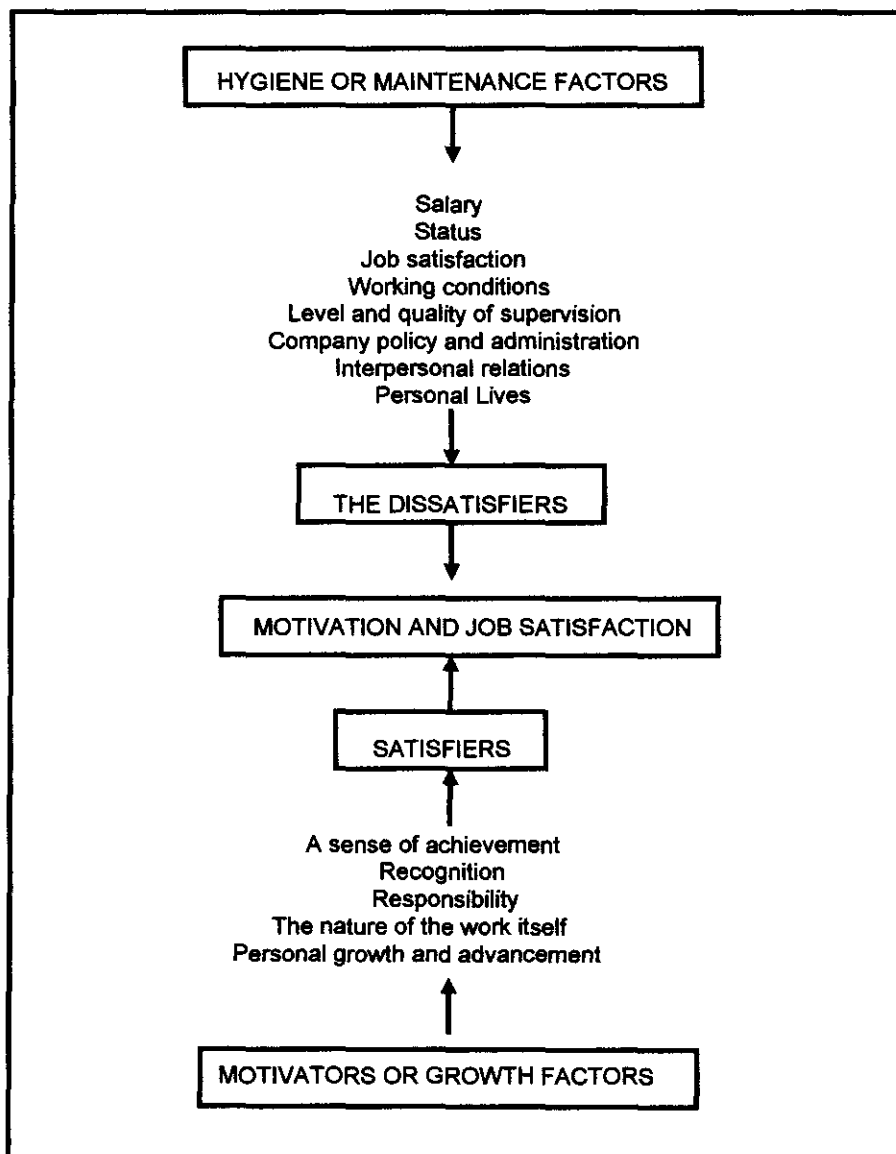
2.5.3. Herzberg's two-factor theory

Herzberg's two-factor theory is seen as one of the most sophisticated motivational theories. Herzberg (Herzberg, 1966: 61) believed that an individual's relationship to

his/her work is a basic one and that his or her attitude toward his/her work can very well determine the individuals success or failure.

Two hundred engineers and accountants were asked to describe times that they felt particularly good about their jobs and times they experienced negative feelings toward their jobs (Hertzberg, 1966: 71, 72). During their effort to identify work needs, Hertzberg and his associates (Hertzberg, 1966:74), identified two outstanding subdivisions, influencing job satisfaction. They are: 1) motivational or satisfying issues and 2) hygiene or maintenance factors. Both sets of factors are significant, since hygiene factors and motivators are necessary to avoid unpleasantness at work (see Figure 2.3).

Figure 2.3 A representation of Herzberg's two factor theory



Source: Adapted from Herzberg (1966:74) and Mullins (1995:254)

Motivating factors or satisfiers: are related to job content (Mullins, 1995:255) and high satisfaction and willingness to work harder (Tosi *et al.*, 1994:219). The strength of the motivators will affect feelings of satisfaction or no satisfaction, but no dissatisfaction – rather a neutral state. According to Gordon (1996:121) these motivators include responsibility, self-esteem, autonomy and growth. They motivate because of a need for growth and self-actualisation which refers to Maslow's higher order needs (Hertzberg, 1996:75). If these needs exist among employees and they have opportunities to make their own decisions and take responsibility, they will ultimately experience job satisfaction.

Hygiene factors of dissatisfiers: “These factors have been named dissatisfiers, because they essentially describe the environment and primarily serve to prevent job dissatisfaction, while having little effect on positive job attitudes” (Hertzberg, 1966:74). These are “features of the job's context, (policies, and practices, wages, benefits, and working conditions” (Gordon, 1996: 124 and Tosi *et al.*, 1994:219). Administration and supervision received by employees, the nature of interpersonal relationships and the working conditions surrounding the job form part of the hygiene subdivision (Hertzberg, 1966:74). These factors do not act as motivators by themselves, but if they are unsatisfactory or absent, dissatisfaction may occur (Mullins, 1995:255). According to Hertzberg's theory the managers must attempt to increase overall satisfaction by simultaneously reducing dissatisfaction and increasing satisfaction. Barnard (1995:30) states that Hertzberg, like Maslow, sees personal growth as a very powerful motivator.

Relevance of Hertzberg's two-factor theory

According to Rothmann & Sieberhagen (2002: 99), Hertzberg placed a lot of emphasis on personal growth as a motivating factor, because the need for personal growth can never be completely satisfied. There are, however, limits to what can be achieved in organisations regarding making use of the “motivators”, especially if one wants to implement it by way of changing the nature of the jobs of employees. Jobs can be changed or enriched, but this results in other changes that have to be affected. There might be employees who do not wish to have their jobs enriched or changed. Some employees do not have the skills needed to handle these enriched or changed jobs. There are also limits to the amount of responsibility people can accept within organisations.

The two-factor theory also makes an important contribution (Tosi *et al.*, 1994:220), in the sense that it provides some guidance to those who design jobs. It was also widely used by managers in terms of what affects a person's motivation and productivity. Mullins raises one point of criticism that relates to the methodology of Herzberg's two-factor theory. Describing events which give rise to feelings, bad or good is subjective and likely to influence results (Mullins, 1995:255). Another point of criticism is that it does not take individual differences into account (Tosi *et al.*, 1994:220) – not all people are looking at the content of their work as motivators, but rather as monetary rewards (Mullins, 1995:255).

Herzberg's two-factor theory seems to be able to supplement Maslow's five needs. It holds several valuable aspects concerning work environment, which could influence job satisfaction and productivity. These elements will be incorporated into the findings of Section B of the questionnaire (par. 5.3.2).

2.5.4. McClelland's achievement motivation theory

According to Barnard (1995:30), McClelland's achievement or goal attainment theory focuses on the direction or extent and perseverance of behaviour in a social environment. The work of McClelland is based on the concept of four main sets of needs and social development motives (McClelland, 1985 and Gordon, 199:121). They are the following:

- The need for **achievement**: reflects the desire to accomplish own goals and to demonstrate competence or mastery;
- The need for **power**: the need for control over a person's work or the work of others;
- The need for **affiliation**: the need for social interaction, love and affection;
- The need for **avoidance**: the need to reduce or avoid anxiety.

People portray all four needs but the relative intensity of these motives varies among individual and different occupations (Mullins, 1995:256). Although all four needs are important, McClelland's research concentrated mainly on how managers can develop the need for achievement in subordinate staff (Mullins, 1995:256 and Tosi *et al.*, 1994:219).

The achievement motive

The need for achievement underlies the higher levels of Maslow's hierarchy and is also one of Herzberg's motivating factors. "The achievement motive is an internal state drive of the

individual that reflects the extent to which success is important and valued by a person” (Tosi *et al.*, 1994:222). According to McClelland (1985:246) four characteristics are commonly found with employees with high achievement.

- **Personal responsibility:** They prefer situations where they have personal responsibility for reaching goals and solving problems
- **Achievable goals:** For maximum satisfaction, they want goals that give them a moderate challenge, which are not too difficult or too easily obtained
- **Clear and unambiguous feedback:** Feedback enables them to determine success or failure in the accomplishment of their goals and adds to their satisfaction derived from activities
- **Innovation:** They consistently search for variety and for information to find innovative ways of doing things

The need for power

Another need found among employees is the need for power. The power motive is a person’s need to have an impact on others, to establish, maintain or restore his or her prestige or power (McClelland, 1985:280). There are certain manifestations of this need:

- Aggressiveness
- Acting in order to be recognised in small groups
- Negative self-image
- Risk taking
- Entry into influential occupations
- Search for prestige

Need for affiliation

McClelland (1985:348) has also identified characteristics found in people with strong need for affiliation (Maslow’s belongingness and Alderfer’s relatedness needs). They are:

- Performing better when affiliate incentives are present
- Maintain interpersonal networks
- More concerned about people and is likely to conform to the expectations of others
- Avoid conflict and criticism – fear of rejection

Need for avoidance

The opposite side of achievement is the motivation to avoid failure. When the motive to avoid failure is stronger than the achievement motive, individuals seek to avoid circumstances in which they are likely to fail rather than seeking situations in which they can be successful (Tosi *et al.*, 1994:223). McClelland (1985:373) consequently found certain characteristics commonly found in people with avoidance motives:

- Anxiety – need for security
- Fear of failure
- Fear of success
- Fear of power

Evaluation of McClelland's theory

The merit of this theory cannot be questioned, but it is not comprehensive enough to explain the multi-dimensional nature of motivation, neither does it illustrate the complexity of human needs (Barnard, 1995:35).

McClelland's achievement motivation theory focuses, as the name states, mainly on the achievement motive. This is, therefore, not a comprehensive interpretation of human behaviour and no further emphasis will be placed on this theory.

2.6 Process theories of motivation

According to Mullins (1995:258) "process theories are concerned with how behaviour is initiated, directed and sustained". In other words the level of people's performance depends upon their perceived expectations pertaining to their effort and the desired outcome.

The following theories provide further assistance in clarifying the complex nature of motivation and are known as the process theories of motivation:

- goal-setting (par. 2.6.1)
- expectancy (par. 2.6.2)
- reinforcement (par. 2.6.3)
- equity theories (par. 2.6.4)

The above theories of motivation, which will be examined are particularly relevant to trainee motivation.

2.6.1. Goal-setting

Goal setting as formulated by Locke and Latham (1984,1990) states that an individual's conscious goals or intentions regulate one's behaviour. ' A goal is anything an individual is consciously trying to achieve' (Wexley and Latham,1991:90). Given that the goal is accepted, hard goals result in higher levels of performance than do easy goals, and specific hard goals result in higher performance levels than do no goals or even a generalised goal such as "do your best".

Numerous laboratory experiments and field studies conducted in a wide variety of organisational settings have demonstrated the practical feasibility of goal-setting programmes as means of increasing employee performance. These research findings on goal setting have three important implications for motivating trainees:

- Firstly, the learning objectives of the training programme should be conveyed clearly to the participants at the outset of training and at various strategic points throughout the training process.
- Secondly, training goals should be difficult enough so that the trainees are adequately challenged and thus are able to derive satisfaction from the achievement or objectives. However, the goals should not be perceived as being so difficult that trainees feel they are unable to reach them.
- Thirdly, the distal goal of "finishing the programme" should be supplemented with periodic subgoals during training such as trainer evaluations, work sample tests, and periodic quizzes. In this way the trainee can derive a feeling of goal accomplishment and, consequently, look forward to tackling the next hurdle.

Trainers need to be aware that high levels of anxiety may debilitate one's feelings of self-efficacy. 'Self-efficacy refers to the person's conviction that he or she can master a given task (Wexley & Latham, 1991:91). Low self-efficacy can result in a decreased level of performance.

In a training programme, goal setting can be a two-edged sword. For example, goal setting is important for increasing self-efficacy because without specific goals people have little basis for judging how they are doing, or for gauging their capabilities. Self-motivation is

sustained by adopting specific attainable sub-goals that lead to large future ones. Sub-goal attainment provides clear markers of progress, which, in turn, verifies a person's sense of self-efficacy. Thus it is important that a trainer coaches trainees to set specific goals that are difficult, but attainable, for the trainee. Training undertaken by the organisation where this study was conducted is characterised by goals that are clearly set and that are conveniently divided (with the involvement of the trainee) into sub-goals according to the capability of the specific trainee.

2.6.2. Expectancy theories

The first person to develop an expectancy theory directly aimed at work motivation was a person by the name of Victor Vroom. The expectancy theory is about expectations that people hold, and how these expectations influence their behaviour. The expectancy theory suggests that motivation to work and to perform well is a function of the relationship between:

- a) effort expended and the perceived likely outcomes; and
- b) the expectation that reward will be related to performance

Mullis (1995:258), Tosi *et al.* (1994:228) and Hunt (1986:5) explain that the basic premise of expectancy theory is that individuals will exert themselves to do those things which will lead to the results (outcomes they desire). It is a rational approach to motivation.

2.6.2.1. Vroom's expectancy theory (VIE theory)

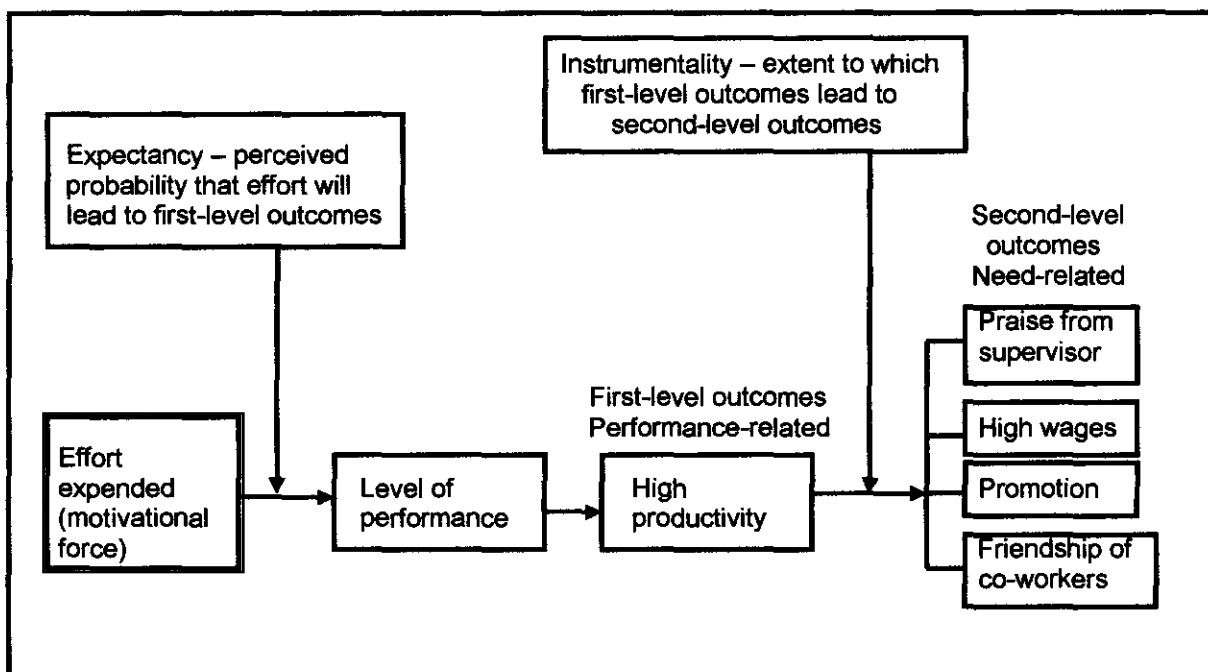
This theory has important implications for motivating trainees. Although a number of versions of the expectancy (also called instrumentality) theory has been proposed, they all share certain common features. Each version proposes that an individual will be motivated to choose a behaviour alternative that is most likely to have favourable consequences. When deciding whether to expend effort on a given activity, the individual asks, 'What am I going to get out of that?' A decision to put forth effort is made if it is perceived that there is a good chance it will result in obtaining something of value.

According to Mullins (1995:260) and Schreuder and Theron (1997:82), Vroom's expectancy theory is aimed at the work situation. Vroom identified three key variables, they are valence, instrumentality and expectancy. Mullins (1995:260) defines these three variables as follows:

- **Valence** is the feelings that individuals have about specific outcomes. It is a measure of the attractiveness or preference of a particular outcome to the individual.
- **Instrumentality** is the extent to which performance related (first- level) outcomes lead to the satisfaction of need-related (second-level) outcomes.
- **Expectancy** is the perceived degree of probability that the choice of a particular action will actually lead to the desired outcome.

A basic model of expectancy can be derived from Vroom's theory (see Figure 2.4).

Figure 2.4 Basic model of expectancy theories



Source: Mullins (1995:259)

Explanation of Figure 2.4:

Effort is influenced by an employee's expectancy to achieve first level performance related outcomes. The employee then expects that high performance will lead to second level need-related outcomes.

"The assumption of this expectancy theory is that an individual considers in a rational manner the comparative advantages of alternative choice of action and the likelihood of attaining the desired outcome from that action" (Mullins, 1995:260). The combination of valence and expectancy determines a person's motivation for a given form of behaviour.

$$M \text{ (Motivation)} = V \text{ (Valence)} \times E \text{ (Expectancy)}$$

If either valence or expectancy is zero, then motivation is zero. Accordingly the measure of $V \times E$ is the sum of the total number of possible outcomes to provide a single figure indicating the attractiveness of a particular choice of behaviour (Mullins, 1995:260).

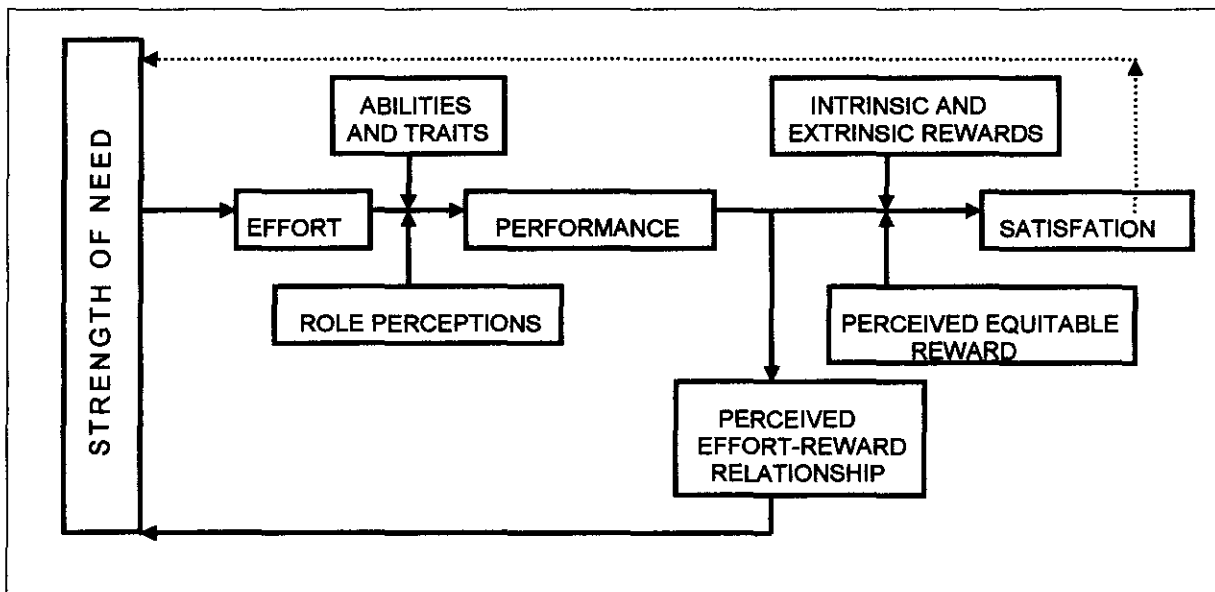
Evaluation of this theory:

According to Gordon (1996:136) the expectancy theory may oversimplify the motivational process, but managers can still use it to diagnose motivational problems. The expectancy theory of Vroom highlights the importance of linking rewards with performance. These rewards should be of value to the trainees if it is going to motivate them to improve their performance.

