UNIVERSITY OF KWAZULU-NATAL

INVESTIGATION INTO TRAINING STRATEGY FOR GRADUATE ENGINEERS IN THE CAPITAL EXPANSION DEPARTMENT OF ESKOM ENTERPRISES DIVISION

By

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DECLARATION

I, Sabelo Emmanuel Sithole declare that

(i) The research reported in this dissertation, except where otherwise indicated, is my original research.

(ii) This dissertation has not been submitted for any degree or examination at any other university.

(iii) This dissertation does not contain other persons' data, pictures, graphs or other information, unless specifically acknowledged as being sourced from other persons.

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ABSTRACT

Chapter 1 will cover the general background on training outside and inside Eskom. It will scrutinise the existing training programme taking into account the factors that inform this training. An assessment will also be made of the training strategy that the CED is already using.

Chapter 2 will present an in-depth literature review that will serve as a guide in scrutinising training and development of the organisation and the staff. The literature in question covers coaching, mentoring, staff development, communication as a factor of training, induction, orientation, skills sharing, training evaluation, training objectives, job rotation, and skills knowledge. This literature will allow me to compare training in Eskom with that which is suggested from the literature review. This will be done in order to recommend solutions for training strategy problems in the CED. Studies touching on training have been undertaken in the past and this dissertation will also make use of them as references.

Chapter 3 describes the research methodology used and the method of data collection. The three groups of staff that have been used to obtain data in the CED Camden Power Station, namely, discipline engineering managers, senior engineers and graduates in training, are also discussed.

Chapter 4 presents the data analysis. All the data obtained from questionnaires and literature is analysed here. The analysis makes use of pie charts to analyse the data obtained from the respondents.

Chapter 5 covers recommendations and conclusions. Recommendations are made based on responses to the research questionnaires. Research questionnaires that were used to obtain data are in the appendices.

ABBREVIATIONS

CED	Capital Expansion Department, the new department that is responsible for new power stations and substations and for the refurbishment of old power stations.
CEO	Chief Executive Officer (of Eskom).
ECSA	Engineering Council of South Africa, a professional institution that engineers should register with in order to become professional engineers.
EPRI	Electric Power Research Institute.
Eskom	An electricity supply company in South Africa (Electricity Supply Commission).
etc	et cetera.
GIT	Graduates in Training are trainees who graduated from the University and who are doing training in the organisation.
G14	Senior Advisor, lower scale (not registered as a Professional Engineer with the Engineering Council of South Africa).
G16	Senior Advisor, upper scale (not registered as a Professional Engineer with the Engineering Council of South Africa).
M14	Departmental managers (lower scale)
M16	Departmental manager (upper scale)
M17	Senior engineering manager (lower scale)

M18	Senior engineering manager (upper scale)
P13	Graduate engineers already appointed and registered with the Engineering Council of South Africa as Professional engineers.
P14	Senior engineers, lower scale (registered as a Professional Engineers with the Engineering Council of South Africa).
P16	Senior engineers, upper scale (registered as Professional Engineers with the Engineering Council of South Africa).
T10	Graduate engineers in training.
T13	Graduate engineers already appointed but not registered with the Engineering Council of South Africa as Professional engineers.

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CHAPTER 1

OVERVIEW OF ESKOM AND GENERAL BACKGROUND

1.1 Introduction

This dissertation investigates the effectiveness of the strategies and processes that Eskom uses to train and develop its graduate engineering personnel at the Camden Power Station. It is intended as a case study. Eskom is experiencing specific challenges which are discussed later, making the quality and performance of graduate engineers even more critical.

Training of graduate engineers will help Eskom equip them for the forth coming projects as electricity demand increases and there is a need to strengthen existing networks.

Eskom supplies well over ninety percent (90%) of the electricity consumed in South Africa (Cilliers, 1999:1). It is also South Africa's largest utility and accounts for more than half of the electricity generated on the entire African continent. Its twenty five (25) power stations are mainly coal-fired. The Camden Power Station is one of the coal-fired power stations which Eskom brought back into operation to increase capacity after it had been mothballed twenty (20) years ago.

1.2 Statement of the Problem

The quality of training of Graduate Engineers at the Camden Power Station is of concern. Graduates in Training (GIT's) have been recruited straight from universities without any industrial or organisational experience and are expected to do engineering designs and to write and present reports. This has led Camden into problems of running the plant with load losses that have been evident with the units already on load like units 4, 5, 6, 7 and 8. This brings into focus the need for the organisation to review the procedures and processes that are used to train graduates.

Improved quality of training of graduate engineers will assist Eskom eventually to bring all the mothballed power stations back into service, as skilled engineers are required to do a job of this nature.

1.3 Analysis of the Problem

Graduates in training are involved in projects and there seems to be a problem with their structured training programme. Engineers would like to have training in place in order to feel comfortable in their jobs. This also increases skills retention, a claim that will be substantiated in the literature review. The Engineering Council of South Africa, the body with which all engineers must be registered, requires structured training for engineers and all relevant engineering personnel. It also provides the guidelines as to who, why and when to register with it. Some engineers are not registered as candidate engineers, as per the requirements, when they start working as engineering practitioners. The focus is on engineers as there are a number being recruited every year and this is the group of people who are technical and hands-on. Special attention to engineers in different disciplines is required i.e. Electrical, Mechanical and Control & Instrumentation as these departments work together so that the purpose of the plant can be met.

Induction is also part of training. An employee needs to be taken through the organisation to develop an organisational understanding in order for him/her to develop a positive attitude. Poor induction has a great effect on employee motivation, production and eagerness to learn more. All trainees in the Capital Expansion Department get inducted before they start doing training or actual work. Especially in project work, induction plays an important role.

South Africa will be hosting the 2010 soccer world cup and Eskom is trying its best to meet the electricity demand before then. According to the *Chief Executive's report (2006),* "the government wanted to meet six percent (6%) per annum as an increase in capacity. This would mean that the capacity should be increased by two thousand megawatt (2 000 MW) per year and this should happen for the coming twenty (20) years". The Chief Executive of Eskom (2006) further indicated that there is an urgent need for a capital expansion programme and hence the Capital Expansion Department. The Chief Executive of Eskom (2006) says that "the increasing financial growth for the past ten (10) years led Eskom to the

shortage of electricity. Up to this time, the lowest reserve margin at peak has been 7,9%, emphasising the necessity of the capital expansion programme. Skilled and well-trained engineers are required to increase this capacity."(Eskom Annual Report 2006:1-4).

According to the *Major Incident Investigation Executive Report*, (Rodseth, Nicholls and Mthombeni, 2005), not having qualified and skilled personnel was found to be a part of the failure at the Koeberg Power Station in Cape Town. Therefore, qualified and skilled people with engineering qualifications are a priority for Eskom's recruitment. In the past ten years, there had not been capital expansion projects. Ten years ago, Eskom built the last power station, known as Majuba, situated between Volkrust and Ermelo. Since then there have not been any refurbishment projects of power stations in Eskom, and it will become a challenge to determine the strategy for training of engineers for handling such complicated projects. This has led to the problem of not having skilled engineers in building power plants and refurbishing power plants since most engineering personnel who worked on the Majuba project are now retired. Finding engineers with specialised experience, skills and knowledge for projects is problematic. Eskom supports training although the training programmes may not be effective for the CED as they are developed for generation plants that are already running.

The Camden Power Station's scope of work keeps on being changed by engineers and this has cost implications. For example, by June 2008, the Camden plant should have been in full operation but to date, there are plants that still need to be modified. A new coal plant needs to be built although it was not part of the original scope of work. In addition, the ash plant requires variable-speed drives, but it was concluded that fixed-speed motors would be used. This was part of the original user requirement specification but it was decided afterwards that fixed-speed drives were required.

It has also not been easy to get well-trained and experienced engineers. Since this is the case and there are many people graduating from different universities, the target of this dissertation is on determining how adequately to equip the newly graduated engineers for service in Eskom.

Cilliers (1999:2), in discussing the problem situation at Eskom, identifies the key areas as follows:

National and organisational alignment

- Legislation requires certain processes to be used and implemented; current processes are not aligned with the national and legal requirements.
- Learning is neither co-ordinated nor effective in meeting current industry needs in the light of the changes in and demands of industry and legal bodies.
- The problem should be addressed within the context of the requirements of industry and education.

Learner Development

- Learning does not complement or fulfil the current needs of learners in that it is not outcome-based and no recognition is received for prior learning.

Learning Process and Systems

- Learning is fragmented and is not integrated with other systems.
- There are no methods of assessment leading to a declaration of competency and no formal link exists between remuneration and skills demonstrated and applied in the workplace.

Learning Interventions

- Organisational development processes do not support a culture of lifelong learning.
- The framework in which the current training and development is functioning is discipline-oriented, functional, hierarchical, silo-effect-driven and not effective. It does not focus on the other support functions within human resources environment.

Ngwenya (2002) claims that Eskom is involved in many training and development programmes and a variety of projects demonstrated beyond any doubt that it should be considered as one of the organisations investing time and means to ensure competitive performance through the application of world-class technology.

1.4 Purpose of the Study

The primary objective of this dissertation is to evaluate existing training programmes for the CED and to assess their impact on performance at the Camden Power Station. This dissertation will also serve as a guideline as to how the Camden Power Station could improve on their employees' development. Proposals regarding the training and development that is needed for the young graduate engineers will be put forward. This dissertation is also being supported by Eskom for implementation in the CED.

Grobler *et al* (2004) supports the view that "training will also satisfy personal growth needs, solve organisational problems, orientate new employees and improve employees' performance." Training plays a role in developing an organisation and its staff. Retention of skilled engineers also results because of training.

According to Craig (1976:2-4), the two overriding questions that should emerge in evaluating training processes are:

- What training and education exists now and why does it exist?
- What should exist in the Short-term and in the Long-term?

The above two questions will help a trainer to be able to formulate guidelines as to who to train and when to train them. These two questions will also familiarise an engineer or engineering managers with the new technologies that emerge.

1.5 Significance of the Study

The importance of the study is to see to it that Eskom's CED has a way of enhancing the development of the young engineers through training to increase the range of skills available to business and to enable them to start, to run and to expand a business.

According to Thebe (1992:2), "an organisation exists within changing circumstances and thus continuously adapts itself in order to maintain and improve its alignment with its

environment". Continuous improvement is essential to keep employees and organisation as a whole aware of the changing world in terms of technologies.

1.6 Limitation of the Study

The limitations of the study are:

- The study focuses only on the Camden Project and the CED engineering personnel. It does not include other power stations but this may be used as a case study and reference.
- This study also focuses on engineering practitioners and not the other departments like Finance, Human Resources, etc. This is done because the same problems have not been encountered in these other departments.

1.7 Research Questions

This dissertation will answer the research questions that follow:

1. How effective is the current training strategy for new Graduate Engineers in Eskom's Capital Expansion Department and specifically at the Camden Power Station?
2. What are the critical success factors for the current training strategy?
3. In which of these critical points in the strategy is there a need for improvement?

1.8 General Background

1.8.1 Overview of the Capital Expansion Department

Ngwenya (2002) says that Eskom as a business basically has two main distinct focus areas best known as the Regulated and Non-regulated Businesses. Each of these entities has its own management board. The Regulated Business operates as a monopoly and is governed by an Act of Parliament, the Electricity Act of 1987.

The Capital Expansion Department of Eskom Enterprises Division is part of Eskom Holdings regulated businesses whose main role is to refurbish or upgrade existing power stations, to return to service old mothballed power stations and substations and to build new

power plants and substations. This division comprises two subdivisions i.e. engineering departments and project departments. The three power stations that were mothballed and that are now being refurbished, are, Camden, Grootvlei and Komati.

1.8.2 Eskom's Vision

Eskom contributes to its vision *together building the powerbase for sustainable growth and development* through its core business focus on electricity generation, transmission, and distribution. It establishes the values of excellence, innovation, integrity, satisfaction of the customer across all businesses operations (Chief Executive of Eskom, 2006).