2.6.2.2. Lawler and Porter expectancy theory

Lawler and Porter presented a model, which extends beyond motivational force and considers performance as a whole (Mullins, 1995:260). A presentation of the Lawler and Porter model is given in Figure 2.5.

Figure 2.5 Lawler and Porter's motivational model



Source: Mullins (1995:261)

The nature of intrinsic and extrinsic rewards, and perceived equitable rewards. Intrinsic rewards are: recognition, achievement, and nature of work. Extrinsic rewards are

organisational policies, supervisor's competency, and physical work environment. They suggest that intrinsic rewards are more likely to produce job satisfaction related to performance than are extrinsic rewards. Intrinsic motivation means that the reward for someone with high intrinsic task motivation is self-administered. He experiences positive feelings such as autonomy, personal growth and task accomplishment when the job is well done (Tosi *et al.*, 1994:227).

Explanation of Lawler and Porter's expectancy theory. The strength of needs influences the effort exerted and this leads to a certain level of performance. Performance in turn is influenced by a person's ability and role perceptions. Performance is also by perceived equity (par. 2.6.4) of expected or received rewards, as well as the relationship between efforts and the rewards received. If this relationship is acceptable – the person experiences satisfaction.

2.6.2.3. Several important implications of the expectancy theory

According to Wexley and Latham (1991:95) there is a number of important implications for motivating trainees:

- For any programme to be successful, the trainee must believe that 'there is something in there for me'. The individual must perceive his or her participation in training will lead to more desirable rewards than not being in training. Unless trainees can expect the programme to lead to valued outcomes (e.g. higher wages, opportunities for advancement, skill acquisition, less tiring and safer work), it will be viewed as merely a waste of time. Trainees will either expend minimal effort or simply drop out.
- Trainers should not assume that their trainees have accurate perceptions of reward contingencies. Trainers should explain the contingencies in a manner that will ensure accurate $P(\text{performance}) \rightarrow O(\text{outcomes})$ expectancies. Trainees must be told exactly what outstanding performance during training will mean to their careers.
- The organisation should ensure that each trainee has a high $E(\text{expectancy}) \rightarrow P(\text{performance})$ expectancy by providing effective instructors, eliminating obstacles to effective performance, providing accurate role perceptions, and selecting trainees with requisite ability and motivation.
- The valence attached by an individual to potential need-related outcomes should be investigated by the organisation, since this will differ among trainees and even within the same trainee over time. Only high valence outcomes should be used as incentives for superior trainee performance.

2.6.2.4. Evaluation and practical application of the expectancy theories

According to Mullins (1995:262), expectancy theories only apply to behaviour which is under the **voluntary control** of an individual. Company policies and procedures, the nature of technology, the organisation structure and role prescriptions sometimes control individuals. It is, therefore, vital for managers who want to use expectancy theories for improving the motivation and performance of employees, to spend time analysing the issues below:

- Establishing clear links between effort and performance and rewards
- Reviewing the appropriateness of their reward systems
- Establishing clear procedures for the monitoring and evaluation of individual levels of performance
- Ensuring that employees have the required understanding, knowledge and skills to enable them to achieve a high level of performance.

The elements in these two theories will be used to supplement the key elements that influence employee motivation, productivity and job satisfaction.

2.6.3. Reinforcement theory

This theory is also known as behaviour modification or operant conditioning and is another approach for stimulating a trainee's desire to learn. According to Wexley and Latham (1991:93), one of its major principles is that "the frequency of behaviour is influenced by its consequences." If the consequence is positive for the individual, the likelihood that the behaviour will be repeated is increased. Rapid behaviour change results when the consequence follows immediately or shortly after the trainee demonstrates behaviour being taught in training.

Wexley and Latham (1991:94) categorise the consequences of behaviour into two major types:

- positive reinforcers (rewards)
- and punishers

The use of positive reinforcement is generally more effective for modifying behaviour than punishment. Punishment often has unfortunate side effects such as anxiety, hostility, and withdrawal. More important than the magnitude of a reinforcer is the schedule with which

reinforcers occur. A continuous schedule involves administering a reinforcer after every correct response: a partial or intermittent schedule entails administering reinforcers only after a certain number of correct responses have been emitted or to the first correct response after a specified period of time has elapsed.

In applying the reinforcement theory, it is crucial that the trainer defines the target behaviours that the trainee is expected to learn precisely. Answers such as 'improving attitudes', 'providing job knowledge', and 'increasing performance' are much too general. The key question for the trainer to ask is 'What should the trainee be able to do at the end of the training that will enable that person to become an effective employee?' Unless the desired behaviours are specified in advance, it is difficult for the trainer to know what to reward during the training programme. Just as the target behaviours and ideas must be identified, so must the positive reinforcers be used. It is important for the trainer to make certain that the most powerful positive consequences are used for each trainee. Individual differences must again be taken into account, because the same reinforcers are not effective with all trainees.

Once the effective reinforcers for an individual have been identified, it is important that they are administered as soon as possible after the desired behaviour. Delay of reinforcement can strengthen irrelevant behaviour in lieu of the appropriate behaviour. It is best to provide continuous reinforcement when the trainee begins the learning of new behaviours. As the behaviours become better established, the schedule of reinforcement should be stretched. In other words, a partial schedule should be used, since it not only makes the new behaviours more stable or resistant to extinction, but it can also lead to an increase in the rate of desired behaviour (Wexley & Latham, 1991:94). An example of a partial schedule would be the trainer who occasionally drops by a trainee's workstation without prior notice to formally recognise appropriate behaviour.

Rather than frustrating trainees by forcing them to perform behaviours that they are presently incapable and/or unwilling to exhibit, the trainer can use a process called shaping: the procedure of reinforcing any behaviour that approximates the terminal behaviour desired by the trainer while refraining from rewarding all other behaviours. As time proceeds, closer and closer approximations to the terminal behaviour are required of the trainee before any reinforcement is given. For example, a particular trainee gets to work 15 minutes late each day. The trainer wants to teach him to be punctual. At first the trainer praises any attempt by the individual to show up more punctually, even if this may mean rewarding him for being only 14 minutes late. After a while, the trainer demands

more and more by praising any closer approximations to the desired response of being on time. Finally, the trainee is praised only when he or she is truly punctual.

According to this theory, a manager motivates employees by encouraging desired behaviours and discouraging undesired behaviours. "The reinforcement theory prescribes ways of facilitating desired or target behaviours such as higher performance, increased creativity or improved quality by applying reinforcements such as higher pay, praise or challenging assignments when desired behaviours occurs" (Gordon, 1996:129).

These are tables according to which reinforcement can take place (Table 2.2). Reinforcement schedules have two components – timing (interval or ratio) and frequency (fixed productivity variable) (Gordon, 1996:131 and Tosi *et al.*, 1994:109-111). There are four types of reinforcement found in this theory (Tosi *et al.*, 1994:105-109):

- **positive reinforcement:** pairing a desired behaviour or outcome with rewards or feedback;
- **negative reinforcement:** an aversive stimulus is stopped or the individual is removed from a negative or undesirable situation when behaviour occurs;
- **extinction:** passively eliminating an undesirable behaviour by having a negative event follow the undesirable behaviour.

Table 2.2 Reinforcement schedules

	FIXED	VARIABLE
Interval	Reinforcement or reward given after the first proper response following a specified period of time (weekly or monthly)	Reinforcement or reward given after a certain amount of time with the amount changing before the next reinforcement (unexpected merit bonuses)
Ration	Reinforcement or reward given after a specified number of proper responses (pay for piecework)	Reinforcement or reward given after a number or responses with that number changing the next reinforcement (praise)

Source: Gordon (1996:131)

The reinforcement theory is based on the application of extrinsic rewards. When a person performs well, rewards such as pay, benefits, or praise and recognition are given. The reinforcement theory is also based on intrinsic motivation. It is the drive to perform resulting from a person's internalised values and beliefs that the task is rewarding in and of itself (Tosi *et al.*, 1994:227).

2.6.4. Equity theory

This motivational theory addresses the issues of equity and fairness and has evolved from the social psychological theory called social comparison theory. It suggests that individuals compare their own job performance to that of another and make judgements about their comparability (Gordon, 1996:125). According to Tosi *et al.* (1994:220), people compare what they have with that of someone else in terms of three essential elements, namely:

- **Inputs:** Inputs are what a person brings to the job such as age, experience, skill, seniority and contributions to the organisation or group.
- **Outcomes:** These are things that the person perceived to be the result of work. Outcomes may be positively valued factors such as pay, recognition, promotion, status symbols and fringe benefits. They may also be negative: unsafe working conditions, pressure from management and monotony.
- **Referents:** In this case, a referent is the focus of comparison for the person – either other individuals or other groups.

If the perceived result of the comparison is inequality, then there are several ways to modify the situation and restore equity (Tosi *et al.*, 1994:220):

by a) modifying the inputs by increasing or decreasing it;

b) changing outcomes;

c) rationalising the inputs and outputs through psychological distortion;

d) leaving the field or by leaving the situation to seek fairer playground;

e) acting against the other person; or

f) changing the referent – finding another person with whom he/she can compare.

2.6.5. Summarising the theories

The practical implications of goal theory, reinforcement theory, and expectancy theory are compatible with one another. These theories can all be applied for motivating learning by making certain that trainees see the value *for them* of participating in training, understanding the goals or target behaviours of the programme, and clearly perceiving the link between their actions during training and their receipt of valued rewards.

The process theories are concerned with how people's behaviour is determined. These theories boil down to the fact that people are willing to work and train harder and are more

productive if the perceived outcomes (rewards) are acceptable and equal to their fellow trainees' outcomes. It must however, also be kept in mind that a person's abilities and perceptions also play an important part in productivity and motivation.

2.7. The motivation core (values and motives)

Individual values are considered to be the core, or essence of motivation. Whereas needs constitute the starting point of motivation, they do not differentiate people from each other. All people have the same fundamental needs. What makes each person a unique individual and what guides his or her actual choices and actions, however, are his or her values.

According to Spangenberg (1994:142), there are two types of value theories relevant to work motivation: those related to certain constructs and those, which are general. Examples of the former are McClelland's need for achievement theory and Miner's role motivation theory.

McClelland's need for achievement theory (value for achievement) identifies a complex set of values that are associated with successful entrepreneurship. These include:

- a desire to achieve excellence;
- a preference for moderate risk taking;
- a desire to project achievements into the medium-term future;
- a desire to be responsible for one's own task achievements;
- a desire to improve and innovate.

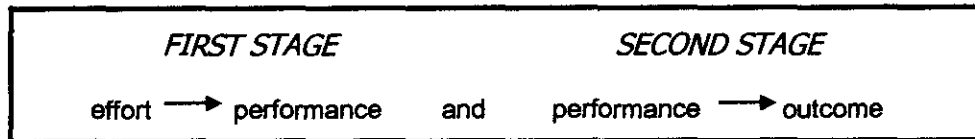
Since this value or motive construct is subconscious, it is measured by means of projective rather than self-report assessment instruments.

Miner's role motivation theory (Spangenberg, 1994:142), identifies a set of values or motives claimed to characterise successful line managers in hierarchical organisations:

- positive attitude towards authority figures;
- competitiveness;
- assertiveness;
- power;
- desire for a distinctive group role (standing out in a group);
- willingness to perform routine administrative functions.

Spangenberg (1994:143) clearly states that Vroom's expectancy model is a more generalised value model. Motivation, according to Vroom, boils down to the decision of how much effort must be exerted in a specific task. This choice is based on a two-stage sequence of expectations, as illustrated in Figure 2.6.

Figure 2.6 Two-stage frequency model of expectations



Source: Spangenberg (1994:143)

Firstly, motivation is affected by an individual's *expectation* that a certain level of *effort will produce* the intended performance goal. For example, if you do not believe that increasing the amount of time you spend studying will significantly increase your best scores, you probably will not study any harder than usual. Secondly, motivation is also influenced by the employee's perceived chances of experiencing various outcomes as a result of accomplishing his or her performance goal. Finally, individuals are motivated to the extent that they value the outcomes received.

2.7.1. Model of motivation of trainees

According to Buckley & Caple (1995:144) a vital influence that will affect the readiness of trainees to learn is their motivational level on entry to the training programme. There is enough evidence to support the notion that learning is inhibited seriously if a trainee has no desire or is not motivated to learn.

Buckley & Caple (1995: 144) define motivation as "that which energizes, directs and sustains behaviour or performance." There is a number of factors that will influence whether or not this *active, purposive and goal-directed behaviour* is forthcoming. To assist with the identification of the most important of these factors and to aid the general discussion on motivation in the training context, reference will be made to a model of motivation illustrated in Figure 2.7.

The first feature of this model that must concern the trainer relates to the trainee's needs.

Such needs can be classified under the following headings:

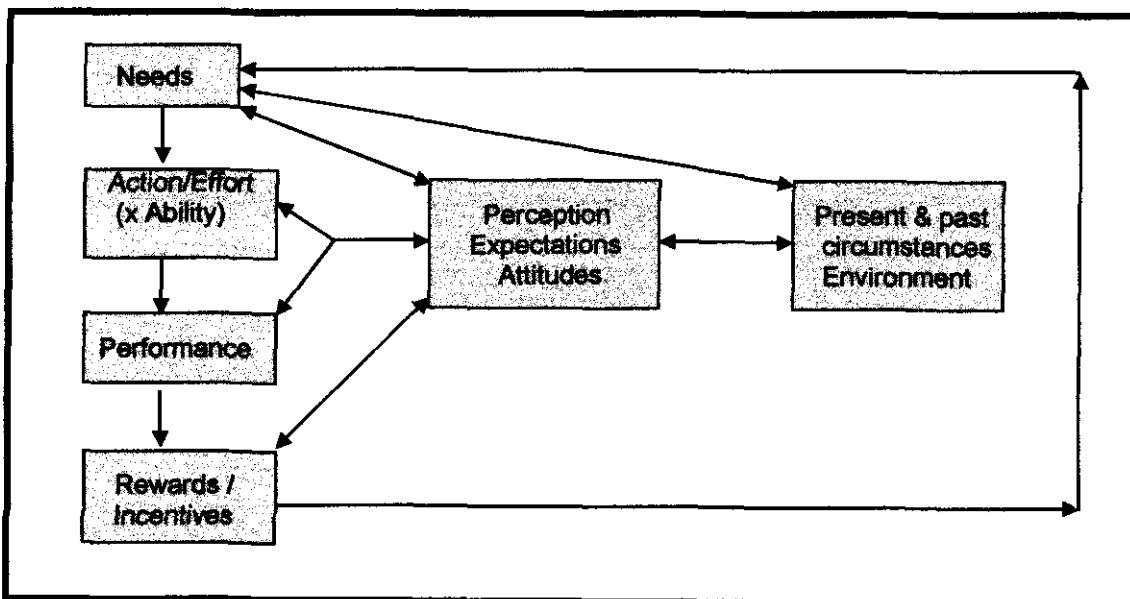
Figure 2.7 Classification of trainee's needs

Physical	sexual, nutritional
Safety	support, security
Emotional- Individual Confidence	control, independence, achievement, self-confidence, challenge, autonomy, approval
Emotional- social appreciation	acceptance, recognition, respect, status, appreciation, belonging
Intellectual	curiosity, variety, stimulation
Self-actualisation	self-development, meaning, sense of purpose

Source: Buckley & Caple (1995:144)

In most situations it is very unlikely that the trainer will have to be too concerned with the physical needs of trainees, although nutritional deprivation could prove a problem in some circumstances. The other needs listed may be more or less important depending upon the psychological make-up of individual trainees and, in the case of security, the nature of the training. In addition, trainees may differ as to whether they are likely to be intrinsically or extrinsically motivated.

Figure 2.8 Model of motivation of trainees



Source: Buckley & Caple (1995:145)

Intrinsic rewards are related to the tasks to be learned; the trainee sees the task as interesting and meaningful and will gain intrinsic satisfaction from acquiring skill in performing it. On the other hand extrinsic rewards or incentives are independent of the task and include things such as money, promotion and career prospects.

No matter what the circumstances, it would be unusual for any trainee to be 'perfectly intrinsically motivated' or, assuming that there has been some choice exercised in the selection of the target population, to be 'perfectly extrinsically motivated'. Therefore, in most training contexts, the trainer will need to evoke both intrinsic and extrinsic motivation in order to stimulate interest and effort. The trainer should highlight the potential short and long term, and intrinsic and extrinsic rewards or incentives that may be on offer, given satisfactory performance by the trainees.

The initial induction to training will have an important bearing on the subsequent perception and attitudes of the trainees in a positive or negative direction and on their expectations of the current training. The trainees' past educational, occupational or instructional experience may have had an adverse effect on their outlook, which the trainer will need to counteract. For example, an unrewarding educational career may not only affect the trainees' attitude towards what they think they will get out of the training, but also their self-confidence and self-perception. This in turn may create barriers to motivation and consequently to learning.

An approach or procedure which helps to stimulate and sustain motivation is that of informing the trainee, at the beginning of the programme or course, about the training objectives to be achieved and by placing the acquisition of these objectives in a wider context possibly associated with factors that arouse intrinsic or extrinsic motivation. Buckley & Caple (1995:146) point out that the purpose of informing the learner about the objectives is so that they have a clear expectation of what has to be accomplished as a result of the training or learning experience. Subsequently the learners can generate informative feedback matching their performance against what they expect to be acceptable performance. Buckley and Caple also suggest that, very often, the best way to explain to learners what standard of performance will be expected of them at the end of their training, is to demonstrate that performance before they begin.

The technique of goal setting may be employed in some circumstances, to facilitate and enhance the effectiveness of training through the motivational process. Locke and other researchers (as discussed in Buckley & Caple, 1995:146) have demonstrated in non-

training settings, through numerous field and laboratory studies, the value of this technique in improving performance, under the following types of conditions:

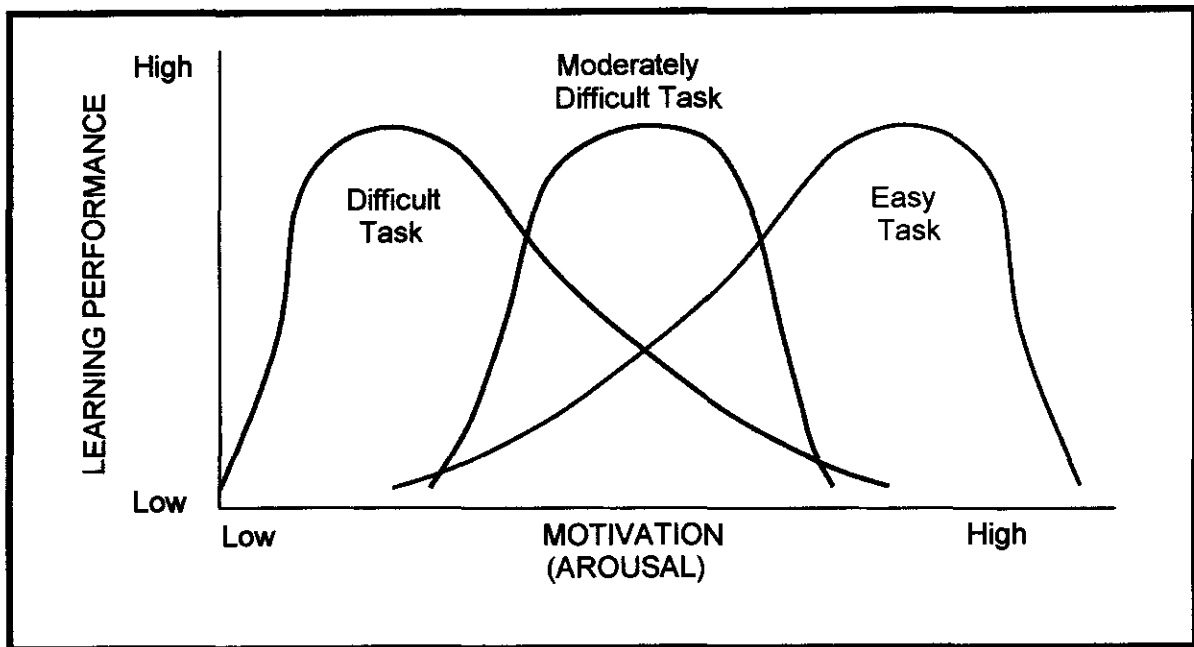
- That goals must be realistic in the light of an individual's ability to be able to achieve them.
- That the goal assigned or set for an individual is accepted by him or her.
- That feedback regarding the degree to which the goal is being met is supplied to the performer at the appropriate juncture.
- That individuals are given specific, challenging goals rather than modest goals or no goals at all or are simply exhorted and encouraged to 'do your best'.

The view of goal setting works because:

- Specific goals direct an individual's action more reliably than vague, unclear and general objectives.
- Individuals have a much clearer idea of what is expected of them, which can help to mobilise their energies and efforts more efficiently.
- Individuals are more motivated by hard, challenging goals, provided they have accepted them in the first place.
- Challenging goals increase an individual's efforts over an extended time period, i.e. it helps to maintain an individual's persistence.

Trainers could employ the goal setting technique in certain training situations, particularly where individual achievement and rates of improvement are being emphasised or where a relatively homogenous group is required to make uniform progress. Whatever general approach or specific procedure is used to motivate trainees, it is important for the trainer not to prime the motivational 'pump' too much, for too high a level of arousal or motivation may be counter-productive, particularly if the task to be learned is inherently difficult for the trainees in question. Of course the converse also may be true if the task is too easy. Figure 2.9 is a general view of the learning performance, motivational levels and task difficulty.

Figure 2.9 The relationship between learning performance, motivational level and task difficulty



Source: Buckley & Caple (1995:147)

For difficult tasks, lower motivational levels are likely to lead to higher learning performance, whereas for easy tasks, levels of motivation must be a great deal higher to achieve corresponding performance outcomes. Tasks of intermediate difficulty require levels of motivation that are neither too high nor too low.

Thus stimulating high motivation or 'hyping up' the trainee in the 'run up' to training may interfere with the learning of complex tasks as will high anxiety and apprehension. These emotions may be experienced by individuals at the beginning of training because of doubts and fears aroused by the memory of previous failures. Such feelings may also be inadvertently created by the manner in which the trainer prepares the trainees for, and introduces them to, the training event. Clearly, trainers must appreciate the possible impact that they or the trainees' past experiences may have on their attitudes and on feelings towards any forthcoming training event. The trainer's sensitivity, style and approach throughout the training process, but especially in the preliminary phase, can go a long way to alleviate, or at least to lessen any emotional barriers that might interfere with subsequent learning. If stress and anxiety are due to external influences, e.g. familial, matrimonial, then counselling or postponement of the training for the individual affected may be possible remedies.

2.8. Forms of motivation

The following forms of motivation are simplistic, but often very successful; however, they are sometimes regarded as no longer socially acceptable in a modern industrialised society. Smith and Vigor (1991:146) describe some pre-scientific methods of motivation, which include coercion, conniving, compensation, 'cuddle and coddle' and – most powerfully – fear. It must be admitted that they still operate in many of our organisations. Following is a brief discussion of the forms of fear as described by Smith & Vigor (1991:147).

2.8.1. Motivation by fear

One of the most obvious forms of motivation is fear. Fear can be exercised in many subtle ways from rumour to naked aggression. We learn in early history that, by using whips and starvation, one could get pyramids built; it is a powerful tool that, if it cannot move a mountain, it can, at least, allow one to build one of one's own.

The modern equivalents of fear strategy are threats of redundancy, being moved to a different area, change of job status and so on. There is no doubt that in the very short run fear is a good motivator, but people subjected to such strategy will, eventually want revenge, often in the form of leaving the organisation or, at least, just functioning at the minimum level to remain in the organisation.

2.8.2. Coercion

Coercion can be regarded as a modified form of threat and fear using authority as a means of motivation. At its simplest, when the chairperson of the company asks one to do something, it carries with it a greater implication of perceived threat than when one's line-manager asks one to do the same thing. In practical terms – often depending on one's position in the hierarchy - the chair may have less influence or at least use the influence less against one, than one's own manager to whom one would report. Whether it is fair to regard coercion as a motivational tool will often depend on the organisation, and that in turn, is dependent upon the history of the organisation and how it has coerced in the past.

2.8.3. Manipulation

Motivation can often be achieved by manipulation. Manipulation consists of manoeuvring people into a set of circumstances in which they feel that their best course of action is to act as one has intimated one would wish them to act. Manipulation is not designed so that people being manipulated feel that they are achieving any goals of their own; usually the best they can hope for is that they are not placed in a disadvantageous position by non-compliance. One of the most common forms of manipulation exercised by organisations is when the company (without any undue pressure) offers promotion through a job move to a different location, and at the same time hints that in this organisation promotion is only offered once by this route, and if turned down, will not be offered again.

2.8.4. Positive motivation techniques

Apart from motivating people by means of fear, there are more positive motivation techniques where, in their correct application, people will act in a way you want them to because they believe it actually achieves goals of its own. The first of these is compensation, and using money as a prime motivator. A naïve interpretation of motivation is that people can only be motivated by money. In other words, if people are paid more they will perform better. This is incorrect, though it is true that if people are not paid what they perceive themselves to be worth, they will not feel motivated. Money therefore is not a motivator in itself, but its absence is a demotivator. However, once people recognise they are being paid a reasonable wage then motivation ceases if other goals are not being met. If people do not feel that their work is of value, that their work is appreciated or that their work is making a significant contribution to the team effort, then no amount of money will motivate them. According to Spencer and Pruss (1992:145) such an attitude on the part of management can be dangerous; if people perceive that they are being overpaid to 'buy' them in some way, they become resentful and angry. Often their personal circumstances do not easily lead them to give up their jobs and they become trapped in a demotivational cycle that is not beneficial to themselves or to their company.

In the 'cuddle and coddle' school of motivation the organisation seeks to provide its staff with fair wages, superior fringe benefits and excellent working conditions in order to make them feel grateful. The management of this type of organisation is normally paternalistic and always reminds them how grateful they should feel. When the gratitude is not forthcoming timeworn motivational phrases such as 'if you don't like working here there's a gate' arise. It is the opinion of the researcher that 'cuddle and coddle' strategies

experience a breakdown at some point or another. Although they attract people into the organisation, they, themselves, are not motivational.

It is, however, most refreshing to see that even today some progressive leaders are pushing ahead with cultural change as a way to motivation, while at the same time developing quality and customer-focus initiatives.

One can conclude by saying that money is not the only motivator and if used as a reward, it becomes a norm and increased supplies of money are then required to achieve the same level of activity or commitment, until overload and resentment are reached.

Part of the supervisors' task is to provide training and support to their subordinates. They must deal with the trainees and their motivation for the training. Their support and facilitation is crucial at times when trainees experience feelings of fear and anxiety and therefore it is important to consider the role of supervisors in the motivation of the trainees.

2.9. The role supervisors in motivation

Wexley and Latham (1991:69) underlines the importance of the role supervisors when it comes to the motivation of employees involved with training programmes. They explain that one role of supervisors is to motivate the team, and in order to do so they must understand how and why people are motivated as individuals, as well as in teams. It is well known that motivation can be brought about in a variety of ways and supervisors or team leaders may have to experiment to get the most effective formula for the group. Historically, motivation must have existed since the dawn of man. It has taken on different forms in differing societies and situations. Presumably our earliest ancestors were self-motivated when creating fire in their need for warmth and manipulating tools and weapons in their need for survival.

As supervisors are responsible for the efficient running of their sections, they have a great responsibility to ensure that all their subordinates are suitably trained for their jobs. They must ensure that the work is done correctly, safely, timeously and according to the predetermined standards of quality and quantity. It is their task to develop and enhance the potential of their subordinates by improving their attitudes, habits, skills, knowledge and experience. "The supervisors are the only ones who can do this as they are constantly in contact with the subordinates and they are the most knowledgeable about the work"

(Wexley and Latham, 1991:72). They will also be in the best position to determine the training needs of the subordinates.

2.10. Training the supervisor

If an organisation is to be effective, supervisors should be held responsible for the overall training of the employees who report directly to them. Moreover, many supervisors want to train their subordinates because they are in the best position to teach the new employees what is expected of them (Wexley & Latham, 1991:22). The need to give instruction to supervisors, employees, and training department members using the best methods of training is important. These people must be made aware of the knowledge and skills necessary to make training highly effective and not just a 'nice thing to do' when time and money happen to be available in the organisation.

Trainers should assist trainees in acquiring and practicing goal-setting skills. Working towards explicit, realistic goals enhances performance. Trainees, however, cannot be expected to recognise the value of goal setting unless they are assisted in developing related habits, patterns and skills.

2.11. Elements regarding training the trainer

Some common elements regarding the training of the trainer, is as follows (Wexley & Latham, 1991:23).

2.11.1. Objectives

Trainers must be taught to establish specific training objectives. They must learn how these objectives can be used to influence the planning and execution of their training sessions.

2.11.2. Basic principles

Trainers need to be taught basic principles of how adults learn. They must understand the factors that facilitate and interfere with the learning process and what they as trainers can do about them

2.11.3. Communication

The trainer must be taught how to communicate effectively. This should involve the actual presentation of lessons during training, and receiving feedback from other participants as to the adequacy of their oral, written and non-verbal communications.

2.11.4. Methods

Trainers must be taught to choose the most effective method of instruction depending on the particular type of learning involved. They should be given an opportunity to develop their skills in those particular training methods they will eventually be using.

2.11.5. Planning

The trainer must be taught how to plan each training session so that the material is presented clearly.

2.11.6. Individual trainees

Trainers must be taught how to deal with individual trainees. They must learn how to get appropriate participation by drawing out the under-involved and toning down the over-involved.

2.11.7. Behaviour characteristics

Finally, it is important for trainers to be aware of certain behaviours that are considered improper or unethical for training professionals.

The trainer has a role as an instructor who presents lessons; he has a role as a facilitator for small groups and a role as a motivator. The trainer should not only be interested in the course participant because he is a learner, but also as a person. The trainer plays a critical role in translating corporate vision to his subordinates and peers.

2.12. Conclusion

In modern organisations more concern is being directed towards stimulating employees to expand their job skills in an effort to ensure a continual reservoir of well-trained and highly

motivated people. There seem to be several reasons why the topic of motivation receives greater attention when it comes to the training of employees. The old simplistic, prescriptive guidelines concerning “economic man” are simply no longer sufficient as a basis for understanding human behaviour. New approaches and greater understanding of adult training are called for to deal with the complexities of contemporary organisations.

In this chapter the focus has been firstly on the meaning of motivation and the different kinds of motivation. Secondly attention was given to the nature of motivation emphasising the content and process theories of motivation and several important aspects which influences the motivation of trainees were identified. Attention was also given to forms of motivation and the role of supervisors in motivation seeing that these are factors that underlie the motivation of trainees for this study.

If organisations and individuals are to grow and develop, it also becomes very important for each employee to take ownership of his own career and to ensure that he is prepared for the challenges that will face him throughout it. Training without a future purpose is regarded a total waste, both for the organisation and the employee. Training as such must provide the employee with a competitive advantage when it comes to his/her career prospects. It is therefore important to discuss Lifelong Learning (Chapter 3) in general.

CHAPTER 3

LIFELONG LEARNING

3.1. Introduction

Despite the fact that South Africa is regarded as the most well-educated nation on the African continent, there is a vast number of illiterate and semi-literate people who, because of their inability to read and write, cannot find gainful employment in today's labour market with its ever increasing need for skills (Krusel, 1990:11). The training and development of the worker starts with his motivation, as seen in the discussions in Chapter 2. The desire must be established with the worker to improve his/her individual skills and knowledge via certain training programmes. Chapter 3 deals with the structures that have already been established to provide training programmes to the adult worker specifically. These programmes aim at maximising the employee's desire to perform well in the job on the basis of 'lifelong learning'.

"Lifelong learners neither die nor fade away. Their influence is felt forever, through their children, and all their children's children. Lifelong learners are what we want to develop. They will build their *nations of learners*" Mc Cullough (1994:4).

Changes in the workplace create many new training needs. For years workers only needed to perform a limited number of job tasks in each job. Supervisors and foremen monitored, inspected and assumed responsibility for the quality of work or services produced. The introduction of new equipment or procedures was spaced across wide increments of time. Today, things are different. Changes in the workplace are now taking place at an ever-increasing rate. Changes now occurring in the workplace require continuous improvement in production and worker performance.

Chapter 3 deals with the different legislative and educational structures in which education and training takes place. The respondents of this study are subjected to training, not only with the aim of improving production, but also to establish career paths for life long learning.

3.2. Acronyms and abbreviations

The following table, Table 3.1, provides a list of acronyms and abbreviations compiled by the researcher to assist the reader in this chapter:

Table 3.1 List of acronyms and abbreviations

ABET	Adult Based Education and Training
ANC	African National Congress
ETQA	Education and Training Quality Assurance – bodies that register and accredit providers and assessors.
GEAR	Growth Employment and Re-distribution strategy
ILO	Internal Labour Organisation
MQA	Mining Qualification Authority
NCSNET	National Commission on Special Needs in Education and Training
NQF	National Qualifications Framework
NSB	National Standard Body – responsible for generating unit standards.
OBE	Outcomes-Based Education
RDP	Reconstruction and Development Programme
SAQA	South African Qualifications Authority
UNESCO	United Nations Educational, Scientific and Cultural Organisations

3.3. Describing terminology

3.3.1. Adult

UNESCO Inter Agency Commission, as quoted by The Department of Education (1997:32), states that “people who are not in the regular school and university system and who are fifteen years or older can participate in ‘adult education’ and are therefore presumably adults”.

3.3.2. Adult Basic Education and Training (ABET)

- According to the NCSNET (1997), Adult Basic Education and Training refers to education and training for adults who have historically missed out on education and training opportunities in the past.
- According to the NQF it forms part of level 1, which precedes general education and training.
- Adult education also includes other educational processes, which involves teaching and learning among adults in educational contexts - both formal and informal - which are specially designed to facilitate effective learning among adults for appropriate outcomes.
- "ABET can therefore be defined as adult education and training equivalent to the ten years free and compulsory schooling legislated for our children" (Van Niekerk, 1996:27).
- According to Spies (1995:33) Adult Based Education and Training can be seen as "... a process of lifelong learning to equip people with the skills and critical capacity to participate fully in society."

To summarise it can be said that Adult Based Education is the enlargement and improvement of knowledge and skills of the adult worker in order to enable him to be a more productive and competent worker.

3.3.3. Learners

This term refers to all learners, ranging from early childhood education through to adult education (Spies, 1995:30).

3.3.4. Literacy

- The writing code produced by a person has to be decoded by many others. Thus literacy, as the ability to break the written code, has to be taught and learned, that is, people have to be made literate in the codified language. Literacy by its very nature,

being a tool of communication and culture making, is thus inherently “functional” (Department of Education, 1997:4).

- “Literacy is a life skill and the primary learning tool for personal and community development and self-sufficiency.... literacy is now seen as the foundation of life skills ranging from basic oral and written communication to the ability to solve complex scientific and social problems....” (UNESCO Inter Agency Commission, 1989:11). The new definition makes it clear that literacy is the primary enabling force for all further education. It is a uniquely effective tool for further learning information, for creating new knowledge, and for participating in one’s own culture and the emerging world culture.
- Wagner (1993:9) defines literacy as follows: “Literacy is a characteristic acquired by individuals in varying degrees from just above none to an indeterminate upper level. Some individuals are more literate or less literate than others, but it is really not possible to speak of literate or illiterate persons as two categories.”
- “... literacy itself may be defined by knowledge and beliefs as well as by the presence or absence of particular skills” (Wagner, 1993: 270).
- According to Gillette en Ryan (1983:20), as quoted by Hutton (1992:10) a literate person can be seen as: “A person ... who can with understanding both read and write a short simple statement on his everyday life.”
- “Literacy is power. The power of literacy has been framed primarily in terms of economic development, equality of opportunity and the possibilities of liberty and democracy.” (Maybin, 1994:236).

It can therefore be argued that the concept of literacy is equated with basic education, in which a literate person is able to read, write, calculate and interpret symbols.

3.3.5. Workplace literacy

“Workplace literacy is a hybrid. It results in a cross-walking of education and training: that is, it offers instruction in basic skills applications, generally perceived to be education, using the vehicle of those technical job tasks and the supporting skills; perceived to be training. Workplace literacy focuses instruction on those applied basic skills that workers need in order to perform job tasks well” (Philippi, 1994:21).

Basic skills commonly applied:

Communication skills for:

- formulating questions
- requesting clarification of job information
- presenting information to management or co-workers
- conducting team meetings
- writing summary statements
- taking notes in group meetings
- expressing rationales for suggestions
- entering information into computers

Reading skills for:

- locating information on computer screens
- identifying relevant information in manuals or on job aids
- interpreting schematics and graphs
- using gauges and symbols
- following procedural directions
- using multiple sources of information
- matching alternative criteria to existing conditions

Mathematical skills for:

- collecting, graphing and analysing quality data
- problem solving to troubleshoot
- recognising alternative conditions
- estimating results or progress toward improved performance
- computing cost savings
- calculating specifications and machine calibrations
- understanding and using statistics to make decisions

3.3.6. Life skills

Derived from the above, applied basic skills that workers need in order to perform job tasks well, are life skills that provide the worker with a broad framework to accommodate the other basic skills. According to NCSNET (1997:8), life skills can be defined as follows: "Life skills are abilities for adaptive and positive behaviour that enable us to deal effectively with the demands and challenges of everyday life."

3.3.7. Curriculum

The following definitions for curriculum are found in Carl (1997:37)

- '... the sum total of the means by which a student is guided in attaining the intellectual and moral discipline requisite to the role of an intelligent citizen in a free society. It is not merely a course of study, nor a listing of goals or objectives, rather, it encompasses all of the learning experiences that students have under the direction of the school.'
- '.... the planned and guided learning experiences, formulated through the systematic reconstruction of knowledge and experience, under the auspices of the school, of the learner's continuous and wilful growth in personal-social competence.'
- According to the Department of Education (1997:1) the curriculum can be defined as everything that influences the learner from the teachers and the work programmes, right down to the environment in which teaching and learning take place.