1.8.3 Strategic Objectives

Eskom's four strategic objectives and keys are as follows (Chief Executive of Eskom, 2006):

(a) Maintaining quality and stability of supply;

(b) Expanding capacity;

(c) Supporting or financing resources; and

(d) Influencing organisation's processes for building up of benefits.

1.8.4 Eskom Enterprises Division's Values

According to the Chief Executive (2006), Eskom Holdings values will be reflected as Enterprises Division values. This would ensure complete alignment of the culture of the Enterprises Division to that of Eskom Holdings. Eskom Enterprise values are as follows:

- Excellence
- Innovation
- Customer Satisfaction
- Integrity

The values of Eskom have to be fulfilled by ensuring training.

The division of Eskom Enterprises, the CED, focuses on skills development in order to equip employees for forthcoming projects. For the organisation at large to perform, satisfactorily,

excellence, innovation, customer satisfaction and integrity are critical points to be taken into account.

A non-predictive increase in engineering positions is expected as Eskom's CED concentrates on its capital expansion programme. This programme has already started and will continue until 2024. Vital to the achievement of Eskom as an organisation is capability to attract and retain engineering personnel with the necessary knowledge and practice. A combination of internal development, internal promotions and bursaries, together with external recruitment into a culture of excellence, will, it is hoped, support the attraction and retention of trained and knowledgeable candidates for employment.

1.8.5 Training and Recruitment in Eskom

The Chief Executive of Eskom (2006) indicated that Eskom needs engineers more than ever from tertiary institutions. The intended numbers of bursars holders and trainees for 2006 was 4 000 but this was exceeded by 1 136 confirming that Eskom is responding actively to its expertise needs. Since new graduates are being appointed, training and development for these graduates needs to be in place.

Table 1.1: Proposed added core, important and limited talents requirements (Chief Executive of Eskom, 2006)

	2008	2009	2010	2011	2012
Engineering Skills required (number)	1 431	1 240	1 111	1 042	1 369

Eskom training and Learnerships (Year)	2007	2006
Total training costs (Million Rands)	747.7	542.6
Bursaries and scholarships (Number)	1 722	872
Learnerships (Number)	1 738	757
Graduates and learners-in-training (Number)	1 676	534
Total Learnerships (Number)	5 136	2 163

1.8.6 Learning at Eskom

Eskom's learning strategy is meant to advance graduates to perform best in their existing position, by developing pipeline channels for knowledge or talent needs and by generating career openings (Chief Executive of Eskom, 2006). This also involves acquiring new knowledge since this goes with the technology improvement and adjustment to the environment. This will help Eskom to increase capacity as planned. The learning strategy will also ensure that engineering personnel are equipped with knowledge on how to deal with projects. Areas of focus such as development of engineers, finance staff, and managers are designed to encourage the business to operate at an optimum level. An employee should have an individual development plan (IDP) that gets updated every year by the employees and approved by line management.

Craig (1976) states that: “regardless of regular lip service, there is nevertheless a primary reality to the clichés that follows: there is no industry that can stay alive if workforce is not experienced or knowledgeable. Consequently advancement of workforce should be an ongoing or constant progression in an organisation. Organisations or industries should address training and development of employees at all times.”

1.9 Development of Graduate Engineers in Training

Cilliers (1999:157) found that:

> “a need emerged in industry to develop and implement a training and development delivery system that would provide learners with an opportunity for outcome-based skills development. There is a need for a holistic development process to integrate the current training and development interventions in industry, as well as the related human resources practices that serve as a support mechanism for the system.”

He further argues that national alignment sets out the legal requirements the organisation should address and with which it should align itself. As a business it should fulfil the minimum requirements for competency development, assessment, declaration of competency and management of results. However, the advancement of outcome-based training and development should occur within a training and development process to ensure the integration of the organisational development process (Cilliers, 1999).

Willem (1999) argues that the alignment of the training process with national and legal requirements is founded on an outcome-based approach. Willem (1999) further says that this addresses the integration and alignment at national level to comply with the legislative requirements. Some of the legislation and policies will be thoroughly dealt with in chapter two and will show where Eskom stands with regard to the aligning of itself with the legislation stipulated by the government.

1.10 Layout of the Chapters

This dissertation is broken down into five sections:

Chapter 1

This chapter gives an overview of the training needs and statistics in the Capital Expansion Department of Eskom Enterprises Division. It also gives an overview of the objectives of the research, limitations, significance, importance and data analysis of the study.

Chapter 2

This chapter entails the review of literature on organisation development, training and systems thinking. Theory around training, organisation development and systems thinking and links between them will be covered here. Different elements of training i.e. mentoring, coaching, and continuous development are explored.

Chapter 3

Discussion of research methodology that is utilised in this dissertation is presented in this chapter. Data collection is also covered in this chapter. A brief discussion of strengths and limitations of the research methodology used will also be covered in this chapter.

Chapter 4

Analysis of the data is undertaken in this chapter together with the evaluation of the results. The method used to analyse the outcomes will also be outlined in this chapter.

Chapter 5

This chapter covers the conclusion and recommendations of the research. References, appendices and a list of tables will follow thereafter.

CHAPTER 2

LITERATURE REVIEW

2.1 Introduction

This study is investigating training strategy for graduate engineers in the Capital Expansion Department of Eskom Enterprises. The objective of a literature survey is to explore the theory that is relevant to this study. The key concepts to be covered in the literature review include training and organisation development. In exploring training, the theory behind learning designs, training strategies, training policies and training processes will be covered. Emphasis will be placed on the elements of training models as developed by Cilliers (1999). The literature review will begin by looking at some of the theory behind organisation development (OD). OD is defined as the intentional processes of developing an organisation in order to achieve its purpose and objectives (Hicks, 2000). The main purpose of training graduate engineers in Eskom is for personal continuing development as well as to enhance performance and therefore enable the organisation to achieve its objectives (Eskom, 2001). It is therefore important to explore the theory on organisation development. It is beyond the scope of this study to do an in-depth analysis of many of the organisation development theories. Since many of the OD theories are informed by systems thinking (Cummings, 1980 as cited by De Jong, 1996) a brief discussion on systems thinking will also be included.

2.2 Organisation Development

The experience of many organisations is that training seldom produces the required results of enabling individuals to perform more effectively (Burke, 1972:30). The problem is normally that individual training is not usually linked to the work situation in the organisation. The trainees are therefore unable to implement what they have learnt back in the organisation. Burke (1972:31) argues that training must be viewed from the organisational development perspective. Organisation development is defined as the intended progression of developing an organisation to be efficient in achieving its required objectives (Hicks, 2000:65). Training as an OD strategy can be a very effective method of change of the organisation and improvement if it is planned to meet real organisational needs and also if it is supported by complementary organisational processes (Burke, 1972:31-32). Hicks (2000:65) further say that “since organisation development is a learning based progression, it relies a lot on training to improve the organisation’s consciousness and information necessary for

successful transformation procedure." It is clear that the true concept of OD and training are interlinked and effective organisations need both. The goal for the organisation is to produce training that results in significant change (Wilson, *et al* 1968) but organisational change is also needed to support training initiatives.

Organisation development adopts a diagnostic approach which aims to understand the organisational needs before prescribing an intervention. Burke as cited by Hicks (2000:65) indicates that organisation development: reacts to necessity for change; involves the customer in the development and execution of the change; and leads to changes in the organisation's customs or systems. OD has been largely influenced by systems thinking and therefore it is important to briefly discuss the relevance of systems thinking to OD.

Systems thinking looks at the performance of system holistically (Business View, 2009). Systems thinking can be contrasted with mechanistic thinking which explains the behaviour of a system by breaking it down to its smallest parts (Flood & Jackson as cited by Njenga (2008:17). Flood & Jackson as cited by Njenga (2008:17) argue that "in systems thinking, the whole is greater than the sum of its parts". The key principles in both OD and systems thinking include interdependency, interconnectedness, dynamic interaction and complexity and the relationships between the parts can be more important than the nature of the parts themselves (Cummings as cited by De Jong & Terry, 1996; Jackson, 2000:1).

This study in exploring training of graduate engineers in CED uses the systemic approach which looks at training as only one component within the bigger system. Training is therefore seen as being closely related to other OD practices, namely, coaching, knowledge retention, knowledge transfer, workplace orientation, job rotation, and mentoring. The interdependence nature of these practices and the overall effect on the performance of the graduate engineers is central to this study.

The section proceeds to discuss the specific elements within training.

2.3 Training

2.3.1 Training Definition

According to Craig (1976:3-1 to 3-19), "training is an interaction which results in the enhancement of an individual's ability to perform a job or advancement. Training can also be defined as an interaction between two or more people which equips an employee with necessary tools to carry out a certain job. Part of this may include formal or informal interaction, teaching, mentoring, coaching or discussion"

Furthermore, training can also be described as a designed knowledge structure aimed at attitudinal and behavioural transformation by providing employees with required information and talents in order to increase possible performance and to increase or maximise efficiency of the organisation (Cilliers, 1999).

Training symbolizes a real dedication to a staff member's specialized improvement. Training also provides practical adjustments to procedures of the organisation and lays down what is expected for a reliable criterion for quality care. Consequently, effectual development changes employees' behaviour and approaches to advanced training (Schubert, 2007).

2.3.2 Elements of Training models

Sadler as cited by Cilliers (1996:116-117) gives five elements essential to training in the workplace. These elements of training will be discussed in detail as the focal point of this dissertation is training in the workplace. The five elements are:

- Determining the organisation's training needs, and designing training interventions for the problems.
- Assessing the learning and the learners' attitudes towards the training interventions.
- Assessing the transferability of the training to the work situation.
- Evaluating on-the-job training.
- Institutionalising positive results and outcomes and unlearning techniques with negative consequences.

2.3.2.1 Determining the organisation's training needs, designing training interventions for the problems

Literature shows that determining training needs and training intervention designs should be the starting phase in a training activity (Ngwenya, 2002; Cilliers, 1999). This is a collective attempt amongst the trainers and the line management functions to bring together, identify and examine pertinent data about the organisation (Casner-Lotto as cited by Cilliers 1999: 118). Determining training needs is vital because it determines whether training is important for that particular organisation or not. Training needs also covers the areas of concern and this should be done as a collective effort between trainees, senior staff and line management.