Character of curriculum as summarised by the researcher:

- The curriculum is content.
- The curriculum is a programme of planned activities.
- The curriculum is specific learning results.
- The curriculum is the cultural reproduction of a community reflecting the relevant culture.
- The curriculum is experienced. In other words specific activities and experiences leading to learning.

- The curriculum sets out tasks and concepts, which must be achieved, or a predetermined purpose for example, is the mastery of a new task or an improvement of a previous task.
- The curriculum is an instrument for social reconstruction where values and skills are acquired which may help to improve the community.
- The focus is on the individual so that self-discovery may result in people getting to know themselves - who, how and why they have developed this way. Greater self-understanding is a crucial aspect in this regard.

3.3.8. Curriculum design

Curriculum design is not a fixed recipe consisting of components and fixed rules, but a process characterised by flexibility and pliability within which the specific variables exercise a strong influence (Carl, 1997:82).

3.3.9. The NCSNET and curriculum transformation

According to the National Commission on Higher Education (NCSNET, 1996), the following transformation in the curriculum design must take place in order to make Outcomes Based Education successful:

- Curriculum development aimed at addressing 'special needs' must be firmly located within general curriculum development currently underway in South Africa. This includes participation in the Outcomes Based Education developments in the various structures at national, provincial, district and institutional levels.
- There must be an acceptance of common outcomes learners involved in learning programmes, which are customised to accommodate differences in learning styles and rates of learners, providing appropriate teaching and support services in response to these needs.
- Outcomes should be seen in the widest sense: including functional outcomes particularly for learners with intellectual disabilities. Provision should be made for statements of outcome for learners who are cognitively disabled and cannot perform all the necessary outcomes to reach the first level of certification (Grade 9).

3.3.10. National Qualifications Framework (NQF)

This is a national framework set up by the Ministry of Education (SA, 1994:21) to provide for the registration of national standards and qualifications in the education system. It is based on outcomes reached at different levels within the system (as discussed in par. 3.5).

3.3.11. Outcomes Based Education (OBE)

Outcomes based education is a design for education that is learner centred and orientated towards results or outcomes. It is based on the belief that all individuals can learn. In outcomes based education the curriculum is designed to promote attitudes, values and skills that are needed by the learner and the society. In this way learners are equipped with what they should know to be able to participate actively in the society (National Adult Education and Training Framework, 1997:46). It also includes a realisation that learners are different and that assistance may be needed to enable learners to reach their full potential.

3.4. Education and training in South Africa

3.4.1. Education

According to Finnemore (1999:66) a major crisis for economic growth has been precipitated by "the deliberately inferior and non-compulsory education system for blacks devised under the policy of apartheid". During this time expenditure on the education of black school children decreased alarmingly and inequalities increased so that worst there was a 1:11 differential in expenditure on black and white children respectively. In addition, education and training were extremely patriarchal. As a result women were channelled into lower-paying unskilled jobs and feminised professions for example nursing and teaching, as well as achieving lower educational qualifications (Finnemore, 1999:66).

Implications for workplaces are that poor investment in education and training has contributed to shortages of skills, low productivity, and inability to adapt to new technologies, poor conflict-handling skills and lack of competitiveness. The World Bank estimates that increasing human resource investment would add 0,5 per cent growth in the medium term (SAIRR 1995, as quoted by Finnemore, 1999:66).

3.4.2. Training

Finnemore (1999:67) characterises the training situation of South Africa as follow. The human resource development provision of the RDP proposed an integrated programme of remedial education and systematic career-path training to address the serious deficiencies of the South African workforce that have resulted from past policies and practices. There have been few co-ordinated efforts by South African employers to make systematic education and training a feature of their business plan. An exception was the formal system to train artisans through the Apprenticeship Act, which in any event excluded black workers for years. Expenditure of time and resources on training has generally been very limited. Where it has been pursued, training has tended to be random and lacking in following-thorough.

The new system seeks to redress this neglect by strengthening the educational base of existing employees in order to equip them to be able to benefit from further technical training. This also benefits employers who need a better educated and more trainable workforce, which is a necessity for the use of new technologies, multi-skilling and for developing world-class manufacturing systems. Career-path development offers progression to the highest levels to which a competent employee may aspire. The objective is the empowerment of employees.

The previous boundaries between formal and non-formal education and training are being made less rigid. The South African Qualifications Authority (SAQA) was established in 1995 to establish a framework for certifying competencies achieved by individuals. It has launched the National Qualifications Framework (see Figure 3.1). The NQF is an outcomes-based model of education and training. It does not set down the curriculum for any course, but rather lays down what learners must be able to do at the end of the course (Outcomes-Based Education). Through certification, non-formal and workplace education will be recognised and movement facilitated between schools, technikons and universities. Sector education and training authorities (SETAs) are tasked with developing training programmes within this proposed framework. At the workplace employers may have introduced literacy programmes for employees as a basic building block for further education and skills acquirement. The new Skills Development Act is set to have a major impact on training and development in South Africa.

3.5. An Outcomes Based Education and Training System within a National Qualifications Framework (NQF)

The institution used in this study is qualified to offer education and training programmes subject to legislation as discussed in par. 3.10). It is therefore important that a detailed discussion regarding the structures, components and operation of the Adult Based Education and Training system in South Africa should be provided.

3.5.1. Objectives of the National Qualifications Framework (NQF)

The objectives of the NQF, as stated in the South African Qualifications Authority Act (Act No. 58 of 1995), are to -

- create an integrated national framework for learning achievements;
- facilitate access to, and mobility and progression within education, training and career paths;
- enhance the quality of education and training;
- accelerate the redress of past unfair discrimination in education, training and employment opportunities; and thereby
- contribute to the full personal development of each learner and the social economic development of the nation at large.

3.5.2. Classifying education qualifications according to the NQF

Figure 3.1 is used to illustrate the types of qualifications, which, can be obtained on the different NQF levels. It must be noted that the sample used for this study is mostly representative of employees who possesses a NQF Level 1 qualification, or is working towards the achievement of a NQF Level 1 qualification.

Figure 3.1 National Qualifications Framework

LIFE LONG LEARNING	NQF LEVEL	BAND	TYPES OF QUALIFICATIONS AND CERTIFICATES	
	8	Higher Education and Training Band	Doctorates Further Research Degrees	
	7		Higher Degrees Professional Qualifications	
	6		First Degrees Higher Diplomas	
	5		Diplomas, Occupational Certificates	
	4	Further Education and Training Band	Secondary School/College/Certificates Mix of units from all FETC (Grade 12)	
	3		Secondary School/College/Certificates Mix of units from all	
	2		Secondary School/College/Certificates Mix of units from all	
	1	General Education and Training Band	Senior Phase Grade 9	ABET Level 4
			Intermediate Phase	ABET Level 3
	Foundation Phase		ABET Level 2	
	Pre-School		ABET Level 1	

Source: Anon (2001:7)

3.6. The South African Qualifications Authority Act

In the South African Qualifications Authority Act (1995), a specific relationship exists between structures for the setting of standards and those for monitoring the implementation of standards. The NCDC Working Group (1996:35) discusses this relationship.

3.6.1. Background

The South African Qualifications Authority Act (58/1995), provides for the development and implementation of a national Qualifications Framework (NQF). The NQF is a key strategy for human resources development in the Reconstruction and Development Programme, which facilitates greater access to learning opportunities of good quality for all South Africans. The NQF basically removes unnecessary constraints to entry and progression and quality enhancement.

3.6.2. A summarised version of the SAQA Act

Section 1: Definitions

The act represents a joint activity of the Ministers of Education and Labour and therefore the definition of minister spells out the sections of the act where the Minister of Education must decide in consultation with the Minister of Labour.

Section 2: Objectives of the NQF

The objectives of the NQF are simply stated: to create an integrated national framework for learning achievements, and to enhance access to, and mobility and quality within, education and training.

Section 3: Establishment of SAQA

The South African Qualifications Authority is established as a juristic person.

Section 4: Constitution of SAQA

The SAQA's jurisdiction covers all education and training and therefore its membership reflects the widest cross-section of education and training sectors.

3.6.3. Unit standards

In the SAQA Act (58/1995) the term 'standard' refers to registered statements of desired education and training outcomes and their associated assessment criteria (section 1[x]).

Outcomes are formulated in terms of standards, which are taken up in a unit standard. Unit standards are nationally agreed and internationally comparable statements of the outcomes that the learner must be able to demonstrate an understanding of and/or ability to apply and include the level of the unit standard, its credit value, a revision date, performance criteria, assessment guidelines, etc.

Unit standards encompass skills, knowledge and attitudes. They provide the basis from which learning programmes for education and training are developed. Unit standards should be based on transferable attitudes, knowledge and skills, rather than tasks.

Unit standards are concerned with the application of knowledge and skills in context and the standard of performance required. These standards must provide an indication of the learning outcomes and the criteria against which those outcomes will be judged with sufficient clarity and detail to enable a provider to develop a learning programme incorporating the unit standard. A supporting document might also be required to give information in addition to the standard.

General criteria, e.g. that the unit standard should not contain any gender, ethnic or other bias, need to be developed to guide writers of unit standards.

The unit standards could include the following information and criteria should also be developed for each of these:

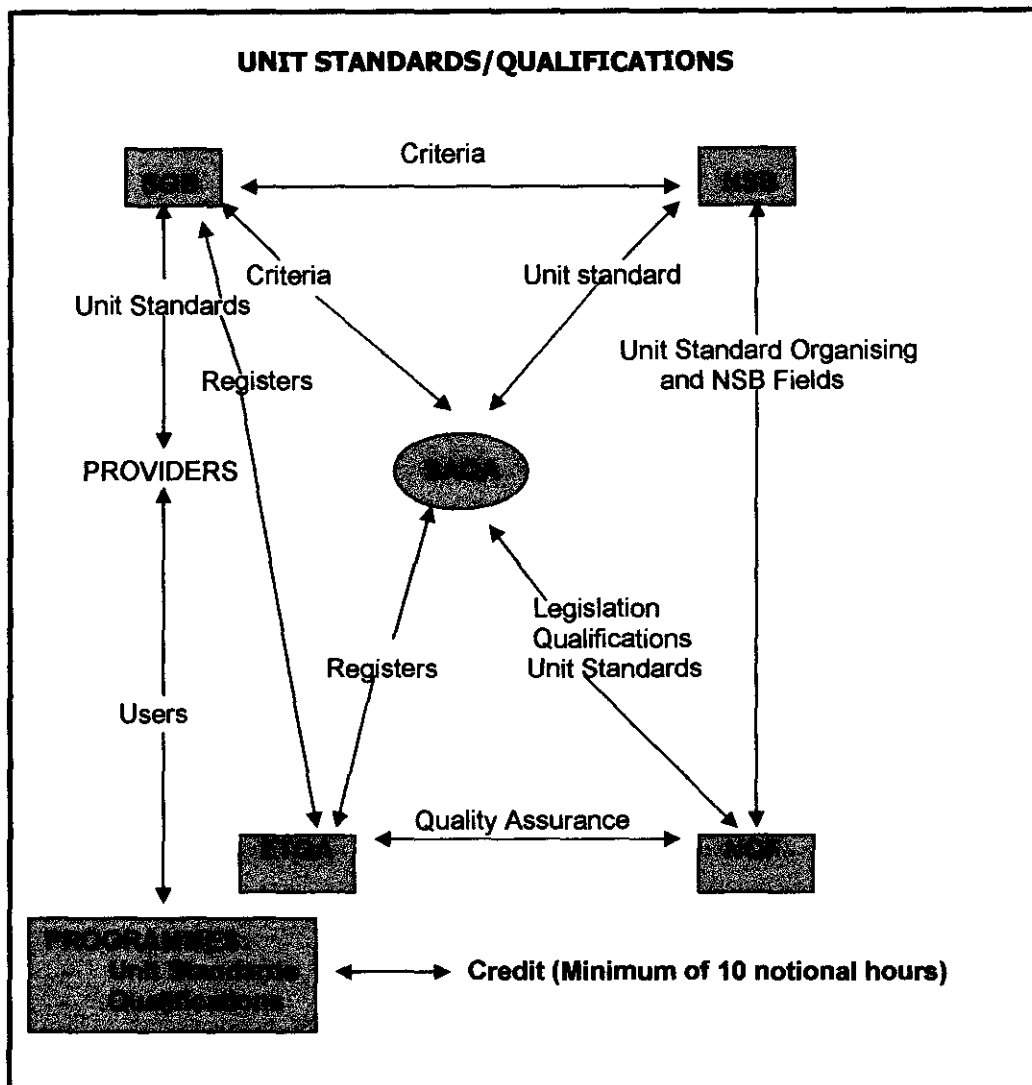
- A title which gives a clear indication of what a learner who is credited with the unit standard will be able to do;
- the level of the unit standard;
- the credit allocation;
- the final date for comment on the unit standard to be submitted;
- the review date should allow providers enough time to develop new materials for standards while programmes based on the old standards continue to be offered;
- the relevant classification fields and standards generation fields;
- a purpose statement which expands on the title to provide a clear indication of what the unit standard is about and how it relates to other unit standards;
- the entry requirements which give an indication of what prior knowledge and skills a learner needs before enrolling for this unit;
- an accreditation option for providers who wish to be accredited to offer the unit standard;

- a moderation option to ensure that the same standards are achieved by learners in all settings
- a special note which may include range statements, references, definitions of key terms used, etc.;
- elements which describe the lesser outcomes that the learner is able to achieve. Each element is consistent with the level assigned to the unit standard;
- performance criteria which specify the required level of performance for each element;
- range statements which are concerned with clarification of the standards and/or evidence needed to ensure that standards have been met.

3.7. Network of relationships amongst education structures

In order to understand the interaction and links within the education and training structure a brief explanation of the relationship is given. The network of relationships amongst structures within the various processes of the SAQA in relation to the development of unit standards and qualifications is presented in following diagram (see Figure 3.2). The arrows reflect a two-way relationship, with the SAQA in the centre reflecting its centrality in the whole process. The diagram provides a view of the global picture of the system qualifications as applicable to the discussions in this chapter.

Figure 3.2 The relationship between programme development, unit standard generation and SAQA structures



Source: Makhene, M et al. (2000:27)

The diagram outlines the dynamics of the interrelationships amongst the structures and their functions as follows (Makhene, M et al., 2000:27):

- **SAQA and NQF:** SAQA registers unit standards and qualifications on the NQF and the NQF is established in terms of the SAQA Act.
- **SAQA and NSB:** SAQA establishes NSBs in line with the 12 organising fields and the NSB's recommend standards and qualifications to SAQA.
- **SAQA and SGB:** SAQA provides a framework for the establishment of SGBs and the unit standards developed by the SGBs are registered by the SAQA.
- **SAQA and ETQA:** SAQA establishes registers. ETQAs provide the SAQA with all the accredited providers.

- **Providers and programmes:** Providers develop programmes by using unit standards developed by SGBs.

3.8. ABET in a South African context

Adult basic education and training provides a general conceptual foundation comprising knowledge, skills and values required for social participation and transformation applicable to a range of contexts. ABET is flexible and developmental and is targeted at the specific needs of particular learning audiences and ideally provides access to nationally recognised qualifications.

3.8.1. ABET Curriculum Framework

3.8.1.1. Curriculum

The national curriculum framework will provide the philosophical and organisational framework to guide the development of learning programmes. “Common outcomes’ does not mean a common curriculum. Provincial ABET sub-directorates and individual providers will still be required to make choices about curriculum, on the basis of their institutional contexts and the learners’ needs.

When making choices about the development of learning programmes, the principles outlined for the development of the NQF should be taken into consideration. The following are the interactive factors in the curriculum development process:

- SAQA level descriptions
- units standards under NSBs with SAQA
- formulation of national curriculum frameworks
- formulation of provincial (or institutional) learning programmes
- quality assurance mechanisms, under relevant ETQAs

3.8.1.2. Outcomes

Critical outcomes have been identified for all Learning Area Outcomes:

- identify and solve problems in which responses display that responsible decisions using critical and creative thinking have been made;

- work effectively with others as a member of a team, group, organisation or community;
- organise and manage oneself and one's activities and responsibilities effectively;
- collect, analyse, organise and critically evaluate information;
- communicate effectively, using visual, mathematical and/or language skills in the modes of oral and/or written presentation;
- use science and technology effectively and critically, showing responsibility towards the environment and health of others;
- demonstrate an understanding of the world as a set of related systems by recognising that problem-solving does not exist in isolation.

In order to contribute to the full development of the learner and the social and economic development of society at large, it must be the intention of any learning programme to make an individual aware of:

- the values of reflecting on and exploring a variety of strategies to learn more effectively;
- participating as responsible citizens in the life of local, national and global communities;
- being culturally and aesthetically sensitive across a range of social contexts
- developing entrepreneurial opportunities.

3.8.2. A flexible curriculum for ABET

The following principles for an ABET curriculum relate directly to the policies outlined in the White Paper on Education and Training (1994), with regard to the National Qualifications Framework:

- ABET should provide a general basic education, promote critical thinking, lifelong learning and empower individuals to participate in all aspects of society;
- The principles that underpin the NQF have informed the essential outcomes for education and training in South Africa. The essential outcomes, which reflect the values of a non-racial, democratic society, should provide the basis for the development of specific outcomes for ABET Curriculum comprised of five learning areas namely: Language/Literacy; Mathematics/Numeracy; Technology and Natural Sciences; Human and Social Sciences and Economic and Management Sciences;

- Learning programmes should be based on learning areas clustered into learning modules for achieving unit standards registered on the NQF;
- Credits should be awarded for ABET Levels 1 - 4 by assessing learners against units standards registered on the NQF;
- Rules for combination of units of learning to constitute an ABET level should be developed and governed by the clustering of modules in a meaningful way, to ensure that a general conceptual foundation is achieved by ABET Level 4 in order to promote lifelong learning rather than a narrow accumulation of credits;
- Learners should be counselled to choose a variety of options where they are available, to plan an appropriate learning pathway;
- ABET should promote Adult Education teaching and learning including immediate utilisation of knowledge, attitudes and skills learned.

3.8.3. Standards

ABET providers should be encouraged to work towards achieving national standards to provide access to learners to further education and training.

3.8.4. Recognition of prior learning

Recognition, on the basis of national standards as registered at the NQF, will be given to prior learning and experience obtained through formal, non-formal and informal learning and/or experience.

3.8.5. Qualifications

The SAQA Act (58/1995) defines a qualification as follows (as quoted by the NCDC Working Group, 1996:35)

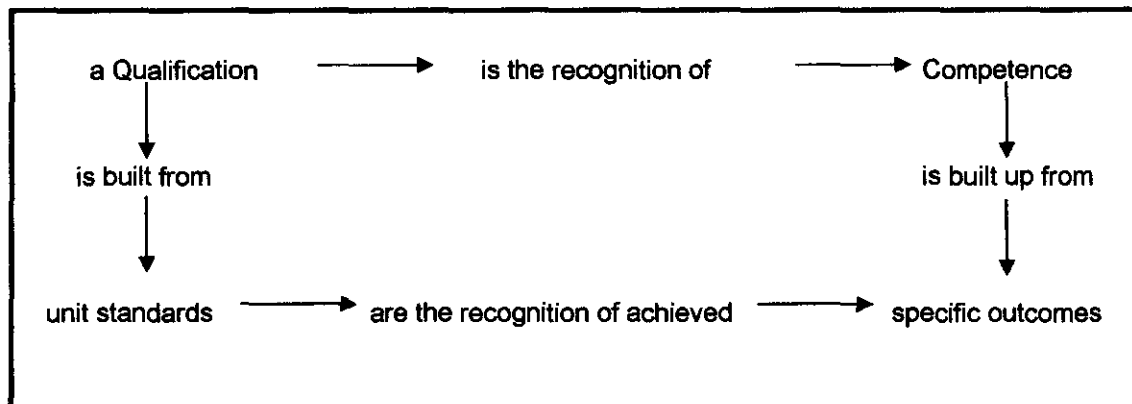
“Qualification” means the formal recognition of the achievement of the required number and range of credits and as such other requirements at specific levels of the NQF as may be determined by the relevant bodies registered for such purpose by SAQA (clause 1[iii]).

Competence refers to the capacity for continuing performance within specified ranges and contexts resulting from the integration of a number of outcomes. The recognition of competence in this sense is the award for the qualification.

As learners meet the criteria which show they have achieved the outcomes for required unit standards, they accumulate credits towards a particular qualification. When they have the required number and combination of credits, they have achieved the defined degree of competence in that area, and receive a qualification.

The following representation from the department 'Ways of seeing the National Qualifications Framework' indicates the relationship between the outcomes and the defined degree of competence:

Figure 3.3 Definition of a Qualification



Source: NCDC Working Group (1996:18)

3.8.6. The relationship between outcomes and knowledge

Although specific outcomes imply, to a certain extent, a relevant knowledge of base or theory, supplementary information that might assist the learner in reaching the desired outcome, could also be incorporated into the unit standard.

It is proposed that the relevant theory or knowledge be incorporated into unit standards as a means of establishing that the achievement of competence includes an understanding of the WHY as well as the HOW. This would ensure that the individual understands the theoretical and knowledge-based constructs which can underpin a unit and which may be essential to the transferability of that outcome to a new situation.

3.8.7. Credits

The principles of portability and progression demand that a common credit currency be recognised nationally to enable the transfer of credits and the recognition of prior learning.

In the documents 'Ways of Seeing the National Qualifications Framework and Lifelong Learning through a National Qualifications Framework' (HSRC, 1995), as discussed by the NCDC Working Group (1996:19), the credit allocation reflects the time that is expected to take an average person to acquire the skills, knowledge and attitudes specified in a unit standard. It is proposed that ten hours 'notional learning time' be granted one credit. The entry level would provide the starting point from which the credit allocation is calculated.

The above documents point out that the 'notional learning time' serves as a guide only and indicates the amount of time an average learner might need to attend classes or formal instruction, participate in tutorials, carry out experiments, practical and/or projects, study at home, undertake formal assessment, etc.

3.9. Legislation and structures in a new South Africa

According to the White Paper (SA, 1994:41), the following legislation and structures will provide a basis for Adult Based Education in South Africa:

3.9.1. South Africa's new constitution

The new constitution firmly creates an open society with clearly defined human rights, which are both broad and specified, and acts as an enabling framework for development and educational policy of the state.

- Clause 29 1(a) of the constitution enshrines the right to basic education, including ABET. This is significant because it defines a constitutional obligation by the state to provide ABET.
- Recognition of the 11 languages is a significant step in enabling the provision of ABET to accommodate the needs of all learners across language groups.

3.9.2. Reconstruction and Development Programme (RDP)

The RDP was launched as the centrepiece of post apartheid social policy through a White Paper, as a set of directives and political instruments to redress inequities in the provision of housing, health, access to land, jobs and education within a defined period.

3.9.3. Growth Employment and Re-distribution strategy (GEAR)

The Government generated an economic strategy 'GEAR', while still located within the broad social objectives of the RDP, focusing on generating and distributing wealth from the economy through Macro Economic policies.

GEAR provides the reference point for key policy and planning objectives for education and ABET.

3.10. The principles of training

The following principles forming the basis of the learning process, as discussed by Tight (1996: 62), can be applied to the training situation:

- All people are capable of learning. Any normal person can learn something at any time in his life. Since people differ, however, we do not all have the same approach to learning.
- People must be motivated to learn.
- Learning is an active process.
- Guidance is important in the learning process.
- Appropriate training aids are essential.
- Learning methods should be varied.
- The learner must experience satisfaction from what he/she learns.
- The individual should be given positive reinforcement for current behaviour.
- The student should be required to attain a particular standard of achievement.

3.11. Training legislation

In this era of rapid technological progress, training is essential for workers who must constantly adapt to the threat of being marginalised, as well as for a country's economy which can only function well with proficient human resources. The International Labour

Organisation's (ILO) training initiatives intend to improve conditions of life and of work, to increase employment possibilities and to promote the fundamental rights of all members.

3.12. Historical background of education in South Africa

The right to education has been, and remains, a powerful claim in South Africa and nowhere is this claim stated more explicitly than in the Freedom Charter:

The doors of learning and culture shall be opened!

Education shall be free, compulsory and equal for all children.

Higher education and technical training shall be opened to all by means of state allowances and scholarships awarded on the basis of merit.

Adult illiteracy shall be ended by a mass state education plan.

3.12.1. Education and social transformation

The White Paper on Reconstruction and Development (1994: 117) states that education (and other) policies have to be framed explicitly in relation to political and economic development strategies based on the Freedom Charter if they are to contribute to the construction of a new South Africa.

The changed circumstances which were initiated by former State President, Mr F.W. De Klerk's actions on 2 February 1990, rendered inadequate the strategies adopted hitherto by the liberation movement, which were more or less purely oppositional in character. In the new situation, as is widely recognised, opposition is not enough – what is required, is the translation of the goals of the Freedom Charter into concrete economic and political development strategies to which specific policies in the different spheres of education, housing, local government and so forth can be linked (NCSNET, 1997). These strategies have not been fully elaborated and, as a consequence, specific demands, including those within the sphere of education, have taken on a largely ad hoc, reformist character. If met, these demands are as likely to contribute to the reproduction of a reformed capitalism as to the creation of a society as envisaged in the Freedom Charter.

3.12.2. The transitional conjuncture

The structural conditions of the 1980s and the political struggles which took place within them resulted in a relatively static, unstable equilibrium of power in South Africa.

Decisive changes, whether in the direction of the development of the capitalist economy and the limited reform of the political system and the economy, or in the direction of a national democratic revolution and some degree of socialisation of the economy in line with the Freedom Charter, depended on a clear-cut shift in the balance of power towards either regime and the corporate sector or towards the national liberation movement.

In the event, the new political strategy announced by the De Klerk regime on 2 February 1990 signalled the incapacity of the regime to maintain existing equilibrium or to alter decisively the balance of power in its favour by intensifying repression.

In a rudimentary way, certain aspects of the apartheid political system have been altered. These include the legislation of the ANC and other organisations, the resumption of open political work by these organisations, the release of political prisoners and the strengthening of the civic organisations. These political changes entail a major restructuring of the political terrain, which alters the terms of political contestation. It is of great importance to define the limits of this restructuring.

Under the new conditions, possibilities have opened up for the ANC and its allies to participate in the contested process of creating the institutional and other instruments which might enable the transformation of the apartheid economic, social and political order to begin. But in essence, what has been affected is the partial reconstruction of the political terrain without any conclusive alteration in the unstable equilibrium of power.

2 February 1990 signalled the incapacity of the ruling bloc to continue to 'rule the old way' but it did not amount, by any means, to the overthrow of the dominant forces and the seizure of state power by the liberation movement. Instead, the present transitional phase has been constituted as the result of defensive actions taken by the regime which enable it and its class constituencies to continue to hold state and economic order. The democratic forces are thus unable to rapidly replace the apartheid order with a new, non-racial, democratic and socialised order. The struggle to win state and economic power was taking place without a fundamental change in the balance of political power. The change was taking place in a new form – predominantly through negotiations between the regime and its allies and the ANC and its allies. At the heart of the process of negotiations was precisely the question of state power. On the one hand, the regime and the social forces which cohere around it seek to establish reformed political institutions which will help guarantee the retention of effective state power in the hands of the existing dominant bloc expanded by the incorporation of segments of black classes and groupings. On the other

hand, the struggle of the ANC and its allies is to establish the political instruments, which would facilitate the transfer of state power to the democratic forces and which, once attained, can be utilised to institute a process of radical transformation.

The struggle to win state and economic power was thus taking place without fundamental change in the balance of political power. Nonetheless it was taking place in a new form – predominantly through negotiations between the regime and its allies and the ANC and its allies. At the heart of the process of negotiation is precisely the question of state power. On the one hand, the regime and the social forces which cohere around it and seek to establish reformed political institutions which will help guarantee the retention of effective state power in the hands of the existing dominant bloc, expanded by the incorporation of segments of black classes and groupings. On the other hand, the struggle of the ANC and its allies is to establish the political instruments – a constituency assembly and interim government – which will facilitate the transfer of state power to the democratic forces and which can be utilised to institute a process of radical social transformation.

3.12.3. Negotiations, reform and transformation

The capacity to affect social transformation is not a function for the contending forces of state power alone, but depends also on the social base of support and the established social structural and institutional conditions. Even if state power were to pass decisively to the social forces which cohere around the ANC, the new regime would be faced with historically produced, deep-rooted racial and class divisions and the racially structured institutional order which characterises the apartheid capitalist system. Although now partly eroded and riven by contradictions, the core structural conditions of apartheid remain in existence and, over a long period, will continue to place severe constraints on the pace and possibilities of any programme pursued by a new regime to reduce and overcome those conditions.

3.13. What will be happening in the year 2010?

Some of the key characteristics of the educational system in the year 2010 include:
(NCSNET Public Discussion Document, 1997:5)

- All learners will have access to education. This includes admission to centres of learning, and access to the curriculum.

- The education process will prepare learners for work and life.
- All centres of learning will have the capacity to respond to diversity, and will reflect an ethos of inclusiveness, a supportive environment, a culture of teaching and learning, and good community relations and ownership. They will be provided with the support they need to develop in the ways described above.
- Every centre of learning will have its centre-based support structures, which will draw in the expertise of both specialist and community resources. Support will therefore be primarily community-based in nature.
- Every district will have some form of district support centre where support services will be provided to all local centres, within an intersectoral framework. These services will provide indirect 'consultative' support to learners via consultation with teachers and centre-based support teams. In exceptional cases – when centre-based teams have exhausted intervention possibilities – support for individual learners will be provided.
- Support services will be embedded in the system of education. This means that relevant support service personnel will be integrated in all spheres of the education system at departmental level.
- A variety of centres of learning will be available. Learners will be accommodated in a way that best suits their needs, keeping in mind the need to facilitate full participation and inclusion in the education process and in society at large.
- The necessary specialised learning contexts will be provided. These specialised settings will be limited to learners who cannot benefit from inclusion in the ordinary setting. These specialised contexts will be directly linked to the ordinary context, providing maximum opportunities for all learners to engage with one another in an inclusive environment.
- The system will be sustainable: in terms of financial resourcing, and in terms of leadership and management capacity.

3.14. Conclusion

Adult learning in the present and in the future must respond not only to the specific content or skills to be learned, but to the holistic process by which learning is related to these goals. The process of lifelong learning is much more complex than indicated by current education frameworks. This complexity will only increase in the future as our society continues to evolve in response to emerging forms of technology and information. Adults need to involve themselves in the process of learning with two goals in mind: learning how to learn and learning for later application. These should also become the goals of those involved with the education and training of adults in the work place.

Chapter 4 will link with Chapter 3, where the researcher explains the research and background of the research that was conducted in order to determine the results of training, which is aimed at providing the skills as discussed in Chapter 3.

CHAPTER 4

RESEARCH DESIGN AND BACKGROUND ANALYSIS

4.1. Introduction

When one considers the problem statement and objectives as formulated in Chapter 1, it is clear that there has been continuous focus on the effects of adult training, not only on the worker, but also in the organisation. South Africa is currently facing tremendous change at all levels and in all fields, but on the labour field, training and development of the previously disadvantaged receives great attention.

A thorough theoretical orientation forms the core of this study. Through an analysis of some theories of motivation, and a model for motivation (Chapter 2) the background is established for this study and its findings. Adult basic education and the legislation regarding adult basic education aim at providing a framework for lifelong learning (Chapter 3) and also attempt to place the problem in perspective. To comply with the objectives of this study and to offer explanations to certain appearances, an empirical survey was undertaken. It should be stated that this is an explorative research and no hypothesis has been formulated. The study was done through descriptive research where a thorough foreknowledge of the problem was required, and it is performed to fulfil the objectives of the research as stated in Chapter 1. Subsequently, a report is done on the empirical components of this chapter in Chapter 5.

4.2. Research design

4.2.1. Type of research

The type of research used was a combination of the historical method and the descriptive survey method. The descriptive survey method was employed to process the data that came to the researcher through observation. This is discrete data, which differs from historical type data. With the historical method the researcher relies upon documentary sources (written records of the production results of the research group) to provide primary data.

4.2.2. Measuring instruments

By using the survey procedure and through the use of a questionnaire (Annexure A) and unstructured interviews as a research technique, the desired data was collected. The design of the questionnaire's (see Annexure A) sections B (*motivation*) and D (*management skills*) is based on research undertaken by the researcher. Section C (*practical and technical knowledge*) of the questionnaire was constructed with the assistance of a training expert from Beatrix Mine and a specialised training instructor of The Chamber of Mines. The questionnaires were analysed and approved by the Statistical Consultation Services of the Potchefstroomse Universiteit vir CHO. All questionnaires were completed with the aid of a facilitator as language difficulties of the respondents had to be taken into consideration. A pilot survey was undertaken, whereby notice was taken of response handling and translation of the respondents' answers via the facilitator, to ensure valid and trustworthy responses. Additionally, the questionnaire was further discussed with trainers and unit managers of the trainees, corrections were made and discussed with the facilitator before the final stage was undertaken.

4.2.3. Research group

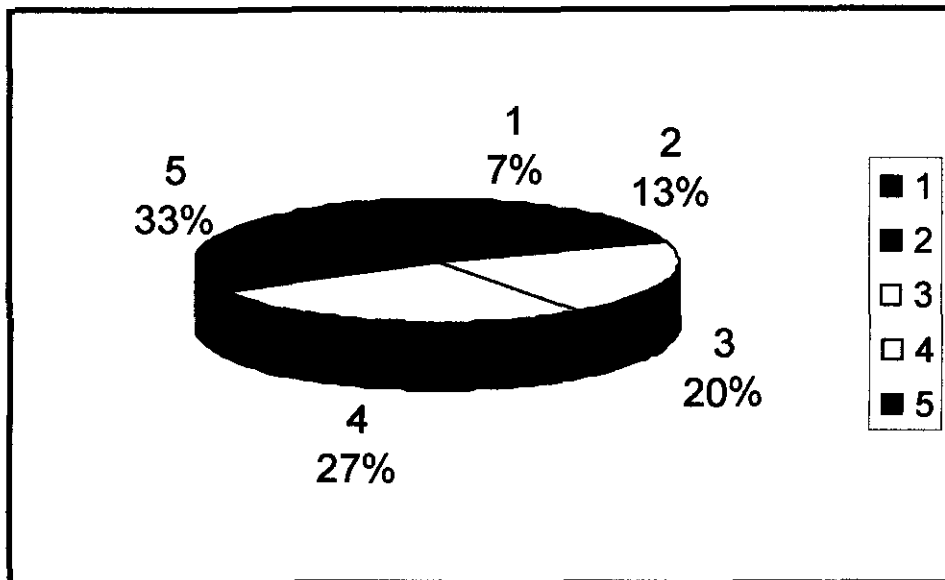
Research was conducted at Beatrix Gold Mine Pty. Ltd. in the Virginia district. The specific mine was a purposive selection due to accessibility, specialised training programmes and up to date information regarding all spheres of the training done. All historical data of production results of the research group was at hand and made available to the researcher on request. Annexure C illustrates some of the records from Beatrix Mine that were used by the researcher in this study.

Unskilled and/or illiterate workers employed by Beatrix Mine have the opportunity to improve their educational level by means of ABET classes. After successful completion of ABET Level 3, workers are granted the opportunity to do a Mining Certificate (equal to ABET Level 4), which, is registered and accredited with the MQA. These employees therefor possess a NQF Level 1 qualification and they can follow the career path to progress to a next NQF level. As stated earlier, the sample for this study was drawn from underground workers who are working towards a NQF Level 1 qualification. These employees sort under the description of Underground Payroll 1. Miners officials are employees who are already skilled and trained and were subsequently excluded from the survey. The population consists of 137 underground payroll 1 miners, who have been

identified by their various unit supervisors to undergo training. Random sampling was used to identify 20 respondents who had already been subjected to training. Annexure B provides the list of trainees used to compile the sample. It should also be mentioned that the underground payroll 1 miners, who are involved in this study, would eventually become underground payroll 2 miners after successful completion of their training.

At the time the research was conducted the manpower of Beatrix Mine was compiled as follows:

Figure 4.1 Allocation of workforce – Beatrix Mine



- Legend:*
- 1 *Underground Officials*
 - 2 *Underground Payroll 1 Miners*
 - 3 *Underground Payroll 2 Miners*
 - 4 *Underground Payroll 1 Employees*
 - 5 *Contract Payroll 2 Employees*

Brief explanation of descriptions used in above legend:

- i) **Underground officials:** Employees with specialised knowledge and skills – shiftbosses, unit managers, surveyors, samplers, ventilation officers and safety officers.
- ii) **Underground payroll 1 miners:** Miners who do not possess a blasting certificate
- iii) **Underground Payroll 2 miners:** Miners who possess a blasting certificate and are responsible for stoping and development
- iv) **Underground payroll 1 employees:** Panel operators

v) Contract payroll 2 employees: stope face workers

4.2.4. Research procedure

The questionnaire was compiled and the unstructured interviews were conducted in English. The interviews were conducted before the questionnaires were compiled, as these interviews led to the identification of key problem areas regarding trained employees' performance.

A total of 20 questionnaires were distributed and received, which is considered most satisfactory. This was possible owing to the fact that all questionnaires were completed at a central point with the help of the facilitator. The chosen respondents were approached individually to complete the questionnaires at their convenience. Although this process took up much time, it was very effective in the sense that even those respondents on annual leave could be reached once they returned to their workplace.

4.2.5. Statistical analysis

The completed questionnaires were collectively handed to the Statistical Consultation Service of the Potchefstroomse Universiteit vir Chirstelike Hoër onderwys. The Consultation Service was also involved with the processing of the given results. The obtained results were presented and discussed through the SAS-programme, with regard to correlation analysis. Through descriptive statistics, one- and two-direction tables were presented. Information was retrieved from the records of production results of the response group over a period of 12 months. This data, which formed the historical type data, was tabulated by hand, analysed and interpreted with the help of the training experts.

4.3. Background of the environment surrounding Beatrix Mine

4.3.1. Overview

A brief discussion of the environment of Beatrix Mine will provide background information to the reader.

The richest gold reefs in the history of the world were discovered near Virginia in 1946. The town was then also laid out next to the Sand River. In 1890 two railway surveyors from Virginia in the USA etched the name of their birthplace on a boulder near the farm

Merriespruit. When a siding was eventually constructed in this place, the name was noticed, adopted and kept. Virginia was proclaimed as a town on 21 January 1954 and has a current status of a Grade 8 town. It is nestled beside the Goldfield's only river, the Sand River. It is the second biggest town in the Goldfields and the only situated on the main north/south railway line.

Virginia is the second largest town in the Free State, and is situated between the gold and uranium mines of Beatrix, Harmony, Free State Saaiplaas and Joël. The economy of the district is highly dependent on the mining industry, which is responsible for more than 80% of the GGP. The population is estimated to be 15 000 to 20 000 people, while the Meloding township houses a further ± 70 000 to 90 000 people.