Milne (2007) while describing models of staff development uses seven steps for the designing of the training intervention as depicted in the diagram that follows:

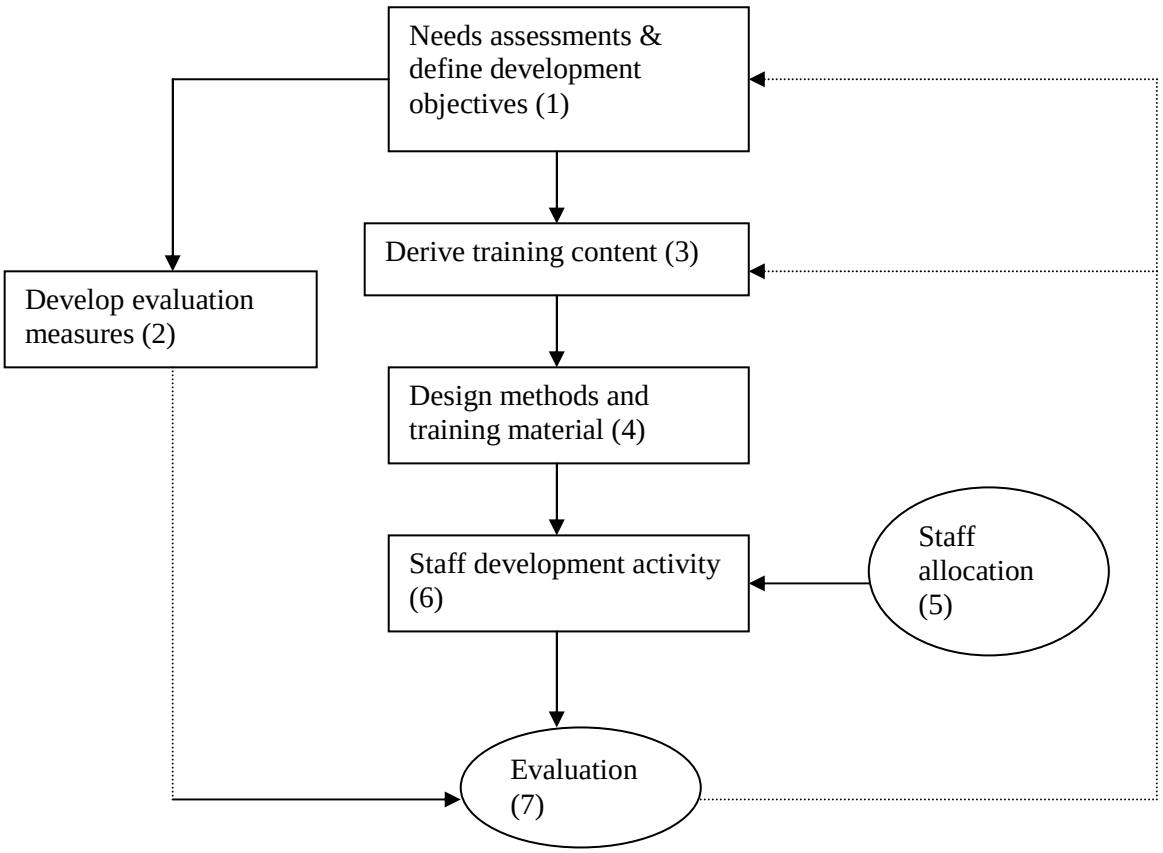


Figure 2.1: Steps for the designing of the training intervention

The design of learning intervention must include all the processes that happen prior to, during and after the training event. According to Zenger *et al* (n.d.), these processes are categorised as:

Phase 1: involves duties that occur before a trainee attends a training session. This involves articles and books to be read, questionnaires to be completed, or data to be collected.

Phase 2: explains the training occasion itself. This training may involve participants meeting in the same room or participants corresponding with one another or some other forms of distance training.

Phase 3: starts after the training occasion. This involves the successive activities that are designed to reinforce the purpose of the training.
Zenger, *et al* (n.d) further state that an effective phase 3 progression presents a huge advantage to an organisation since it improves the level to which any training is converted into practice. Furthermore, phase 3 process influences the investment made in phase 2 learning or training occasions. Effective phase 3 efforts are characterised by:

- Any required new behaviours;
- Participants promoting, public assurance by finishing a duty within a particular period;
- Participants become aware that they will constantly be held accountable;
- Participants being frequently reminded to draw up a map for the following stage of execution.
- Obstructions being predicted, and measures being put in place to address these, contingencies put in place to avoid lapsing or having individuals' efforts steadily weakened.
- Good quality measurement equipment made accessible to make management and supervisors of the training process observe the progress of the employees and department as a whole (Zenger, Folkman, and Sherwin, (n.d.).

The above is important in order to make sure that there are no steps of training that would be skipped. Challenges to the training programme being drafted will be overcome collectively

as training and development plans will be drafted by all relevant personnel in the organisation.

2.3.2.2 Assessing the learning and the learners' attitudes towards the training interventions.

According to Cilliers (1999), learners should be energetic and eager to contribute towards their training. The attempt to determine attitudes in the training situation should also be made systematically. Cilliers (1999) further says that managers relate to the implementation of new ideas to enhance the working environment and to improve graduates in training's performance. Assessing attitudes of learners towards training interventions helps management and mentors to know the attitudes of the learners before they are put into training.

The methods of measuring can range from a test where participants rate how useful they found the training, to more elaborate rating in which participants put economic values on how much the training has helped their area of work (Ngwenya, 2002). Phillips as cited by Ngwenya (2002:36) says that perception ratings can be complicated evaluation tools and can provide trainers and training designers with useful information. It is cautioned, however, that these measures may have limited reliability in representing bottom-line impact because they are based on individual judgements rather than on hard facts.

2.3.2.3 Assessing the transferability of the training to the work situation.

Lance *et al* (1993) define transferability of skills in terms of the ease with which individuals can apply skills and knowledge acquired in a previous job to the performance of a new job.

Nink *et al*, (2006) discovered that a diversity of approaches must be involved when preparing an individual development plan. An employee development plan must be in place to deal with perceived gaps in talent, knowledge and capabilities. Nink *et al*, (2006:3) further say that "there must be duties, talent-development practices and actions that exist in order to meet the requirements of the group of potential employees. The approaches must involve career assessment, experiential learning, local and nationalised seminars, career

investigation, reading materials, external development opportunities, learning courses, internal development opportunities, coaching or mentoring and organisational group duties. After the strategies have thoroughly been dealt with, transferabity of the training should be assessed or evaluated." This will keep trainees motivated and awake and mentors, coaches and management will know the status of the knowledge of trainees.

According to Ngwenya (2002), what participants do differently following the training intervention gets evaluated through action measures. These measures usually seek to observe the behaviour change as a result of skills gain or tests of performance on knowledge and influence instruments. Ngwenya (2002) furthers says that the fact that action measures are based on observable behaviour, make them more credible and as such are normally acceptable.

Borghans and Golsteyn (2007:1664) discovered that "skills transferability is the main thing that determines the choice of an employee". Borghans and Golsteyn (2007) after doing their survey discovered that "greater knowledge transferability generates control and decreases remuneration loss and time taken for training followed after the national learning."

Lance *et al* (1993) also discovered that first level supervisors could make reliable judgements of jobs' task contents and task learning times, which could be used to estimate cross-job retraining time. Cross-job retraining time was estimated to be more difficult in new jobs which generally are more difficult to learn, and which have different aptitude requirements compared to the old job. It was also discovered that the general learning difficulty of a new job played an important role in determining cross-job retraining time if the old and the new jobs draw on different sets of aptitudes. Lance (1993) defines cross-job training as the simplicity in which employees can apply knowledge and skills necessary in a previous work in learning to carry out a new task.

Assessing the transferability of training will help mentors and management to know where there is a skills gap. This would allow a mentor or coach to re-train the trainee appropriately.

An employee who takes over a new job can also be assessed and cross-job training can be done when necessary.

2.3.2.4 Evaluating on-the-job training.

Grobler (2004:318 & 321) states that "on-the-job training and development involve rotation of jobs, increased and improved job accountability, job instructional training, coaching and mentoring. External job training involves in-house programmes, which are carried out inside the organisation training resource, either by developing specialists or by external consultants; off-site programmes sponsored by a professional association or a government department; lectures; conference or discussion; case study; role playing; assessment centre; membership of professional organisations."

Nadler (1983) and Goldstein (1974) as cited by Cilliers (1999:120) say that "assessment of training and feedback are the last phases in the training process. This phase investigates whether or not the training process achieved its objectives and whether or not the programme was implemented according to the specified prearranged plans. This phase also includes the determination of whether or not the behavioural and performance changes have occurred."

"The difference between programme assessment and system assessment is as follows: Programme assessment decides the performance and talent transformation, while system assessment decides the return on investment quantitatively and qualitatively" (Casner-Lotto as cited by Cilliers 1999:120). "There is no sufficient assessment that can take place without an efficient response coordination that creates the essential information available. Feedback is a continuous methodical approach intended to transmit data and information during the complete training process" (Casner-Lotto, as cited by Cilliers 1999:120). Training and development is most successful while employees are assisted in mapping, proposing and applying training programmes (Casner-Lotto, as cited by Cilliers 1999:120).

During the evaluation for the on-the-job training phase, the preceding phases (analysis, design, development, and implementation) are evaluated to determine whether or not the training programme is accomplishing its objectives. External observations are performed to

determine if the tasks that were presented during training are actually being performed better than before training was conducted (Ngwenya, 2002).

2.3.2.5 Institutionalising positive results and outcomes and unlearning techniques with negative consequences.

Training systems outputs capture what organisations gain from the intervention activities. This level of evaluation considers the entire training system. Training system evaluation is not an assessment of a programme of training, but an effort to evaluate the return organisations receive from the training (Bushnell, Erickson, Goldstein, Kirpatrich, Haquet, Phillips, and Tracey, as cited by Cilliers 1999:120).

Measuring the degree to which workers apply or relate talent and skills that have been learnt is crucial in any evaluation and feedback in the organisation. The motivation for this type of evaluation will be to determine the extent to which the programme has been designed successfully and the extent to which the participant obtained the necessary knowledge and skills, and whether he or she is now capable of applying the acquired knowledge in the organisation or not (Ngwenya 2002).

For institutionalisation to take place, unlearning must occur. According to the survey done by Meyers and Wilemon (as cited by Akgün *et al* 2006:78), "although unlearning is required for additional sufficient understandable structures and feedback, the organisation should incorporate the new view point into relationships and execute the new rules and processes in the organisation that acts a go-between improved performance. The survey further discovered that learning is vital for the importance of organisations. However, an organisation or team requires dropping old or previous principles, frameworks and policies to unlearn if it is to be taught latest principles and processes."

Nussbaum & Scott (as cited by Cilliers 1999:127) explain such a framework for evaluating the experiences gained by the practitioner-learner during the learning or training phase and they argue that learning is a change brought about by teacher-student interaction. This

transformation manifests itself in the three domains as follows (Nussbaum & Scott as cited by Cilliers 1999:127):

- Affective domain – The effective domain focuses on learner or trainee attitudes towards the trainer, the learning intervention or both. This domain normally emphasises the learner's evaluation of the learning interventions.
- Cognitive domain – The cognitive domain is concerned with the absorption of the course content learnt. Evaluation results are frequently used to assess this kind of learning.
- Behavioural domain – This domain reveals the extent to which learners apply what they have learnt in practice and on the job in the workplace.

The affective domain is important because it forms the basis for the practitioner evaluating programmes in the workplace as well as managing the training programmes in the organisation. In the affective domain, the learners evaluate the learning interventions and in the cognitive domain the practitioners measure the success and accomplishments of the learners (Cohen as cited by Cilliers, 1999:128).

Feedback is a way in which trainers get to know whether training has achieved its purpose or not. Attitudes of trainees towards the training in terms of applying the knowledge they obtained from the training session is also an important aspects of learning. The survey indicates that it is important to shed old ways of doing things and to apply the new ways incorporating suggestions from trainees as well.

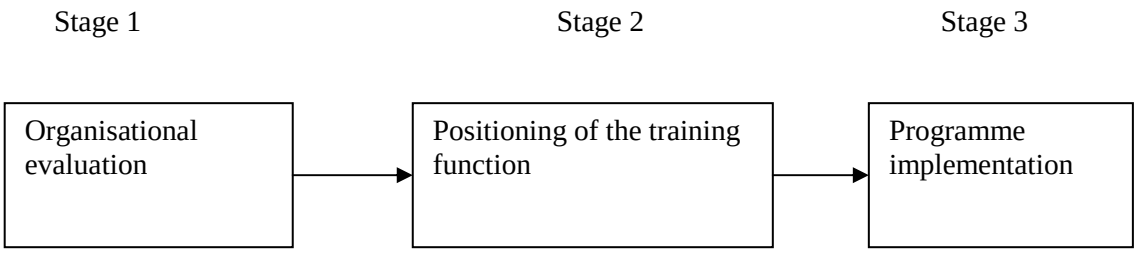
2.3.3 Building Organisational Capability through Training

To build capability in the organisation and at programme level will require sound training strategies, policy formulations and the learning of system designs. It is important to differentiate between strategy, policies and systems, as each has a unique role in an effective training and development environment (Cilliers, 1999).

2.3.3.1 Training Strategy

Training has to do with identifying the priority needs of an employee and the organisation and ensuring that appropriate resources and processes are put into place to address them. It is therefore output-focused and dynamic, changing as different needs are recognized and environmental conditions change. When organisations articulate dissatisfaction with training activities, the cause can often be traced to the process by which the activities were created (Middlebrook & Rachel, and Moore & Dutton, as cited by Cilliers, 1999:113) as in the following figure (figure 2.2):

Figure 2.2: Training strategies in stages



Stage 1 emphasises both external and internal alignment and evaluation of goals, strengths and weaknesses of the organisation.

Stage 2 involves decisions to be made about the responsibility and function of training within the larger organisation.

Stage 3 focuses on quite a few basic execution decisions to ensure that the plan will become part of the general approach within the organization.

The above three training stages are crucial in an organisation to make sure that all facets of training strategies are met and followed. This also gives an organisation a better chance of having trainees implementing policies on their own without having an instructor to follow them.

2.3.3.2 Training Policies

Training policies have to do with the values that guide decision-making in relation to the development of the learners to suit the identified business goals and objectives of an organisation. Training processes found in the literature are characterised mainly by a systems approach and focus on the sub-processes, which are in turn more theoretically than practically orientated. The training field has used systems thinking extensively and there is wide application of a systems approach in training (Gague, Echstrand, Goldstein, Hinricks, Bexley & Latham, Camp, Blanchard & Husszczo, Lathan, and Nadler,as cited by Cilliers, 1999:117).

Beland (as cited by Smith and Smith 2007:52) states that "institutional theory permits us to evaluate the achievement and malfunctioning of education and training procedures as per the Government frameworks that play a major role in the development and application of the policies." The survey further says that "training policies need active options by institutional customer to contribute. Potential trainees should make a decision to request access to Government-funded programs available through their employers."

Training programmes are often started with little consideration given as to whether or not knowledge, talent and approaches trained are the same as those supported by policies, directives and procedures of the organisation. Policies express organisational mission, objectives, and expectations. Procedures present specific direction for action to carry out policies. Schubert (2007:55) says that "training must support employees by building up capabilities to meet what is being expected while controlling developing circumstances and confrontments. Procedures require reflect support for and expectations with regard to employee development as well. The following are the questions to be asked regarding the connection between the training programme and organisational procedures and policies:

- Do policies and procedures reflect the requirement for original training procedures and policies?
- Do the general and specific organisational policies and procedures support the approaches taught in the training?
- Is the time enough for employees to apply the techniques learnt in the training programme?

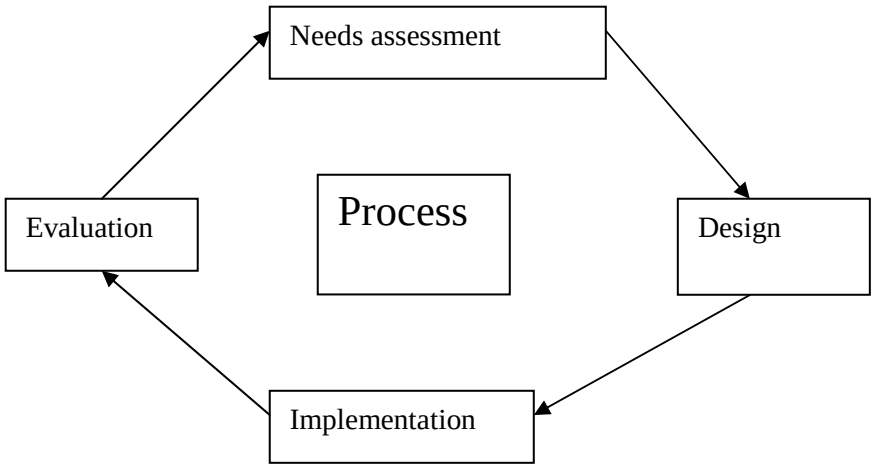
- Do employee performance appraisals involve an evaluation of how well employees are applying the approaches they were taught?

When training is efficiently incorporated into policies and procedures, the probability is much higher that there will be transfer of training to real exercise in the organisation."

2.3.3.3 Training Process

Figure 2.3 illustrates the training process that an organisation can implement:

Training climate Main training process Individual and organisational change



(a) Needs Assessment

Manikandan and Anwer (2008) say that training needs assessment is considered as an important phase of the training process of training and capacity building, as it identifies the existing gaps in knowledge, attitudes, and skills that affect individual performance. It is a primary phase in the design and development of training programmes (Dierdorff and Surface, 2008). Manikandan and Anwer further say that training needs assessment provides accurate information for the design of an effective training programme that can respond to the job-related needs of the prospective participants and the effectiveness of any training programme depends upon the training needs assessment being conducted in a very comprehensive way.

The training needs evaluation is essential so as to decide whether or not training is really what is required to solve the problems being tackled and to build up interventions for the subsequent training activities (Boud,as cited by Cilliers, 1999:118).

(b) Design

According to Cilliers (1999), the design phase entails the formation of a development map with understandable objectives. It is an effort to establish methodically how to accomplish a positive skills transfer, talent and approaches in the training phase. It is the description of the performance learners will be required to master before they will be considered knowledgeable (Meger, 1975). Steps involved in this phase include assessment of the outcomes of training objectives, consulting with the parties concerned, drafting the last learning objectives, arranging training actions and interventions and evaluating the training objectives (Goldstein, Hinricks, Camp, Blanchard & Husszczo, and Nadler as cited by Cilliers, 1999:119).

Moreover, the literature supports different learning theories and models to improve the development of the programme of training in terms of Lewin's (1951) field analysis model of sustaining forces, unfreezing, moving and re-freezing as a learning approach or Piagett's (1950) evolutionary stages of learning theory utilised to recognise learners' related training requirements. The design phase engages the selection of instructional methods and techniques. The implementation of the training programmes and activities becomes the next step in the process. The purpose of this phase is to perform the training programmes that have been planned (Bushnell, as cited by Cilliers, 1999:119-120).

(c) Implementation of Training

According to Cremer *et al* (2001:11) during the survey of the implementation of training contracts for biomedical technicians, they discovered that:

- Employees should be treated with the same professionalism that the mentors' managers treated them over the years.

- Any form of training should be of mutual benefit for the employees, the department and the organisation.
- It is the supervisor's responsibility to ensure that employees know the department will invest in them.
- It is the employee's responsibility to take advantage of this opportunity and attend at least one form of training that is made available.
- It is a supervisor's responsibility to be economically conscious with the monies allotted to the employee.

Cremer *at al* (2001) further say that this type of mutual respect in itself is an incentive to retain professionals. If that employee does not decide to move on, that is the cost of doing business and that cost is far less of an expense than having untrained employees or otherwise distracted employees among the staff.

(d) Evaluation of Training

Training assessment and feedback is the last phase in the process. This phase investigates whether or not the training and development process achieved its objectives and whether or not the programme was implemented according to the specified predetermined plans. This phase includes a determination of whether or not the behavioural and performance changes have occurred. This is not the last assessment of the training and development systems (Nadler, 1983; Goldstein, 1974).

During this phase, the preceding phases (analysis, design, development, and implementation) are evaluated to determine whether or not the training programme is accomplishing its objectives. External observations are performed to determine if the tasks that were presented during training are actually being performed better than before training was conducted.

Le Roux (2002) says that "people who are capable of accurately assessing themselves are relatively intelligent, have a high achievement status and an internal locus of control". Le Roux (2002) further discovered that self-evaluation is an interpretative process that considers

the relative contribution of ability in explaining performance outcome. Self-evaluation is thus essential for building self knowledge.

(e) Training Process

Employees are not transformed overnight. Subsequent to a formal training course, it is crucial to utilise a diversity of techniques in order to make sure that employees recognise the idea conveyed and are achieving capability and self-assurance in applying what has been taught as they work together with trainees. A resolution-centre training programme serves as a continuous training process that involves diversity of components further than original classroom training gathering. Components that can propose important changes to strengthen knowledge involve preparation time, reviews and refreshers, situational applications and mentoring models.

At the process stage, the practitioner needs to identify instructional objectives, create design conditions, choose instructional approaches as well as put together training objectives. Moreover, training and development is of value to the learner at the process stage (Bushnell,as cited by Cilliers, 1999:121).

Having discussed the training process the organisation can implement, the next section will look at training of graduate engineers specifically within Eskom. The importance of training for graduate engineers in Eskom will be explored as well as the requirements from the Engineering Council of South Africa. The section will conclude by listing other employment-based training surveys.

2.4 Training of Graduate Engineers at Eskom

According to Gosling (2001), on completion of University studies, the Graduate engineers have good theoretical knowledge in the certain field of study together with little practical knowledge achieved during the course of their studies. Gosling (2001) further says that Engineering requires a good understanding of the practical implications of any application. Engineering is infrequently a single discipline and therefore needs an appreciation of the responsibilities and impacts of other disciplines and the environment where it is applied,

particularly with regard to the health and safety of the workers and the rest of the community.

Gosling (2001) further says that the purpose of practical training to the Graduate Engineers in Training is to develop an understanding of practical knowledge and enable them to understand plant equipment, plant systems and the associated environmental impacts. Practical training is the first stage of an on-going range of training which the graduate engineers in training must take accountability for to ensure that they acquire the appropriate information about significant developments and changes in their engineering discipline.

2.5 Engineering Council of South Africa

The Engineering Council of South Africa (ECSA) is the legal body, established in terms of the Engineering Profession of South Africa Act of 1990, to register a candidate as a professional engineer, as a professional technologist, or as a professional technician. ECSA also, certifies certificated engineers, etc. The role of ECSA is *inter alia* to protect the public by ensuring that those who practice as professional engineers, technologists, certificated engineers, etc. are properly educated and trained (Gosling, 2001). This is accomplished through the process of recognizing suitable qualifications and by ensuring that work is of an engineering nature, is of sufficient range, standard and content and is accomplished within the period determined by the ECSA. The work of an engineering nature requires as practical training and the minimum period required to complete the process of training as a professional engineer, technologist, technician or certificated engineer is three years. The supreme benefit of a well-prepared practical training programme is to be found in the resulting professional category where one can take accountability for a broad range of engineering work and where one can ensure economic benefit to the business (Gosling, 2003).

2.6 Other Employment-Based Training Surveys

There are many surveys found in the literature regarding employees training, mentoring, coaching, organisation development, staff development, people development and continuous development (See Table 3.1 below). None of them focused exclusively on the training of engineers in the refurbishment project of the power station that has been mothballed for

many years. The value of the present study lies precisely in this fact. Some of these older studies are listed in the table below;

Table 3.1: Training Related Survey List

Survey Item	**Researcher(s)**
1. Skills evaluation for effective mentoring in the project environment of Eskom Enterprises.	Möller, 2005.
2. National Skills Shortage Project Guidelines & Template.	Institute of Public Works Engineering Australia, Version 1.0, 2006.
3. How Institutions respond to Training Packages.	Andrew Boorman, (n.d.)
4. Strategies to Address the Problem of existing Expertise in the Electric Power Industry.	Ray, Snyder, 2006.
5. Training for the Informal sector.	Hirschowitz, Acutt, Koch, 1991.
6. Electric Utility Pole Yard Training Facility: Designing an Effective Learning Environment.	Topping, 2006.
7. An experiential learning process for the advancement of previously disadvantaged employees in an industrial context.	Cilliers, 1999.
8. Locus of control and achievement motivation of unskilled black Eskom employees to participate in training and advancement programmes.	Thebe, 1992.
9. Modelling an integrated human resources development strategy for a South African technology-driven corporate organization	Ngwenya, 2002
10. The impact of competence development on organizational effectiveness and performance	Mutetwa, 2001
11. Factors affecting individual employee performance at a high-tech company	Sithole, 2001
12. Self-monitoring and feedback in leadership development	Le Roux, 2002

13. Salespersons' perceptions of factors contributing to excellence in performance	Themba, 2001

2.7 Conclusion

Articles, journals and literature have shown that training should be seen as part of the whole framework of the organisation. Without strategic training, there are questionable results.