In addition to the mining industry, the biggest source of employment in Virginia and surroundings is farming. Labour relations practiced at Beatrix Mine are of a high standard and workers are empowered to achieve a better standard of living by continuing training and schooling.

4.3.2. Historical background of Beatrix Mine

In 1968 Union Corporation Limited did exploration work south of the Sand River in the Theunissen district and on 8 July 1977 the company "Australian SA Exploration Pty Ltd." was registered. This company remained dormant until 1979 and did not conduct any business. On 4 April 1979 the company's name was changed to Beatrix Mines Limited and on 15 May 1979 the company accepted cession from Beisa Mines Limited of all the company's rights, title and interest in certain prospecting contracts relating to approximately 4600 hectares of mineral rights in the Theunissen district of the Orange Free State. On 3 March 1981, the company was converted from a private into a public company and was named Beatrix Mines Limited. In 1997, Gencor merged with Goldfields South Africa to form Goldfields Ltd. Other mines owned by Goldfields are Oryx, St. Helena, Evander Gold Mine, East and West Driefontein, Kloof, Libanon and Leeuwddoring.

As from 1 July 1983 the mine has been known as Buffelsfontein Gold Mine Pty. Ltd. – Beatrix Mines Division. Beatrix mine has two shafts situated approximately 1,6 km from each other. No. 1 shaft was completed in June 1983 and was sunk to a depth of 960,6 metre, while No. 2 shaft was sunk to a depth of 912,5 metre. The No. 1 and No. 2 shafts reached planned production in 1985. The Beatrix gold reef is mined conventionally by dip scraper mining method at depths between 600m and 850m below surface.

However, Beatrix Mine has drilled a raise bore hole for a third shaft which will provide access to additional ore reserves below the current deepest level of 850 metres down to 1400 metres below surface. The No. 3 shaft will extend the production of the mine to the year 2015 and terminate in 2018.

4.3.3. Beatrix Mine and training

The objective of the Training Department is to develop the knowledge, skills and attitudes of all the workers in a purposeful, systematic and continuous manner so that their productivity and job satisfaction can be increased.

The surface training centre is simulated to represent underground conditions. During training the workers are trained in knowledge and competency in their specific jobs. The trainee, is therefore able to relate more easily to the work underground, after training.

Instructors do training according to manuals, lesson plans and progress sheets. No operator will operate any of the mechanical units unless he is trained in the operations of such a unit, and issued with a certificate of competency from the Training Centre. Besides the technical side of their training, they are also trained in the application of managerial skills.

Training facilities are available for the following categories:

- Learner Officials Mining
- Pre-Shift Bosses
- Lectures for Blasting Certificates
- Lectures for Onsetter/Banksman certificates
- Methane, Standards, Code of Practice and Heatstroke
- Induction and refresher courses (5 day training programme) for all ex-leave and new employees
- Safety representative training
- HIV awareness
- Hearing conservation
- Hazard identification
- Work hardening

4.4. Conclusion

Chapter 4 offers a complete presentation of the research design as well as the background of the venue of the research. The discussions in Chapter 4 provide the background scenario for Chapter 5 where the researcher supplies the findings of the research and attempts to verify certain important aspects that have been found. The obtained results are presented by means of tables and figures in Chapter 5.

CHAPTER 5

ANALYSIS AND DISCUSSION OF RESEARCH RESULTS

5.1. Introduction

This chapter deals with the findings of the research as described in Chapter 4. It includes a discussion of the results obtained by means of the questionnaire, unstructured interviews and historical data on production results for a 12-month period. Firstly the findings of the questionnaire will be dealt with per section, and then a summary of production results will follow. The latter will be incorporated with the findings of the questionnaire and interviews to provide a conclusive perspective.

The respondents subjected to the research are all involved in specialised training in order to become panel miners (payroll 2 miners). The occupation of panel miner is specialised and requires not only theoretical knowledge, but also practical skills. The evaluation of the respondents was done in the following categories as illustrated in Table 5.1. These four categories form the cornerstones of 'mining' and were regarded to be the basis of the evaluation, as recommended by the training experts as well as the unit supervisors.

Table 5.1 Evaluation categories

CATEGORY 1	CATEGORY 2	CATEGORY 3	CATEGORY 4
Motivation	Practical knowledge	Technical knowledge	Management skills
<ul style="list-style-type: none">• Motivating factors• Demotivating factors• Personal motivation	<ul style="list-style-type: none">• Planning: face advance, crew advance• Production: sweepings	<ul style="list-style-type: none">• Production• Safety• Stoping• Development• Regulations: ventilation, gases and dust	<ul style="list-style-type: none">• Communication• Motivation• Leadership• Discipline

5.2. Describing mining terminology

5.2.1. General mining terminology

Due to the nature of the study the use of mining terminology was inevitable. The researcher feels it important to give a brief description of the following key terms generally used in the study. (Descriptions are compiled verbally and no definite sources were used.)

- Production – the amount of ground (gold containing ore) that is mined.
- Safety – regulations containing standards to make the working environment safe.
- A stope – is an opening made along the ore body for the purpose of extracting the ore.
- Stoping - is a series of operations that must be done to extract the reef from the rock.
- Development - covers all the mining that one has to do to 'open up' a mine in order to get to the ore, to mine it out and send to the plant or surface where the minerals will be extracted.
- Regulations – standards prescribed by The Mine Health and Safety Act, Act No. 29 of 1996.

5.2.2. Objectives of the Mine Health and Safety Act, Act No. 29 of 1996 (SA, 1996:9)

The objectives of this Act are:

- to protect health and safety of persons at mines;
- to require employers and employees to identify hazards and eliminate, control and minimise the risks relating to health and safety at mines;
- to give effect to the public international law obligations of the Republic that concern health and safety at mines;
- to provide for employee participation in matters of health and safety through health and safety representatives and the health and safety committees at mines;
- to provide for effective monitoring of health and safety conditions at mines;
- to provide for enforcement of health and safety measures at mines;
- to provide for investigations and inquiries to improve health and safety at mines; and
- to promote:
 - (i) a culture of health and safety in the mining industry;
 - (ii) training in health and safety in the mining industry; and

- (iii) co-operation and consultation on health and safety between the State, employers, employees and their representatives.

5.2.3. Specific terminology used in reporting results

The following brief description of the terminology will assist the reader with the interpretation of the production results. (Descriptions are compiled verbally and no definite sources were used.)

- Panel – is a working face (area) with a size of 1 metre by 1 metre
- Working month – 23 to 24 shifts completed
- Cintare – size of the panel, calculated as follows:
Panel = length x breadth
- Face advance – indicates how far the panel advanced (in metres) in a period of one working month
- Crew advance – is the total face advance for the crew (team) in a working month.
- Square metre per man (m²/man) – indicates the progress per man for a working month. In practical terms it means size of the panel divided by the amount of workers working on the panel.

Example: $\frac{240 \text{ sintare}}{12 \text{ workers}} = 20 \text{ m}^2/\text{man}$

5.3. Core findings

5.3.1. Section A: Biographical details

All 20 respondents were male. Regarding the other biographical details the following must be noted:

5.3.1.1. The distribution of occupations was as follows:

The sample of this study consists of underground payroll 1 miners, as mentioned on p. 74 (Figure 4.1). Underground payroll 1 miners is a group, which comprises workers representing different occupations.

Table 5.2 Occupations of respondents

	Occupation	Number	Percentage
1	Teamleader	5	25%
2	Team Member	3	15%
3	Winch Driver	2	10%
4	Ex-production	2	10%
5	Other	8	40%

Of the 20 respondents, 8 were grouped as having 'other' occupations. 'Other' occupations represent, amongst others, storekeepers, equipment helpers and tip helpers.

5.3.1.2. The ages of the respondents varied as follows:

Table 5.3 Age distribution of respondents

	Age	Number	Percentage
1	20 –29 years	7	35%
2	30 –39 years	6	30%
3	40 – 49 years	6	30%
4	More than 50 years	1	5%

From a total of 20 respondents 65% was younger than 40 years and only 5% (one respondent) was above the age of 50.

5.3.1.3. Training experience of respondents

The period of time to which the respondents were subjected to training is reflected as follows:

Table 5.4 Training experience of respondents

	Training experience	Number	Percentage
1	Less than 3 months	1	5.3%
2	3 – 6 months	0	0%
3	6 – 9 months	2	10.5%
4	9 – 12 months	9	47.4%
5	12 – 18 months	7	36.8%

'Training experience' reflects the time that has elapsed since the worker's initial involvement in training to become a panel miner. Almost two thirds of the respondents had only one year or less training experience.

5.3.2. Section B: Motivation

5.3.2.1. General view of motivation

A 100% response indicated that all the respondents agreed that motivation is important. On the question whether it is possible to motivate others if one is not motivated oneself, 70% of the candidates disagrees, whereas 30% said that it is possible to motivate others if one is not motivated oneself. The 30% response indicates that these respondents might have a misperception of motivation as the literature study of motivation (Chapter 2) showed that motivation is that which energises human behaviour, or which directs or channels such behaviour.

5.3.2.2. Indication of motivators and demotivators

The respondents distinguished between factors that motivate and factors that demotivate. Percentages were used to calculate whether the group of respondents regarded a factor as a motivator or as a demotivator.

Table 5.5 Indication of motivators and demotivators

	Motivator	De-Motivator
The supervisor takes credit for the ideas of others	10%	90%
Increase in monthly bonus	100%	0%
Target people rather than the problem	0%	100%
Unachievable goals	0%	100%
More responsibility	90%	10%
Fair punishment	95%	5%
To feel part of a successful team	95%	5%
Loss of privileges	100%	0%

As far as those factors that are seen as motivators are concerned, the respondents identified monthly bonus (money) and privileges as most important. The factors that were

clearly identified as demotivators were unfair treatment by a supervisor and unachievable goals. It is also important to take note of the fact that 90% of the respondents indicated that they knew how the monthly bonus was calculated. The finding that **money** is above all a very important factor, refers clearly to the explanation of secondary motivation of Logan (1969:149) namely that secondary motivation drives "...refers to drives that have been learned or acquired by the organism rather than ones that arise from biological needs without prior experience."

5.3.2.3. Personal motivators

When given the opportunity to indicate what motivates the respondent to do his work every day, the following comments were received:

- 55% feel that money and/or bonus motivates them
- 15% work because they want to provide for their families
- 15% reckon that work satisfaction and the reaching of their goals are important
- 5% regard team work and team spirit as their motivational factor
- 5% see pride as important
- 5% use discipline and self motivation as reason for doing their work

A reason like 'providing for my family', can be considered as an indication that the respondent sees an income (money) as important, and therefore it can be said that a total of **70%** of the respondents regard **money** to be the activator that drives them to do their daily tasks. It is also of importance to take note of money as a source that will make provision for the physiological needs of a person. This clearly supports Maslow's theory (par. 2.5.1.) that *at a certain point in time physiological needs are more important than safety needs*, or any other needs on a higher level in the hierarchy. Money or income as a source of motivation can also be related to the *existence needs* of Alderfer (par. 2.5.2.), where the individual will be concerned with his survival or physiological well-being in the first instance. The above results also indicate that self-actualisation ("pride and self motivation") is not great sources of motivation to the learner. Team work and team spirit as motivational factors receive a low score of 5%. These factors can be linked with the *relatedness needs* of Alderfer's ERG theory (par. 2.5.2.). It can be concluded that respondents with this study were clearly more motivated by those factors which will provide for their basic needs that could be found in the lower levels of Maslow's hierarchy.

5.3.3. Section C: Measuring practical and technical knowledge of the research group

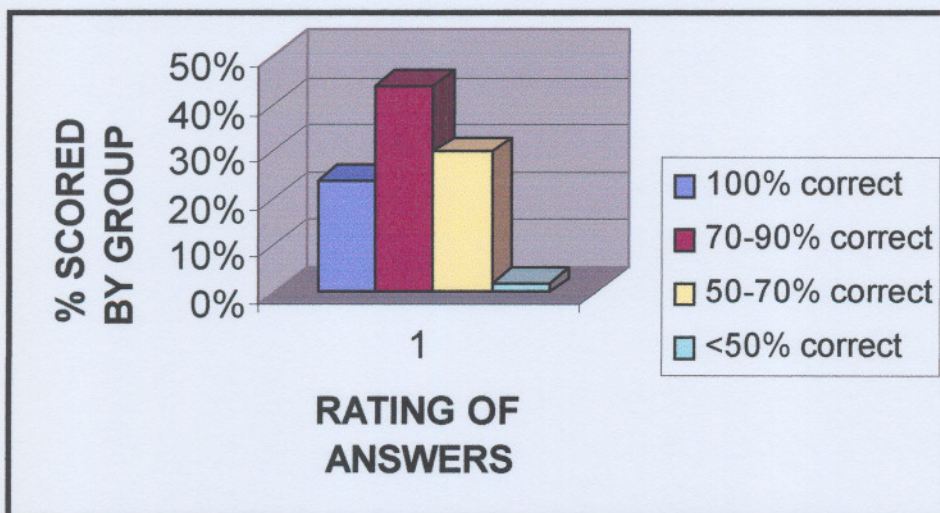
It is important to clarify the method of indicating the results of the various completed tests. Where percentages were not used to indicate a specific rating, the researcher used 'scores' (Figure 5.4, 5.5, 5.6, 5.7, 5.8 and 5.9). This method was mainly used in rating the respondents' performance of the technical components and a maximum score of 5 could be obtained. A score of 5 therefore indicates that the respondent or the group had $\frac{5}{5}$ for the questions of that category; a score of 4 means $\frac{4}{5}$ questions were answered correctly.

5.3.3.1. Practical knowledge

This section includes components of the work in which the respondents were tested on the 'know-how' of the job. More than just a theoretical answer must be acquired from the respondents, in order to establish whether they would be able to perform the task in the working situation.

The facilitator rated the answers of the respondents of the different practical components (Section C). Figure 5.1 represents the global performance in terms of practical knowledge of the group and their total ratings.

Figure 5.1 Results on measuring practical knowledge of respondents



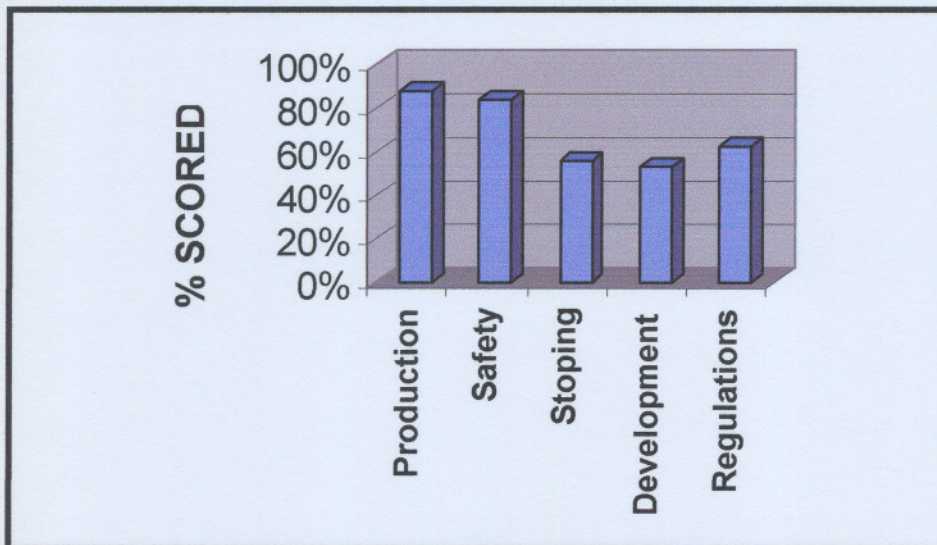
Section C of the questionnaire (see Annexure A) was used to measure the practical knowledge of the respondents. Above figure gives a projection of the overall results obtained by respondents for Section C of the questionnaire. The majority of the answers

(68%) given by the respondents, are considered to be correct. Although a rating of 70% - 90% was allocated to some of the answers, it must be taken into consideration that the responses were given verbally and that language and communication skills play a big role. A total of 30% of the answers was rated as average (50%-70% correct), whereas only 2% of the answers were less than average.

5.3.3.2. Different components of technical knowledge

Figure 5.2 provides a summary of the outcome of the testing done on the technical components of the work. The results are expressed as scores obtained by the group for each of the different components.

Figure 5.2 Results of technical knowledge



Above figure is a breakdown of the overall scores that were obtained for technical knowledge (par. 5.3.3.1). When the different components were measured separately, it was found that the first two categories, namely *production* and *safety* can clearly be distinguished as those categories with the highest scores. Above tendency could only be cleared with the assistance of the person's involved in the mining industry and helping with the interpretations of the results. All four components are interdependent and the one can not be seen as more or less important than the other. The aspects of safety and production, are, however emphasised to such an extend, that it forms the foundation of the day to day activities of the employee.

5.3.4. Section D: Management skills

A general evaluation was made of the managerial skills of the workers in order to establish whether they could manage their subordinates (team) and maintain effective human relations. The different skills regarded to be important and most commonly used in the respondents' working situation were evaluated. Figure 5.3 shows the outcome of the evaluation of the group.

Figure 5.3 Results of management skills



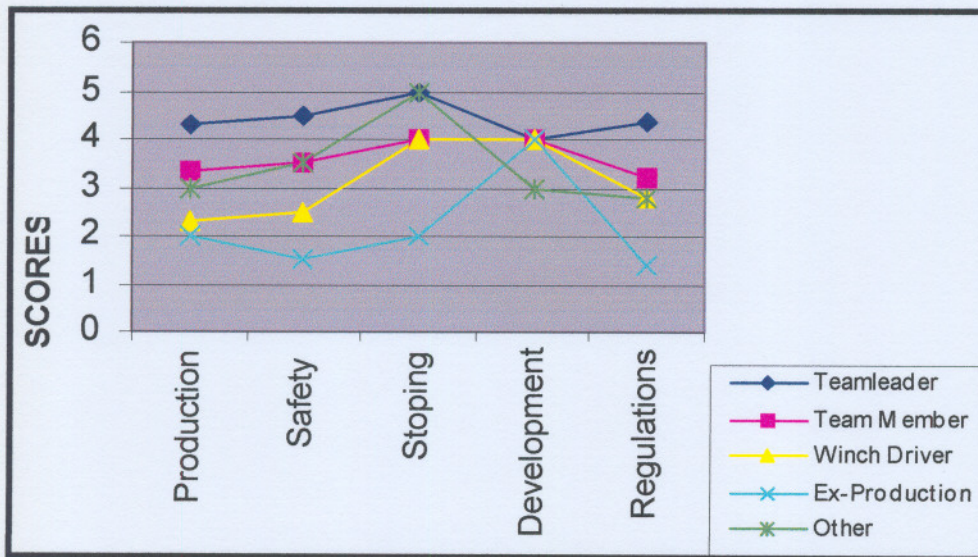
*Legend of Skills: 1 Motivation
2 Discipline
3 Leadership
4 Communication*

Discipline and leadership are the two skills that received average scores (57,4% and 51,3% respectively) in the evaluation. This highlights the fact that all the respondents are still in the process of becoming panel miners. At the present level the respondents have not been exposed to a supervisory position where they have had to exercise discipline and leadership upon subordinates. Motivation and communication can be seen as stronger, developed skills, which are used in the daily working situation and even during the course of the training programme. It should also be noted that there was 5% missing data in the responses of Section D (management skills).

5.3.5. Results of technical knowledge per occupation

The results of each occupation were taken according to the different technical components in order to detect any relationships. Figure 5.4 illustrates the findings graphically.