Based on the case studies conducted, it can be noted that Eskom can save a lot of money by training its graduate engineers. Continuous development forms part of training because technology changes and South African and International Standards keep on changing to accommodate the latest technologies. If proper induction is implemented, young engineers would know where to get the information about the job that they are doing.

Rainbird (2000:1) argues that "the workplace is enormously significant as a site of learning and for this reason, it merits some study. Learning can demotivate or motivate; it can debase or enrich the experience of work; it can be a vehicle for coercion or for emancipation."

The literature review has sort to position training within organisational development theory. The chapter has argued that training within the organisation should be viewed systemically which means that other factors that affect the effectiveness of training should also be considered. The next section will look at the methodology for the study.

CHAPTER 3

RESEARCH METHODOLOGY

3.1 Introduction

This chapter is about the methodology used in this dissertation, namely, formulation of the research questionnaires, choice of sample, and the choice of research methodology (Creswell, 1994).

The objective of this research is to identify areas that require improvement in the Eskom training strategy for graduate engineers in training. Strategy implementation tools include training and mentorship programmes. This dissertation focuses on factors within training programmes that negatively affect their effectiveness in supporting Eskom's training strategic objectives and those factors are to be examined through the application of a research questionnaire.

3.2 Methodology

Opinion survey is utilized for this dissertation. Mouton (2001: 152) defines an opinion surveys as surveys that are often quantitative and that aim to provide a broad overview of a representative sample of a large group. This survey is an organisational survey where different engineering personnel give opinion through questionnaires and then assessment of their response get analysed. The survey will be theory driven and aim to test hypothesis and this involves people and behaviour (Mouton, 2001: 152).

Non-probabilistic sampling has been utilised in this dissertation where engineering personnel have been given structured electronic questionnaires to fill in at their own time. Non-probabilistic sampling is convenience or quota sampling (Mouton, 2001: 153). This study uses quota sampling which is also referred to by Blanche *et al* (1999) as purposive sampling. Purposive sampling takes cases that are typical of the population selected, in this case, engineering personnel. "Non-probabilistic sampling can also be defined as any sampling where the selection of elements is not determined by the statistical principle of randomness" (Blanche, 1999:139). Non-probabilistic sampling is often used where the researcher wishes

to avoid cost and time implications of drawing probability samples. “In non-probability samples, however, the generalisability of the estimate is unknown, and the error of measurement is indeterminate” (Blanche *et al,* 1999:168).

Opinion survey will help in obtaining and analysing raw data through questionnaires. This methodology analyses how engineers feel about training, the kind of training procedure being followed by different departments, whether there are continuous developments in the departments or not, and the different views from different engineering personnel. Möller (2006) says a review of literature is important to determine what kind of questions are to be included in the questionnaire.

The advantage of using opinion survey is that “high measurement reliability can be obtained if proper questionnaire construction and high construct validity and proper controls have been implemented” (Mouton, 2001: 153).

According to Mouton (2001: 153), one of the disadvantages of using opinion survey is that “it lacks the depth and insider perspective that sometimes lead to criticism of surface level analysis. Survey data can be at times very sample and context specific”. Other factors that can contribute to the inaccuracy of the data are sampling error, questionnaire error, high refusal rates, high non-response, respondents’ effects, data capturing error, inappropriate selection of statistical techniques (Mouton, 2001: 153).

Opinion survey utilises techniques that include tabulations, correlations, regression analysis, factor analysis and the use of statistical graphics for visual presentation (Mouton, 2001:153). This particular dissertation will make use of pie charts for data analysis presentation as one of the statistical charts that get utilised when using opinion survey and this will be presented in chapter 4.

3.3 Data Collection

Questionnaires were sent out to all line management, senior management staff, junior engineers and senior engineers of all the engineering departments, namely, Electrical, Mechanical (Boiler, Turbine and Common Plant) departments electronically to get their perspectives on training in the CED. Questionnaires were sent out to stakeholders by e-mail and follow-up was done telephonically. Literature was also used including notes from lectures, books about training, researches that have already been done, academic journals and academic articles. This data and the research questionnaires are interpreted and analysed in chapter 4. One of the disadvantages of using questionnaires is a low response rate. In this study the collection of data was successful because Camden management supported this research and also because the CED was in the process of drafting and implementing a training programme for engineers in the Capital Expansion Department with the help of the Human Resource Department.

A representative sample of the critical stakeholders was given questionnaires. A corporate training strategy involves the following key stakeholders:

1. Management.
2. Graduates in training
3. Senior Engineers

The management sample consists of three discipline management categories:

1. Electrical Engineering
2. Mechanical Engineering
3. Control & Instrumentation

These categories were used in order to get representative views from different teams that play a major role in graduate engineer training. Particularly important is the engineering team which defines the environment within which the engineer can grow and management which offers support for successful strategy implementation.

3.4 Research Questions

The following research questions will be answered:

1. How effectiveness is the current training strategy for new Graduate Engineers in Eskom Capital Expansion Department specifically at the Camden Power Station?
2. What are the critical success factors for the current training strategy?
3. In which of these critical points in the strategy is there a need for improvement?

3.5 Data Analysis

The study used the opinion survey methodology specifically purposive sampling was used. The statistical approach taken is descriptive and inferential (Mouton, 2001). The data from the questionnaires was captured on a spreadsheet. Spreadsheets allow for summary of the data as well as graphical presentation. The data was then analysed and presented using statistical graphics, namely pie charts.

Chapter 4 will analyse the research data and will present the findings of the questionnaire aimed at addressing the research questions. Research findings will be examined in conjunction with the theoretical framework established previously.

CHAPTER 4

DATA ANALYSIS

4.1 Introduction

The questionnaires focus on the perception of the staff (the CED management and engineering personnel) regarding the current status of training of Graduate Engineers in the Capital Expansion Department of Eskom's Enterprises Division. All Camden management, graduate engineers in training and senior engineers received questionnaires. These groups represented the Boiler, Control & Instrumentation, Electrical, Common Plant and Turbine departments as those are the departments forming engineering in the CED at Camden. Each employee or manager completed the same questionnaires independently. This was done in order to get different view from the three categories about the same matters.

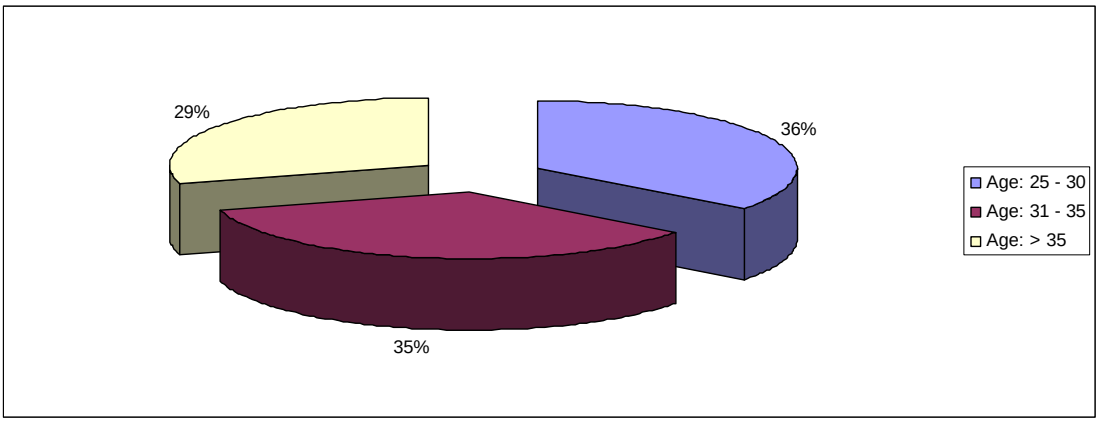
This chapter presents the analysis of the questionnaires, aimed at addressing the research questions as laid down in chapter 3. Results will be discussed in accordance with the theory developed in chapter two.

Thirty two questionnaires were sent out to different levels of employees, namely, departmental engineering managers, engineers or graduates in training and senior engineers. Seventeen questionnaires were received back from the respondents. Eight departmental engineering managers received questionnaires and six of them responded. Eight senior engineers received questionnaires and four of them responded and lastly sixteen junior engineers received the questionnaires and seven of them responded. These questionnaires were analysed to understand the perceptions of training by trainees, trainers, management and Eskom as an organisation.

4.2 Independent Variables

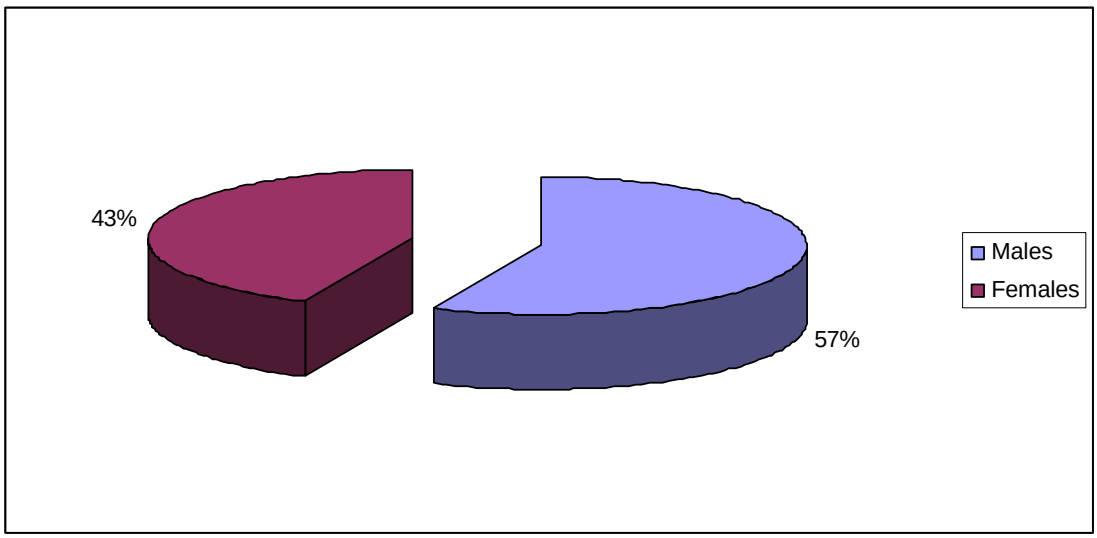
The independent variables used in this dissertation work included, gender, age, years of service man-grade and division within the engineering department in order to cover all the ages within the department as engineers in the sample ranged between twenty and forty five years of age.

4.2.1 Age



The 25 – 30 years age-group formed the majority of the respondents at thirty six percent (36%) followed by the 31 – 35 years age-group at thirty five percent (35%). Lastly the over 35 years age-group, twenty nine percent (29%). From the survey done there was an even distribution of respondents in the three age categories.

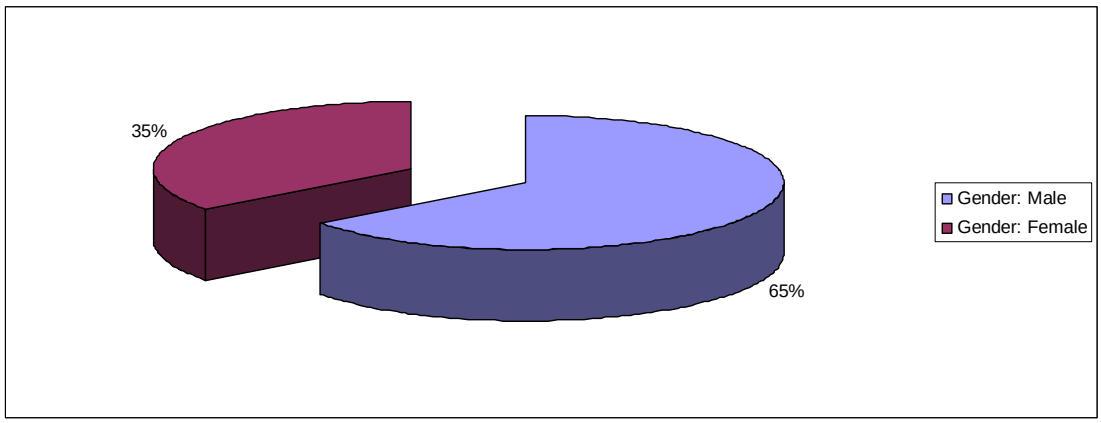
4.2.2 Number of males and females who received questionnaires



Fifty seven percent (57%) of those who received the questionnaires were males and the remaining forty three percent (43%) were females. Some of the employees who received

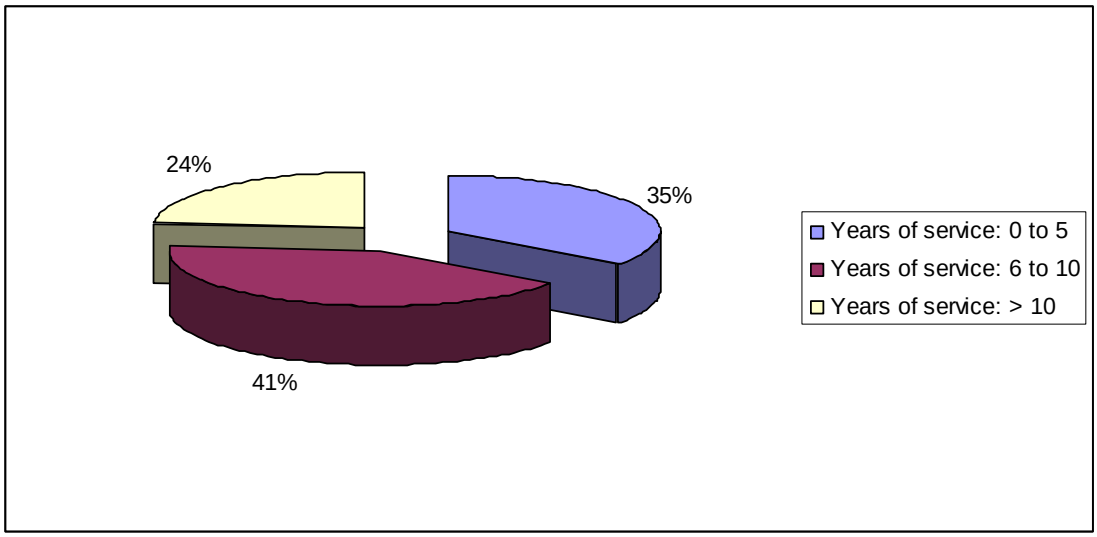
questionnaires did not respond. This difference in the number of questionnaires sent out to females as opposed to male was because there are more male than female employees in the engineering department at Camden.

4.2.3 Gender



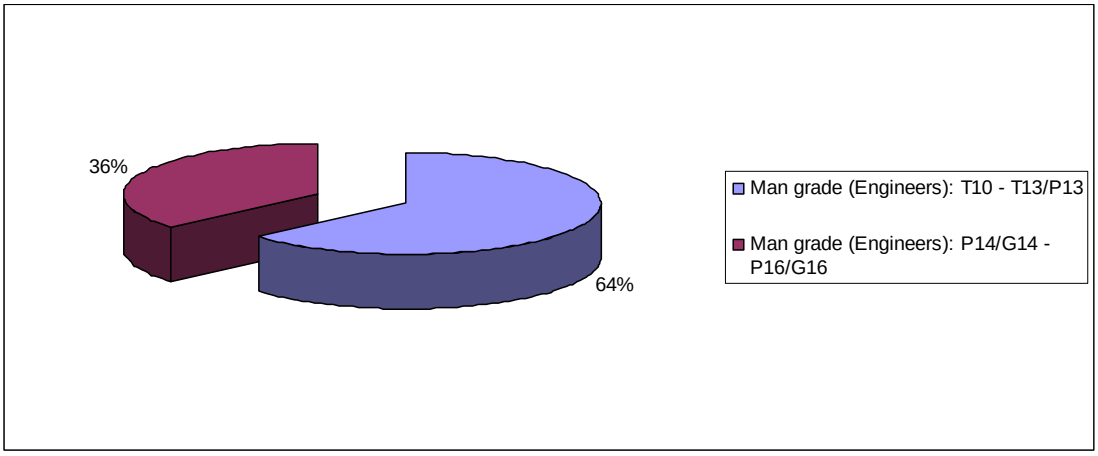
Sixty five percent (65%) of the respondents were males and thirty five percent (35%) were females. This again can be due to the fact that there are more male than female employees at Eskom Camden Power Station.

4.2.4 Years of Service



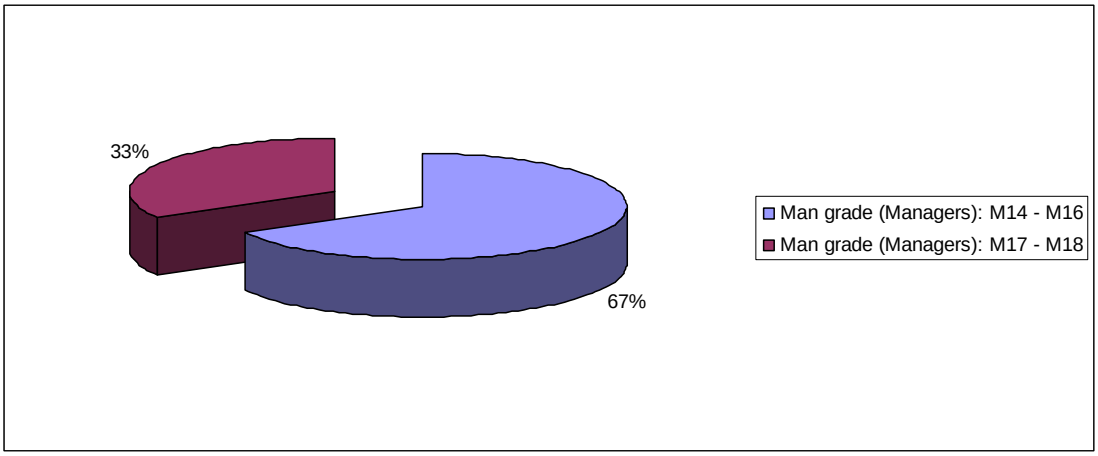
The highest number of respondents had 6-10 years of service, (41%) followed by the 0-5 years category, which stood at thirty five percent (35%). Lastly, 24% of the respondents had 10 or more years of service. The majority of the respondents were employees with many years of experience, meaning that they had a good understanding of the organisation.

4.2.5 Man-grade (Engineers)



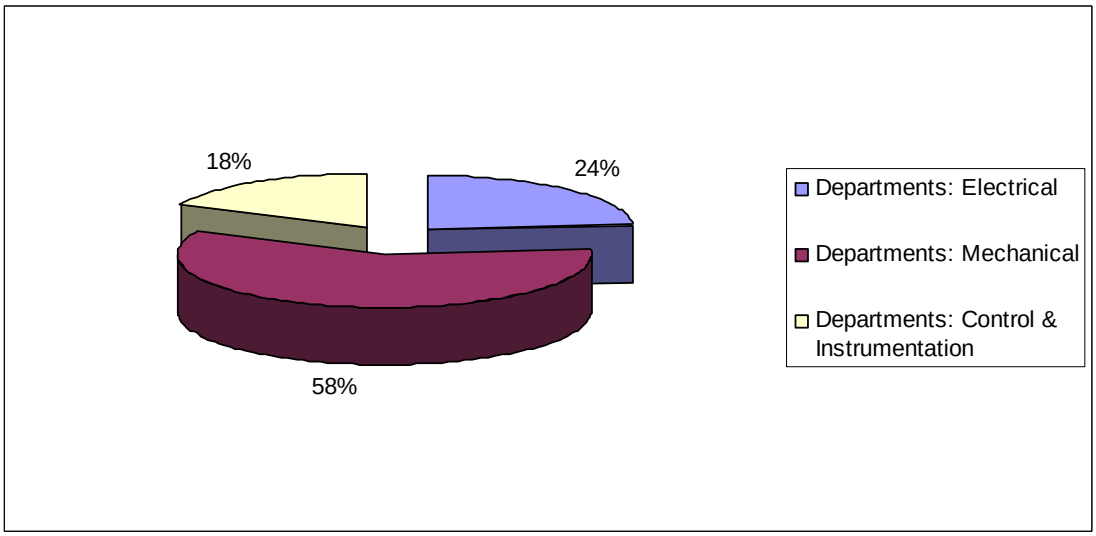
Under the Engineer's category the dissertation focused mainly on two groups of man-grades and those were junior Engineers ranging between T10 – T13/P13 and senior Engineers ranging between P14/G14 – P16/G16. Sixty four percent (64%) of the respondents were junior engineers (P14/G14 – P16/G16) and thirty six percent (36%) of the respondents were senior engineers (T10 – T13/P13). The difference here is that there are more junior engineers than senior engineers at the Camden Power Station.

4.2.6 Man-grade (Managers)



Under the managers' category the dissertation focused mainly on two groups of man-grades and those are junior management ranging between (M14 – M16) and senior management ranging between (M17 – M18). Sixty seven percent (67%) of the respondents were junior management (M14 – M16) and thirty three percent (33%) of the respondents were senior management (M17 – M18). The difference in percentage can be attributed to the fact that there are more junior managers than senior managers at the Camden Power Station.

4.2.7 Divisions within the engineering department



Eskom's CED at the Camden Power Station comprises three main engineering departments, namely, Electrical Engineering, Mechanical Engineering and Control & Instrumentation Engineering. Fifty eight percent (58%) of the respondents were from Mechanical Engineering, followed by twenty four percent (24%) from Electrical Engineering Department and eighteen percent (18%) from Control & Instrumentation Department. There were more respondents from Mechanical engineering because there are more engineers and managers in this department than the other departments.

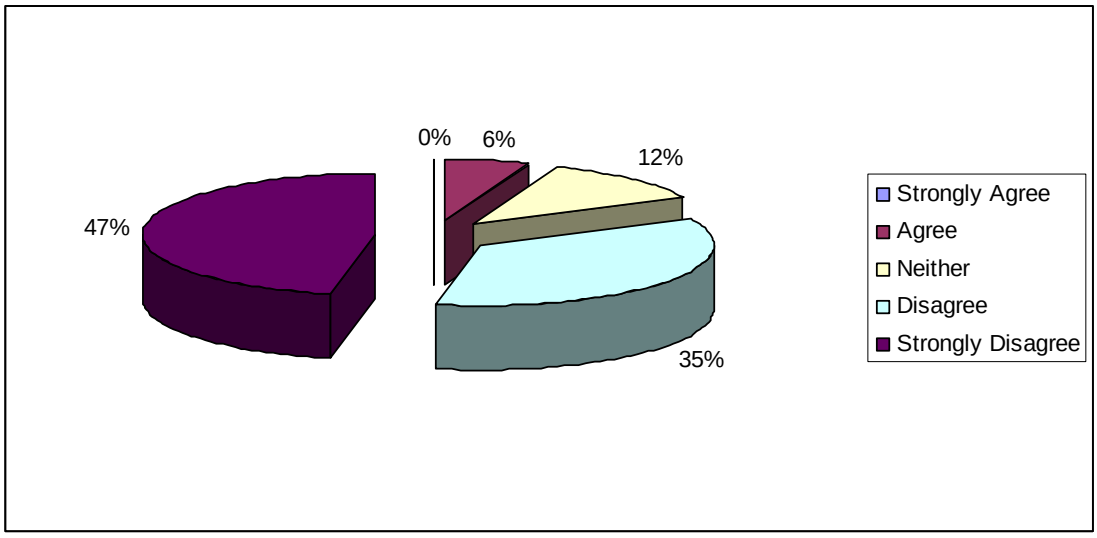
4.3 Evaluation of Research Questionnaires

Graduate engineers in training are employees with the maximum of three years in service; senior engineers have four or more years of experience. Line managers are responsible for the engineering departments, namely, Electrical, Control and Instrumentation, Mechanical (Boiler, Turbine and Common Plant) Engineering.