Figure 5.4 Results of technical knowledge per occupation

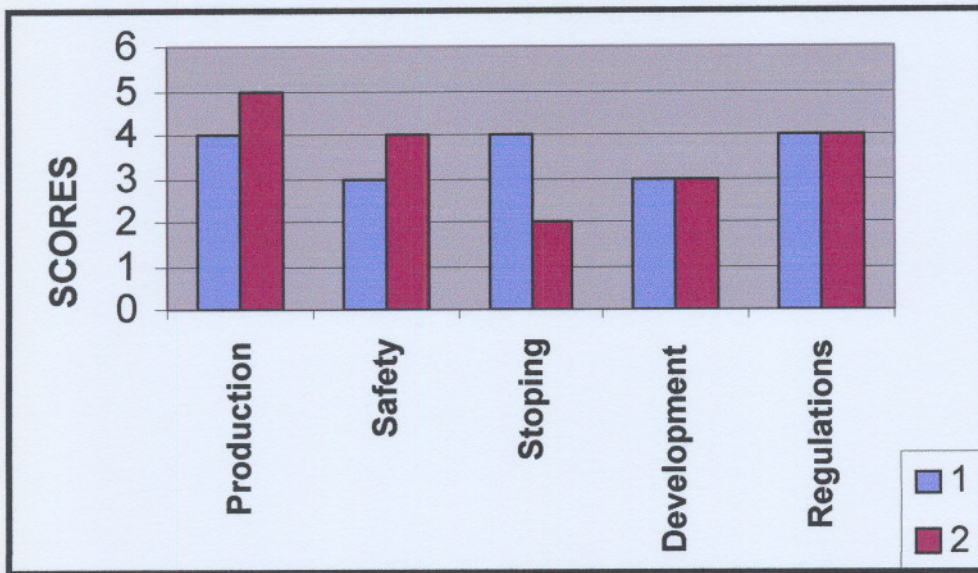


Scores of those respondents who are Teamleaders were distinctively high. The performance of the Ex-production workers shows a definite rise regarding development. A strong correlation also exists between the different occupations and the scores obtained for development.

5.3.6. Relationship between technical knowledge and training experience

A correlation was drawn between the respondents with different training experience and their corresponding achievements in the testing of technical knowledge. The report of the relations is done separately for each occupation in Figure 5.5, 5.6, 5.7, 5.8 and 5.9 respectively. Notice should be taken that the report is not done on all the possible combinations, but only those applicable to the respondents of this specific sample.

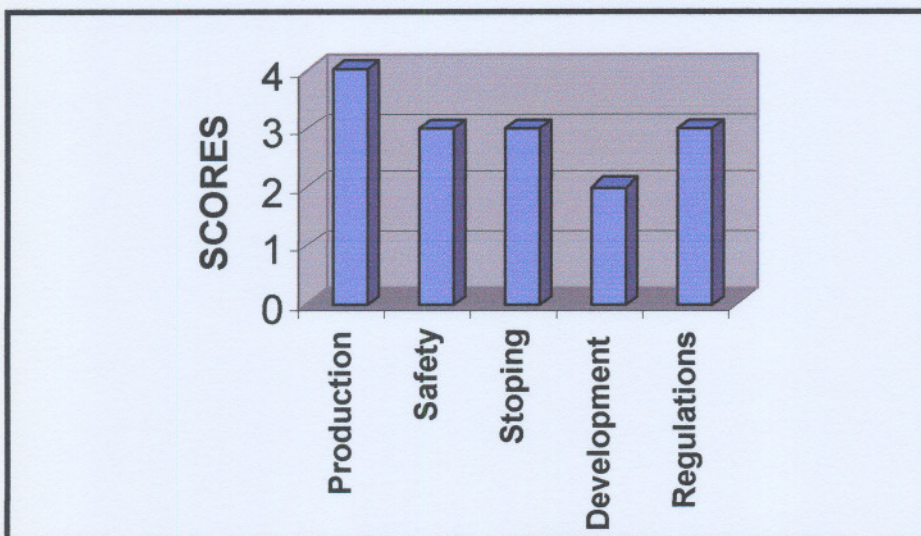
Figure 5.5 Performance of Teamleaders



*Legend: 1 Teamleaders with 9-12 months training experience
2 Teamleaders with 12-18 months training experience*

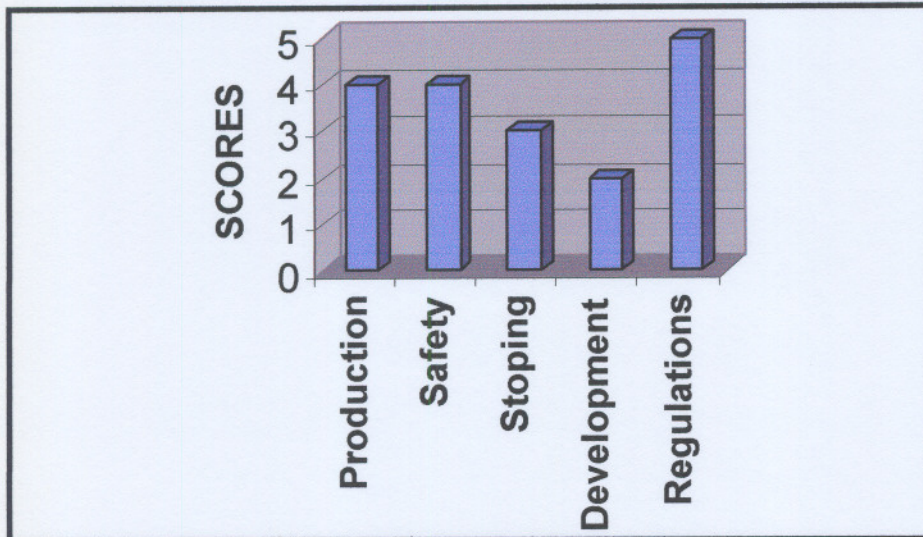
Teamleaders, who have been in the training process for a longer period (12-18 months), show an improvement in their production and safety knowledge. With the exception of stopping knowledge, the other technical components do not indicate remarkable discrepancies. These results support the findings of par. 5.3.3.2. where it was clear that safety and production were two aspects underlying the success of their daily tasks.

Figure 5.6 Performance of Team Members with 9-12 months training experience



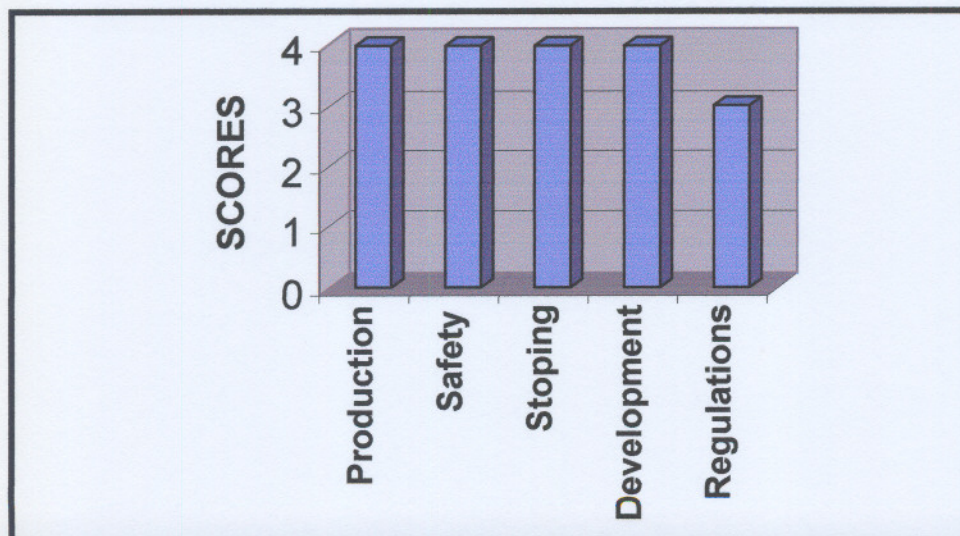
All Team Members from this sample have been subjected to training for a 9-12 month period. Production is the technical component, which reflects greater performance, whereas a score of 2 was obtained for development.

Figure 5.7 Performance of Winch Drivers with 9-12 months training experience



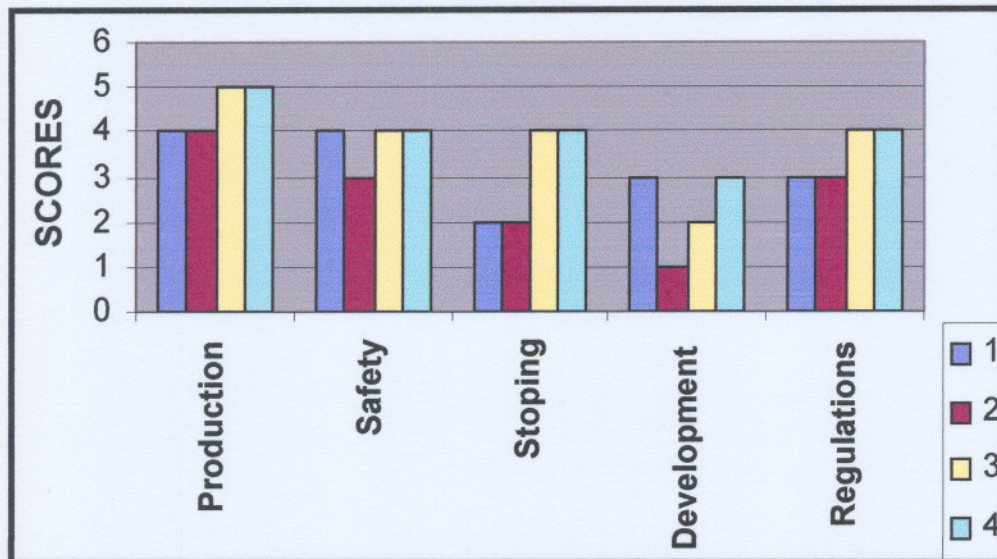
Winch Drivers, who had been in the training process for a period of 9-12 months, show an outstanding performance in their knowledge regarding regulations and a satisfactory performance in their knowledge regarding the first three components. An employee with this occupation needs a thorough knowledge of regulations to be able to perform well in his job. Knowledge regarding stopping and development would only play a supporting role in the performing of his daily task.

Figure 5.8 Performance of Ex-production workers with 9-12 months training experience



All the respondents performed well in the testing of their technical knowledge. These results might be due to the fact the Ex-production workers have had the advantage of many years of experience on the job.

Figure 5.9 Performance of workers with other occupations



*Legend: 1 Workers with 3-6 months training experience
 2 Workers with 6-9 months training experience
 3 Workers with 9-12 months training experience
 4 Workers with 12-18 months training experience*

The evaluation in the four categories indicated that the scores of workers with more than one year training experience were significantly higher than the scores of those workers with less than 12 months experience.

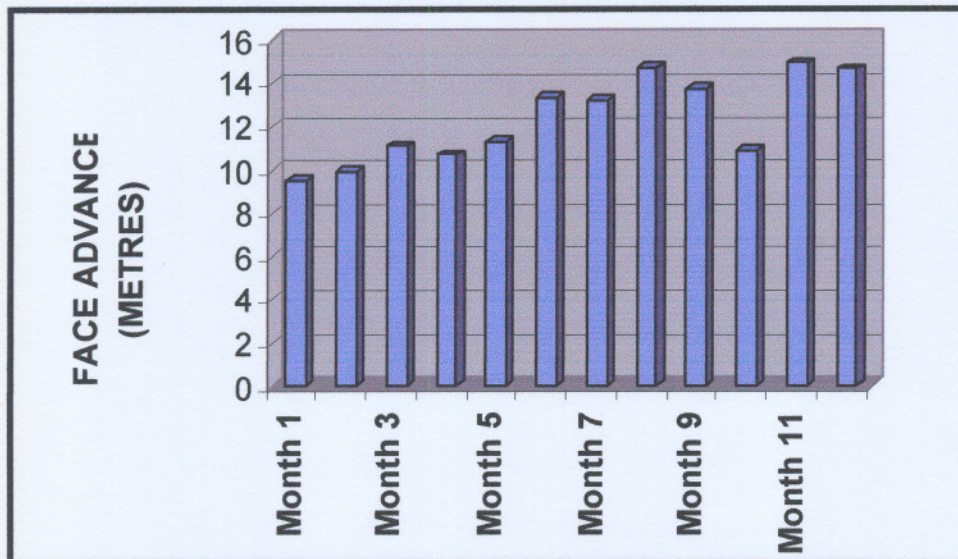
To conclude, it can be said that the relationship between technical knowledge and training experience, has the tendency, that the longer the training period, the better the knowledge of the worker.

5.4. Reporting on previous production results of the sample

The production results were measured over a 12-month period, as discussed in Chapter 4. An example of the production population can be found in Annexure C.

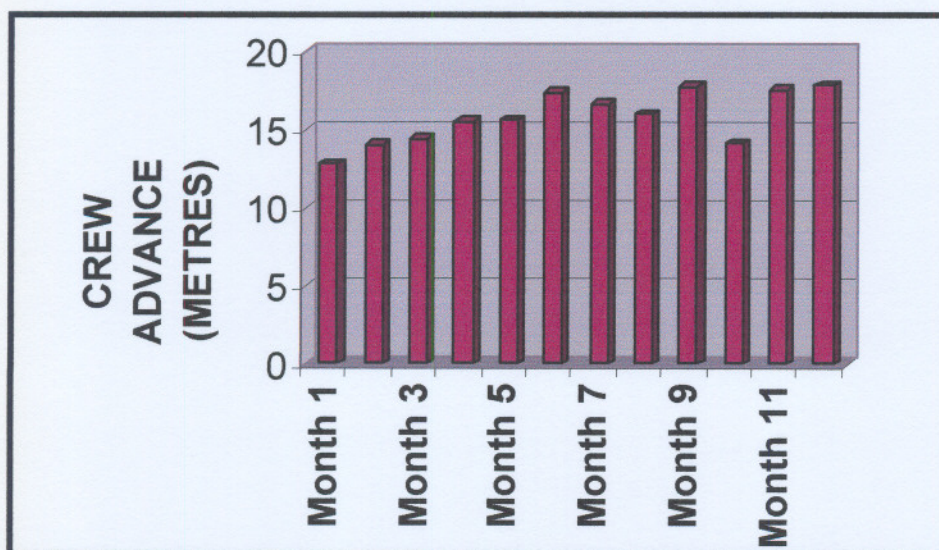
Figures 5.10, 5.11 and 5.12 show the production data, which was analysed. Figure 5.13 reveals the relationship between face advance, crew advance and square metres per man.

Figure 5.10 Face advance



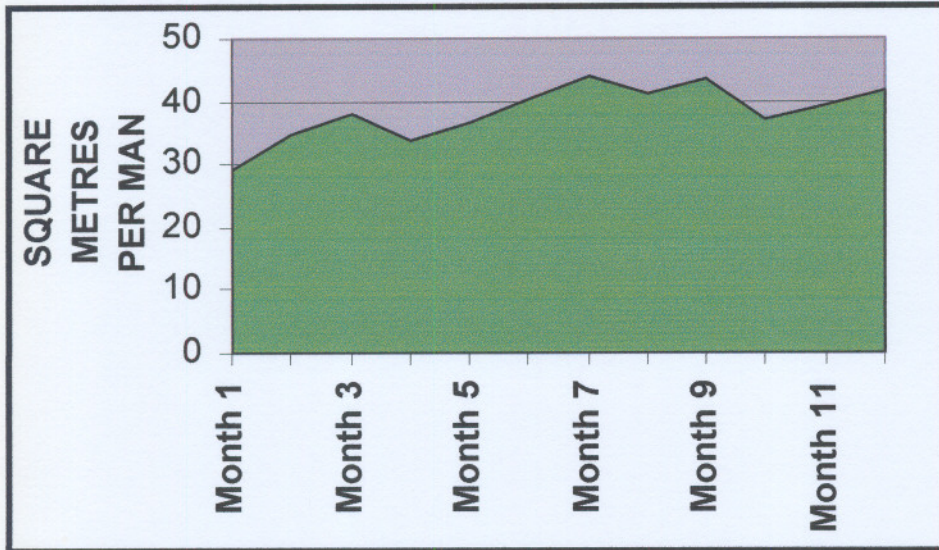
The results show an even progress in face advance over the period. It should, however, be mentioned that the slight drop in face advance (month 10), was during December. Due to public holidays and the fact that many of the workers take their annual leave during this period, production is obviously slightly affected.

Figure 5.11 Crew advance



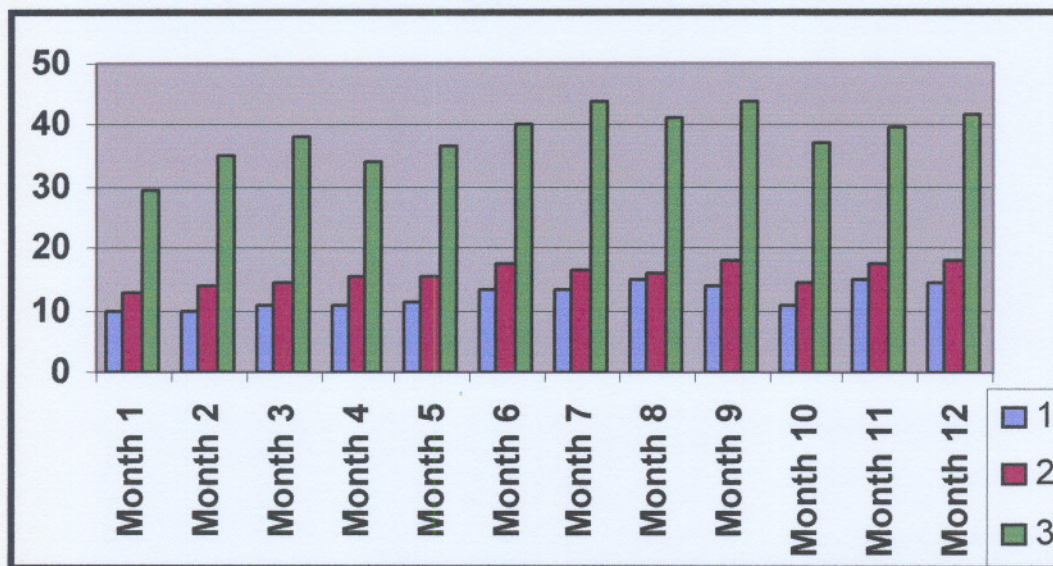
The conclusions regarding crew advance is the same as those for face advance. Again a slight drop in production was experienced during month 10 (December).

Figure 5.12 Square metres per man



Interpreting the above results with the definition of m^2/m at the foreground, an almost even level of production of the research group can be viewed. Stages where a descent in production per man is experienced (month 4 and month 10) are followed by immediate ascending levels of production, which indicate that corrective steps were taken each time.

Figure 5.13 Face advance, crew advance and square metres per man



- Legend: 1 Face advance*
2 Crew advance
3 Square metres per man

It is important to note that the unit for face advance and crew advance is metre, while the unit for measuring m^2/man is square metre. That explains the discrepancy of values as seen in Figure 5.13. It is still considered important to reflect the three quantities in this way, as the trend in production over the period of 12 months can be clearly seen. All three quantities display ascending and descending stages at the same time, a fact which reinforces the reliability of the data.

5.5. Discussions of findings

Chapter 5 served the purpose of empirically verifying certain aspects that are found in the theoretical orientation. The obtained results are presented in a set of tables and figures. The study attempted, as far as possible, to explain certain findings within the framework of theoretical expressions found in Chapter 2 and 3.

As previously stated, this research focussed on one research group at a specific Gold Mine in South Africa. Although the research findings were specific, the researcher interpreted the findings with the assistance of mining and training experts.