4.4 Dependent Variables

Every employee who responded completed all the questions. Pie chart diagrams were used to illustrate the results of the research questionnaires.

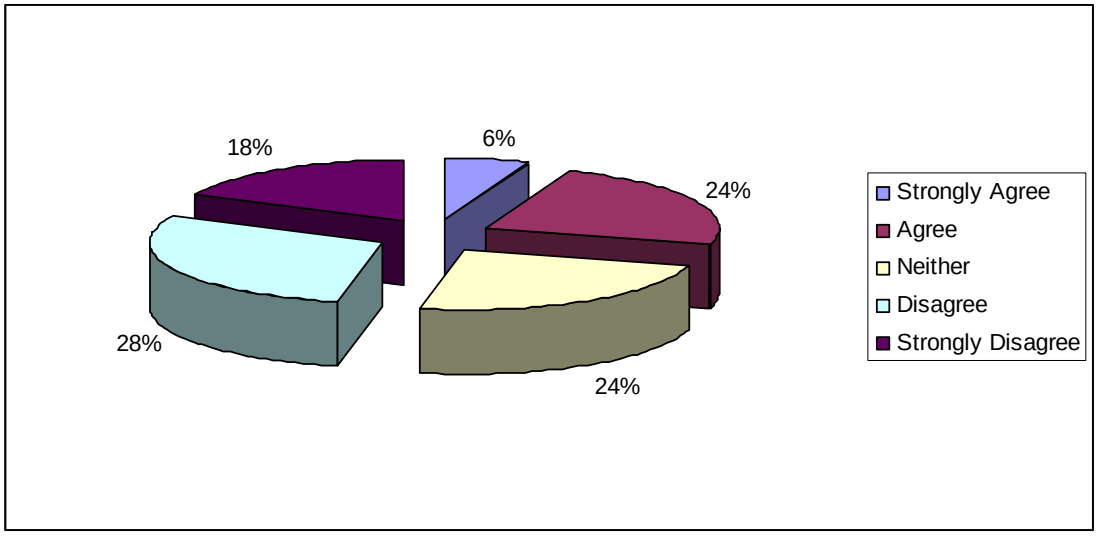
4.4.1 Training programme for Graduate Engineers is available in the CED



No one agreed strongly (0%) that a training programme for Graduate Engineers is available in the CED. Six percent (6%) of the respondents agreed with the statement, twelve percent (12%) neither agreed nor disagreed with the statement. Thirty five percent (35%) of the respondents disagreed that a training programme for Graduate Engineers is available in the CED whereas forty seven percent (47%) of the respondents disagreed strongly with the statement. The total of eighty two (82%) of the respondents disagreed and only six percent (6%) agreed with the statement.

According to Reuters Business Insight Leadership (2001), failure to build up a strong training programme generates a sliding curve in which retention depreciates. Appreciation of this fact is likely to act as an incentive to increase training, and should help erode reticence linked to perceived costs (Reuters Business Insight Leadership, 2001). The fact that the majority of the respondents disagreed can lead to a depreciation of commitment and ownership among the engineers as training forms a major part of the retention strategy.

4.4.2 Induction is properly done

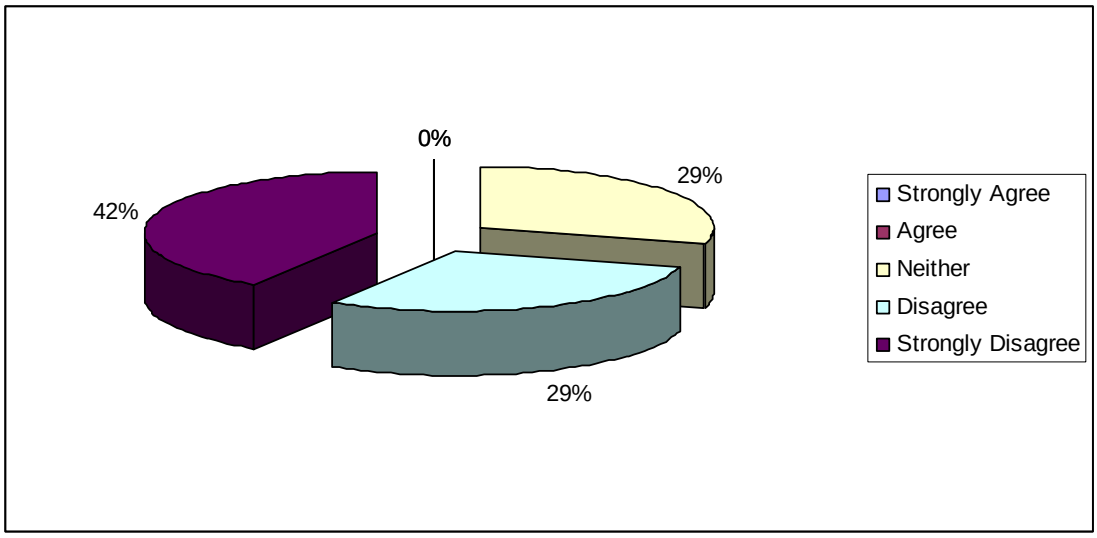


Six percent (6%) of the respondents strongly agreed that induction is properly done; twenty four percent (24%) of the respondents agreed and twenty four percent (24%) of the respondents were not sure whether induction is properly done or not. Twenty eight percent (28%) of the respondents disagreed and eighteen percent (18%) of the respondents disagreed

strongly that induction is done properly within the CED group of Eskom Enterprises Division. Forty six percent (46%) of the respondents disagreed and thirty percent (30%) agreed. This shows that the majority of the engineers are not happy with the induction done.

According to Reuters Business Insight Leadership (2001), induction is a crucial factor in the retention equation. Research indicate that a large number of induction programmes are not more than one day, and present too little information on an organisation's real culture, or the expectations of the job. The adaptation progression is left to the employee. These researches suggest that adaptation be recognised as an on-going process (*Reuters Business Insight Leadership*, 2001). Again here, induction also forms part of the retention strategy. Consequences of not conducting a proper induction can lead to employees being frustrated. This is an area of concern since most respondents disagree that induction is properly done in the CED.

4.4.3 Mentors have been appointed

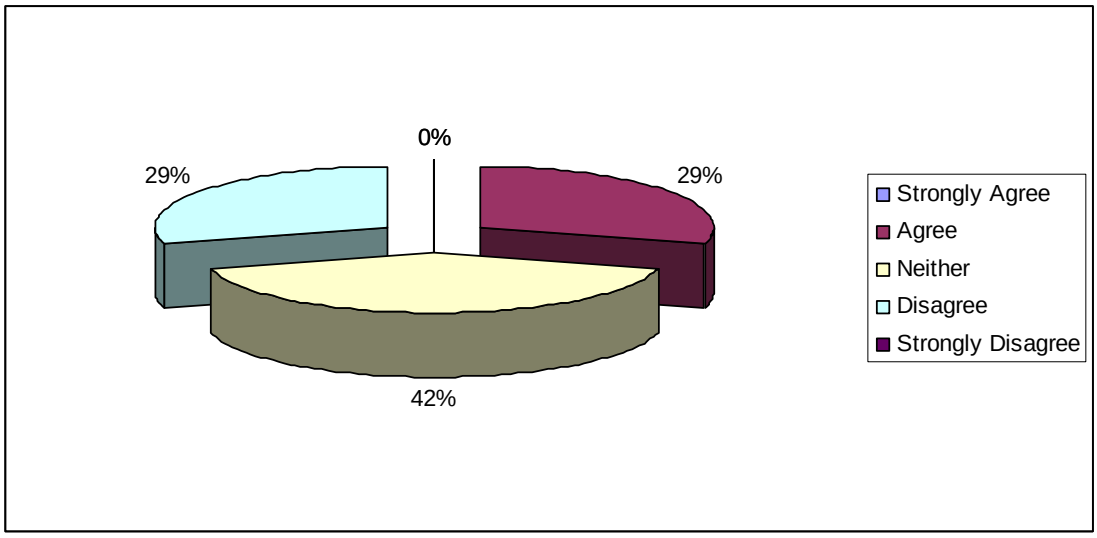


None of the respondents (0%) agreed or agreed strongly, while twenty nine percent (29%) neither agreed nor disagreed that mentors have been appointed. Twenty nine percent (29%) of the respondents disagreed and forty two percent (42%) of the respondents disagreed strongly that mentors have been appointed to guide newly graduated employees at the Camden Power Station. Already here, it can be noticed that seventy one percent (71%) of the

respondents disagreed that mentors have been appointed. None (0%) of these respondents agreed.

A mentor is normally an employee who has more knowledge of the organisation or is in a position that is relevant to the mentee or trainee (Willems *et al* 2007.) "Mentoring is concerned with knowledge sharing, which has been developed from internal, custom-made to the history, challenges, people and culture of the organisation. Mentors share about the stream they followed and obstacles they overcome in order for employees being mentored discover their way easily." (Willems *et al* 2007:108). The survey indicated that mentors have not been appointed for the specific job to mentor graduates in training. In this situation, knowledge-sharing becomes questionable.

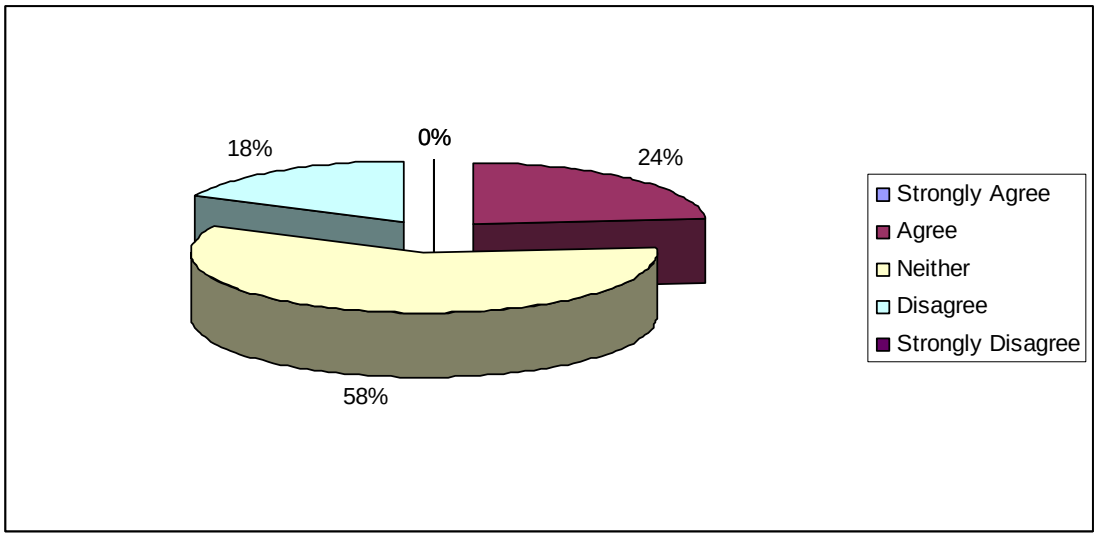
4.4.4 Coaching is done in the CED



None of the respondents (0%) agreed strongly; twenty nine percent (29%) of the respondents agreed and forty two percent (42%) of the respondents were not sure whether coaching at Camden Power Station is done or not. Twenty nine percent (29%) of the respondents disagreed and lastly none of the respondents (0%) disagreed strongly. This does not tell us much since twenty nine percent (29%) disagreed and another twenty nine percent (29%) agreed. The rest of the respondents did not know whether coaching is practiced or not.