The biographical particulars were indicated and findings were discussed. Factors such as occupation and training experience were cross-correlated with certain other findings.

Much emphasis was placed on the aspect of motivation and a convincing majority of the respondents indicated that they regard motivation as important. Analysing the factors that serve as motivators in the working situation, money was singled out as the most important motivator by 90% of the respondents. This was further confirmed when 70% of the group identified money as a personal motivator. The two strongest demotivational factors indicated by the respondents were unfair treatment by supervisors and unachievable goals.

Training is a means to an end. The ultimate objective of any form of training is the development of the worker by means of improving his knowledge and skills. Findings from Section C of the questionnaire, provided results of the practical and technical knowledge, as well as management skills of the respondent. When the technical knowledge of the respondents was evaluated, a very high rating was obtained. The rating confirmed that

respondents' technical knowledge was above average. Results of technical knowledge were either average or above average. Production and safety as two of the technical components received distinctively high scores. Motivation and communication proved to be the strongest management skills present in the group, while discipline and leadership received average scores. It must be taken into consideration that any management activities practiced by respondents are done in a small group (10 –12 members), where the respondent takes the lead and manages the daily activities of the team. It can therefore be concluded that the respondents' management skills are well developed in general.

Technical knowledge as stated earlier, forms the basis of the worker's competence. Results on technical knowledge per occupation revealed that the knowledge of the respondents, who are Teamleaders, is distinctively higher than those respondents from other occupations. When the performance of the different occupations is viewed, it is clear that the longer the period of training, the better the results obtained.

The findings on previous production results showed an even progress in face advance, crew advance and square metres per man over a period of 12 months. The core of the findings is that there is a definite increase in productivity.

In conclusion, Slabbert (1991:8) highlights the importance of training and development with the following: "The right to training is a component of the full development of the human personality. Only through better training can spiritual and physical productivity improve in the workplace."

Chapter 6 deals with the concluding perspectives of this study.

CHAPTER 6

CONCLUDING PERSPECTIVES

6.1. Introduction

It is a truism to say that today's business manager operates in a rapidly changing world. Whether he is dealing mainly with people, investments, markets or equipment, he must be able to adapt to change. However, it is not sufficient just to respond to change. To be effective, he must actually anticipate changes and make plans to take them into account. One of these changes involves the ever-increasing need for the development of manpower. It should be the aim of the employer to contribute in some measure, to the successful management of the development of the employee through training.

6.2. A summarising view of the study

The essence of adult training is to develop human potential to its fullest extent and to create and transform skills and abilities so that they are accessible to be considered and utilised. The main responsibility for education and training of employees is taken by industry, with the focus on lifelong learning. The adult worker at Beatrix Mine is exposed to different training programmes, which are aimed at improving the skills of the worker and consequently lead to an improvement in productivity. Whether these programmes answer to what is expected of them served as motivation for this study and therefore it was attempted to determine:

- the improvement of practical skills of the worker in terms of production;
- to what degree there has been an improvement in the technical knowledge of the worker and
- the improvement in managerial skills of the worker who has been subjected to training.

The following conclusions regarding the objectives of the study can be made:

- workers subjected to training showed a definite improvement in practical skills
- technical knowledge of workers improved to a great extent and could clearly be linked to the occupation of the worker
- workers subjected to training also shown proof of improved managerial skills

The question that arouses is: does the mere fact that a worker is better equipped in terms of technical knowledge and practical skills, give him/her an advantage when it comes to the practice of managerial skills? This aspect could be addressed in a new, future study. It would also be a future prospect to investigate the role of the supervisor in the motivation of workers.

To answer the above-mentioned objectives, a literature study of motivation was undertaken in Chapter 2 and an in depth look at lifelong learning in Chapter 3. Descriptive empirical research was undertaken to obtain a greater understanding and clarity regarding certain aspects that were emphasised in the literature study.

Chapter 2 focussed on the nature of motivational theories. Certain terms and concepts, related to motivation were described and Maslow's Hierarchy of Needs, together with the content and process theories was addressed. Models of work motivation and forms of motivation were discussed in a theoretical orientation and emphasis was given to the role of the supervisor in motivation. Because the supervisors are the persons responsible for the overall training of employees, their training and elements regarding their training were also taken into consideration to give a complete view of the extent of training.

A training need must be identified before any programme can be implemented, but due to the nature of man's thirst for knowledge, one would therefore acknowledge the absolute necessity of constant training and development on an on-going basis. Training and development is an inter-dependent factor of adult basic education, which contributes towards increasing the ranks of skilled workers, which, in turn enhances the objective of people development. Chapter 3 focused on lifelong learning, the need thereof it and all the structures put in place to provide adult based education and training. A list of acronyms and abbreviations was provided and terminology related to this chapter was described. A conceptual foundation was laid by the discussion of adult based education and training in a South African context and the principles for ABET and training. A discussion of the legislation and structures such as the NQF, provided the complete background of the legislation and bodies responsible for the effective application of adult based education and training in South Africa. A brief view of the structural conditions of the 1980s provides insight into the transformation process that preceded the current conditions of reform and transformation.

Chapter 4 dealt with the research design and the background of the environment surrounding the study. An explicit layout was given of the type of research, measuring

instruments, the target group and procedure as well as the statistical analysis. Background of Beatrix Mine and of the surrounding environment served as information to the reader.

According to the empirical findings of Chapter 5, the subjects' performance in terms of management skills, and practical and technical knowledge could be determined. Attention was also given to motivation and factors that are viewed as motivators or demotivators.

It should be remembered that research was conducted at a gold mine and questionnaires and unstructured interviews were used to gather information. The researcher compiled a brief summary of mining terminology to assist the reader with the interpretation of the content. The research results were presented in a logical manner, firstly according to the different sections of the questionnaire and secondly according to certain relations that were drawn in order to establish the correlation between aspects. Some important findings are indicated as follows:

- a majority of the respondents indicated that they regard motivation as important;
- 90% of the respondents regarded money as the most important motivator;
- the two strongest demotivational factors indicated by the respondents were unfair treatment by supervisors and unachievable goals;
- evaluation of the respondents' practical knowledge resulted in a rating of 68% of the answers given by respondents, to be correct;
- results of the testing of technical knowledge were either average or above average;
- production and safety as two of the technical components received distinctively high scores;
- motivation and communication proved to be the strongest management skills of the subjects;
- results on technical knowledge per occupation revealed that the knowledge of respondents who are Teamleaders are distinctively high;
- when the production performance of the subjects is viewed over a 12 month period, an even progress can be detected.

6.3. Concluding perspectives

Changes in the workplace are creating many new training needs. The organisation addresses these needs by means of training programmes and thereby attempts to make production or service processes more efficient and profitable. The question that arises is,

however, whether the organisation succeeds in making the worker more skilled and productive through these training programmes.

Determining the effectiveness of a training programme can take many shapes and forms. It is, however, important to remember that the evaluation is tied to the goals of the programme. In the light of this study and its findings, one can come to the conclusion that the training was indeed effective and contributed to the development of the workers and their performance in the workplace.

It must be kept in mind that the effectiveness of any training programme and worker outcomes requires the combined efforts of all involved.

ANNEXURE A

ANNEXURE A

QUESTIONNAIRE

NO. (1-2)

The purpose of this evaluation is to help obtain information that will be used to determine the effectiveness of training done at this mine.

Please note that no names or other forms of identification are used and that all information will be treated with confidentiality.

Instruction to facilitator: Mark answers with a "X" where applicable.

SECTION A

DEMOGRAPHIC INFORMATION

1. Sex

	1	2	
Male		Female	(3)

2. Occupation

Teamleader	1	
Team Member	2	
Winch Driver	3	
Ex-production	4	
Equip Helpers	5	
Tip Helpers	6	
Storekeepers	7	
Other	8	(4)

3. Age

20 - 29 years	1	
30 - 39 years	2	
40 - 49 years	3	
more than 50 years	4	(5)

4. Training experience – how long have you been subjected to specialised training ?

Less than 3 months	1	
3 – 6 months	2	
6 – 9 months	3	
9 – 12 months	4	
12 – 18 months	5	(6)

SECTION B

MOTIVATION: Answers to be indicated with a "X" in the applicable block.

1. Do you think motivation is important?

Yes	1	No	2	(7)
-----	---	----	---	-----

2. Can you motivate others if you are not motivated yourself?

Yes	1	No	2	(8)
-----	---	----	---	-----

3. Indicate whether you see the following as **motivators** or **demotivators**:

	1	2	
	Moti- vator	Demoti- vator	
3.1. The supervisor takes credit for the ideas of others			(9)
3.2. Increase in monthly bonus			(10)
3.3. Targeting people rather than the problem			(11)
3.4. Unachievable goals			(12)
3.5. More responsibility			(13)
3.6. Fair punishment			(15)
3.7. To feel part of a successful team			(15)
3.8. Loss of privileges			(16)

4. Do you know how your monthly bonus is calculated?

Yes	1	No	2	(7)
-----	---	----	---	-----

5. What motivates you to do your work every day? _____

SECTION C

Answers to be evaluated (rated) and indicated with a "X" in the applicable block.

PRACTICAL KNOWLEDGE:

1. Briefly answer the following questions:

		4	3	2	1	
		100%	70-90%	50-70%	< 50%	
		Excellent	Good	Average	Bad	
1.1	What is face advance?					(18)
1.2	How do you measure daily face advance?					(19)
1.3	Indicate face advance on a 1:200 section plan.					(20)
1.4	What is crew advance?					(21)
1.5	Practically show what is a m ² .					(22)
1.6	What is sweepings?					(23)
1.7	What must be done after sweepings is measured?					(24)

TECHNICAL KNOWLEDGE:

2. PRODUCTION

(Only one answer is correct. Indicate the correct answer in the open block with a "X")

2.1. How regularly must sweepings be done?

1	once a month	
2	once a week	
3	on a daily basis	
4	must not be done	

(25)

2.2. Choose the correct formula for calculating m²

1	Area = length x breath	
2	Area = length of panel x advance	
3	Area = length x breath x height	

(26)

2.3. Choose the correct formula for calculating tons

1	Tons = length x breath	
2	Tons = length of panel x advancex stopping width x 2,7	
3	Tons = length x height	
4	Area = length x breath x height	

(27)

2.4. A panel miner gets paid for sweepings

1	True	
2	False	

(28)

2.5. Convert monthly call of 100m² into daily m² over 20 shifts.

1	5m ²	
2	20m ²	
3	10m ²	
4	15m ²	

(29)

3. SAFETY

(Only one answer is correct. Indicate the correct answer in the open block with a "X")

3.1. The first thing to do when you enter your working place is to

1	water down and make safe	
2	report to shift supervisor	
3	discuss daily planning	
4	conduct safety talk	

(30)

3.2. Injuries must be reported to ...

1	shift supervisor	
2	safety clerk	
3	unit manager	

(31)

3.3. What will you do if a worker complains that the place where he is working is unsafe?

1	withdraw the workers	
2	warn workers and carry on working	
3	report the matter at the end of the shift	
4	water down the workplace	

(32)

3.4. Where must safety belts NOT be used?

1	in shafts when doing repair work	
2	all places where you can slip and fall	
3	in cross-cuts and haulages	
4	life lines to be used when entering unknown depths of water	

(33)

4. STOPING

(Only one answer is correct. Indicate the correct answer in the open block with a "X")

4.1. What is the first stage of stoping called?

1	shaft sinking	
2	boxhole	
3	ledging	
4	haulage	

(34)

4.2. Who may examine and make safe a working place that has been blasted?

1	Teamleader	
2	Fitter	
3	Holder of a blasting certificate	

(35)

4.3. When can daily blast take place in a stope?

1	after charging up	
2	as many times as you think it is necessary	
3	once in 24 hours	
4	after cleaning	

(36)

4.4. Distance of water and air pipes from face

1	25m	
2	15m	
3	20m	
4	30m	

(37)

4.5. Distance of temporary support from face

1	1,5m	
2	1m	
3	2m	
4	3m	

(38)

5. DEVELOPMENT

(Only one answer is correct. Indicate the correct answer in the open block with a "X")

5.1. Distance of air pipes from face after blast

1	10m	
2	12m	
3	15m	
4	18m	

(39)

5.2. Distance of water pipe from face after blast

1	12m	
2	14m	
3	16m	
4	10m	

(40)

5.3. Distance of temporary rails from face after blast

1	3m	
2	8m	
3	9m	
4	12m	

(41)

5.4. What is the burning speed of a fuse?

1	99-121 metres per second	
2	50-80 metres per second	
3	120-200 seconds per metre	
4	99-121 seconds per metre	

(42)

5.5. How far from a misfire can you drill a development end?

1	not closer than 5m	
2	not closer than 10m	
3	not closer than 2m	
4	you are not allowed to drill	

(43)

6. REGULATIONS: Ventilation, Gases and Dust

(Only one answer is correct. Indicate the correct answer in the open block with a "X")

6.1. The formula for calculating the velocity of ventilation is:

1	Velocity = $\frac{Distance}{Time}$	
2	Velocity = area x height	
3	Velocity = area x quantity	
4	Velocity = $\frac{Time}{Distance}$	

(44)

6.2. The specific ventilation requirement for stoping is a minimum average velocity of 0,25 m/s over the full stoping height.

1	True	
2	False	

(45)

6.3. The dust count allowable by Law is – Gravimetric Sampler: max of 5mg/1m³ of air.

1	True	
2	False	

(46)

6.4. Which of the following is NOT a flammable gas?

1	Methane	
2	Hydrogen Sulphide	
3	Nitrous fumes	
4	Hydrogen	

(47)

6.5. Which gas is the most poisonous of all?

1	Methane	
2	Hydrogen	
3	Carbon Monoxide	
4	Carbon Dioxide	

(48)

SECTION D
MANAGEMENT SKILLS (Write down the answers in the spaces provided)

1. Give 2 methods that can be used to motivate your team.

2. Explain how you would treat a team member who is always late for work.

3. What are the characteristics of a good leader/ supervisor?

4. Do you think that communication is important? Why?

5. Translate the following sentences into English:

a. Manghaki lo muntu yena jopa na wena?

--

b. Manghaki lo njaka wena jopa lapa ko lo mine?

--

6. Do you think discipline is important? Why?

End of Questionnaire
Thank you for your co-operation.

ANNEXURE B

ANNEXURE B

PRODUCTION RESULTS – BEATRIX MINE

UNIT PERFORMANCE 1998

UNIT 15

	C/ADV	SWP	M²/M	SLPMMHW
Jan-98	15.1	72.4	32.6	457.2
Feb-98	15.4	59	35.9	337.5
Mar-98	15.7	109	34.8	0
Apr-98	13.8	67.4	31.3	194.46
May-98	15.5	78.9	33	427.81
Jun-98	16.2	75	38.6	44.88
Jul-98	16.7	82.3	39.8	447.79
Aug-98	16	88	40.5	351.19
Sep-98	17.1	91.6	42.9	902.57
Oct-98	15.8	93.2	40.3	316.21
Nov-98	17	98.2	41.92	35
Dec-98	15.7	78	34.4	104.7
AVE	15.83	82.7	37.42	310.6

UNIT 16

	C/ADV	SWP	M²/M	SLPMMHW
Jan-98	13.5	65	29.4	411.14
Feb-98	15.8	56	35.8	323.94
Mar-98	14.2	85.8	34.5	318.45
Apr-98	15.3	46	36.3	884.89
May-98	14.8	97	33.6	935.62
Jun-98	17	74.6	40.6	423.79
Jul-98	21.2	62.4	38.2	283.35
Aug-98	16.2	77.1	38.5	182.9
Sep-98	13.8	71.8	35.1	24.72
Oct-98	16	80.7	34.5	95.36
Nov-98	17.5	83.2	40.26	153.9
Dec-98	16.7	88.1	40.1	624.95
AVE	16	74	36.41	388.58

UNIT 17

	C/ADV	SWP	M²/M	SLPMMHW
Jan-98	15	71.9	23.4	1245.33
Feb-98	15	74	26.6	1251.76
Mar-98	15.2	69.9	26.8	1423.71
Apr-98	12.7	86.6	20.7	939.15
May-98	8.9	59	13.1	893.32
Jun-98	15.9	61.7	23	1028.7
Jul-98	18.6	85	29.8	1018.32
Aug-98	14.9	79	30.7	1061.3
Sep-98	14.9	69.4	29.9	580.6
Oct-98	14.7	68.4	25.5	508.85
Nov-98	11.5	67.7	21.67	513.97
Dec-98	16.2	67.8	21.7	258.5
AVE	14.45	71.7	24.4	893.62

UNIT 19

	C/ADV	SWP	M²/M	SLPMMHW
Nov-98	11.6	66.3	29.86	39.98
Dec-98	12	45.4	35.2	729.68
AVE	11.8	55.9	32.53	384.83

UNIT 20

	C/ADV	SWP	M²/M	SLPMMHW
Jan-98	14.8	94.8	33.9	403.66
Feb-98	15.1	89	41.9	921.15
Mar-98	15.5	80.6	40.9	533.59
Apr-98	15.2	79.3	37.7	333.47
May-98	18.1	63.1	42.1	0
Jun-98	15	48.3	44.3	552.7
Jul-98	18.2	87.7	47.9	689.43
Aug-98	17.4	91.4	45.7	503.74
Sep-98	15.9	106	46.4	531.74
Oct-98	11.9	77.5	38.8	702.5
Nov-98	12	67.9	38.51	538.64
Dec-98	13.7	62.4	39.7	1020.95
AVE	15.23	79	41.48	560.96

UNIT 21

	C/ADV	SWP	M²/M	SLPMMHW
Jan-98	13.3	99.7	35.3	131.05
Feb-98	16.6	90.9	44.2	0
Mar-98	16.4	79.6	43.6	0
Apr-98	15.4	99.6	42	18.23
May-98	13.9	80.1	39.1	256.4
Jun-98	15.4	77.3	42.3	153.5
Jul-98	14.7	98.6	44.9	201.54
Aug-98	16.2	119	46.1	0
Sep-98	16.4	73.6	47.8	0
Oct-98	16.4	101	47.6	0
Nov-98	15.7	94.6	45.43	0
Dec-98	15.7	91.5	44.4	0
AVE	15.5	92.2	43.56	63.39

UNIT 23

	C/ADV	SWP	M²/M	SLPMMHW
Jan-98	11.4	47.9	26.3	0
Feb-98	19.7	71.4	46.3	0
Mar-98	18.3	88.6	43.8	428.74
Apr-98	14.3	68.9	37	393.61
May-98	15.5	67.5	43.8	22.76
Jun-98	15.7	74	42.3	0
Jul-98	17.1	70.6	43.9	0
Aug-98	15.8	42.4	40.5	137.71
Sep-98	16.7	80.1	43.3	688.7
Oct-98	12.5	83.3	30.5	1022.41
Nov-98	15.8	74.6	41.7	669.67
Dec-98	15.4	85.3	35.3	526.28
AVE	15.7	71.2	39.95	324.15

UNIT 25

	C/ADV	SWP	M²/M	SLPMMHW
Jan-98	13.1	113	33.9	726.32
Feb-98	15	89.8	35.6	1124.67
Mar-98	15.5	93.2	39.3	786.43
Apr-98	14.6	57.6	35.7	417.13
May-98	15.1	45.5	38.3	716.04
Jun-98	13.7	146	37.8	794.55
Jul-98	15.2	69.5	42.1	524.14
Aug-98	15.5	91.6	42.3	251.88
Sep-98	13.9	122	40	519.7
Oct-98	14	93.3	38	508.24
Nov-98	16.4	103	41.01	94.15
Dec-98	14	52.9	38.4	115.25
AVE	14.66	89.8	38.54	548.2

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