Möller (2005) says that "as a 'coach', a mentor demonstrates how the mentee should perform certain tasks. Meyer and Fourie (as cited in Möller 2005:20) state that "mentors are required to clarify performance goals and teach skills that mentees will need in order to achieve these goals and perform a particular job and as a coach, the mentor is required to show mentees how to perform their duties." Hargrove as cited in Ngwenya (2002:137) says that "coaching discussions are the ones where employees talk and listen and being committed to disclose probabilities undreamed of for employees and change these probabilities into reality" The survey indicates that employees do not know whether coaching is practiced or not. This would create problems for Eskom because in order for one to tackle a problem, a problem has to be identified. The lack of knowledge about the availability of coaching would have negative impact on the clarification of performance goals and skills learning that mentors should have in order to coach trainees.

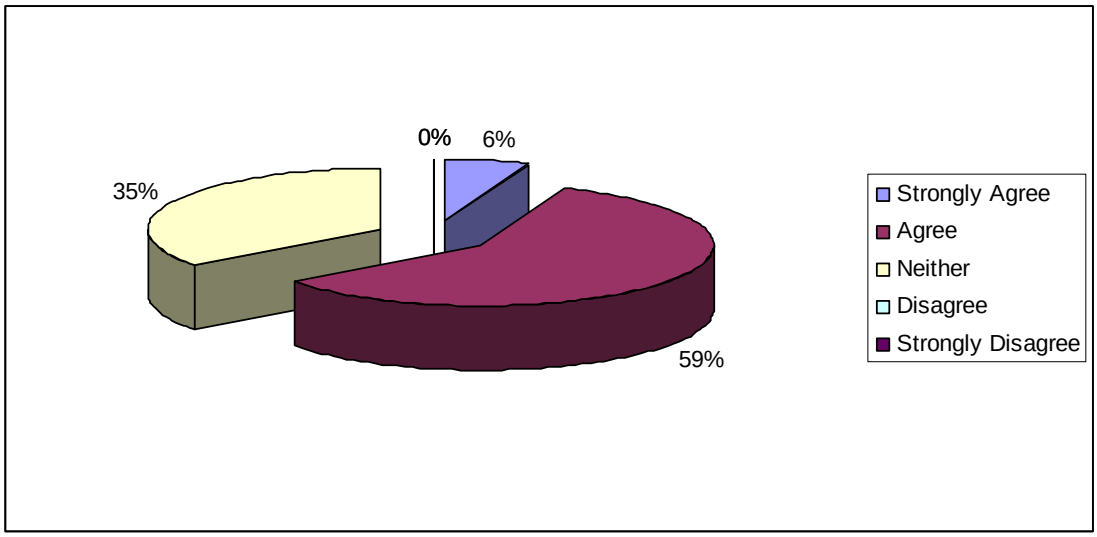
4.4.5 Communication is clear and effective



Zero percent (0%) of the respondents strongly agreed; twenty four percent (24%) of the respondents agreed that communication is clear and effect. Fifty eight percent (58%) of the respondents were not sure; eighteen percent (18%) of the respondents disagreed and zero percent (0%) of the respondents strongly disagreed that communication is clear and effective. This also does not tell us much because more than fifty percent of the respondents were not sure about communication. This could mean that they were not sure what had to be communicated to them and at what intervals they should get the particular communication.

Möller (2005:26) re-iterates the self-evident fact that without communication, no mentoring, training, employee development, coaching can take place. He regards training as the basis of a good relationship. Meyer and Fourie (as cited by Möller, 2005:26) also remind us that two-way communication is essential for the mentee-mentor relationship to be successful. If either the mentor or the mentee is doing all the communicating, no transfer of knowledge will take place. According to the survey, the majority of the respondents agreed that communication is not clear and therefore it becomes impossible for the organisation to ensure training, coaching or mentoring, for employee development.

4.4.6 Growth in the CED does exist

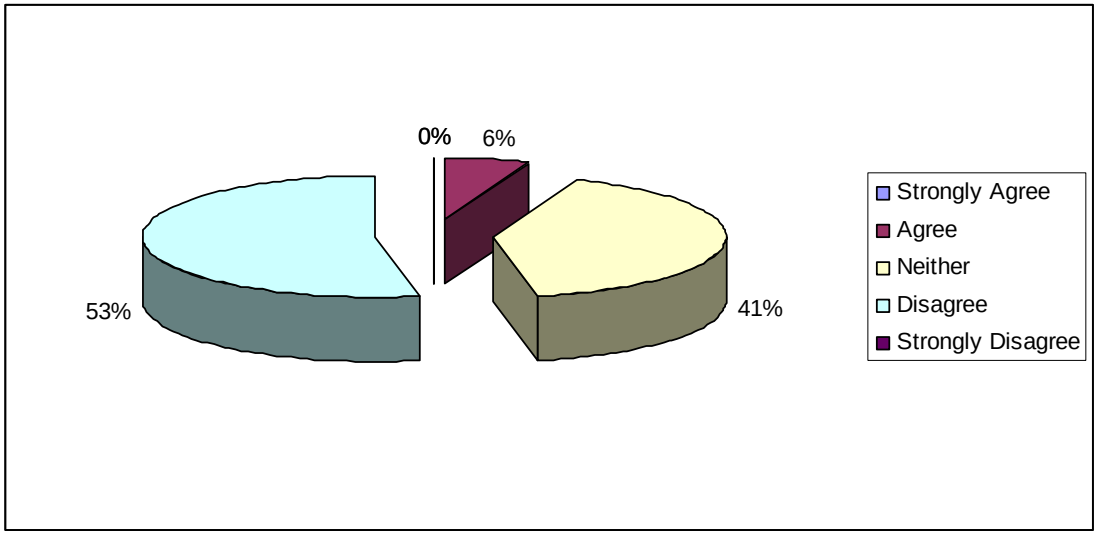


Six percent (6%) of the respondents strongly disagreed and fifty nine percent (59%) agreed that growth in the CED does exist. Thirty five (35%) percent of the respondents were not sure; zero percent (0%) of the respondents disagreed and zero percent (0%) of the respondents strongly disagreed that growth in the CED does exist. Sixty five percent (65%) of the respondents agreed. This could mean that engineers are happy about growth and development although the other thirty five percent (35%) are not sure.

From the results above, respondents regards growth and development as available. This is a good thing because training and development covers many elements like coaching online,

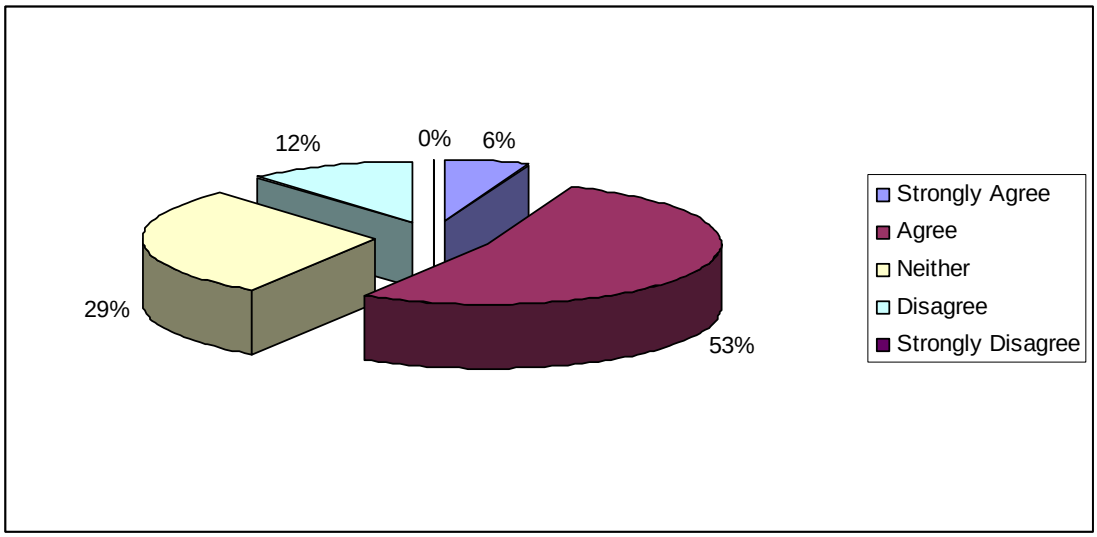
support groups, initiating job discussions and the survey tells us that all these elements are covered, as shown by the mainly positive response.

4.4.7 There are no changes in engineering designs done by engineers



None (0%) of the respondents strongly disagreed; six percent (6%) of the respondents agreed and forty one percent (41%) of the respondents neither agreed nor agreed that there are no changes in engineering designs done by engineers. Fifty three percent (53%) disagreed and none (0%) of the respondents strongly disagreed that there are no changes in engineering designs done by engineers. More than fifty percent already disagreed but only six percent agreed. The fact that designs keep on changing leads to the wastage of money and time. The fact that designs are changing indicates low quality of training and performance of engineers.

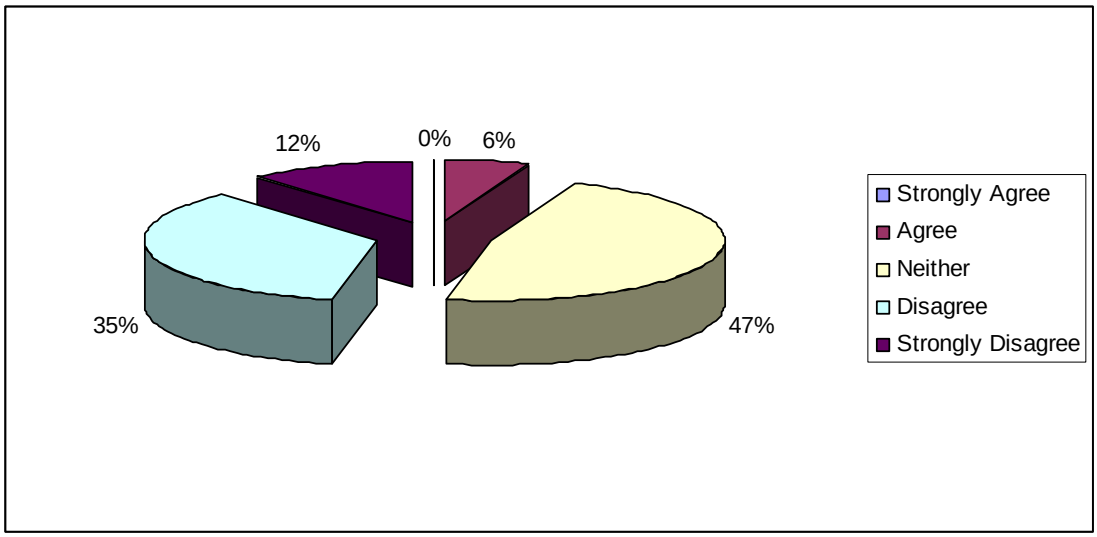
4.4.8 The CED has highly skilled engineers



Six percent (6%) of the respondents strongly agreed; fifty three percent (53%) of the respondents agreed that the CED has highly skilled engineers. Twenty nine percent (29%) of the respondents neither agreed nor disagreed; twelve percent (12%) of the respondents disagreed and zero percent (0%) of the respondents strongly disagreed that the CED has highly skilled engineers. The majority of respondents seem to be satisfied with the level of skills that engineers have at the Camden Power Plant.

Skills include technical abilities, understanding of business requirements, education and training (Boyett & Conn, 1996 as cited by Themba, 2001). Engineers need skills necessary to perform their duties successfully and to maximise performance. Engineering skills cover understanding business requirements and the survey tells us that the respondents are positive.

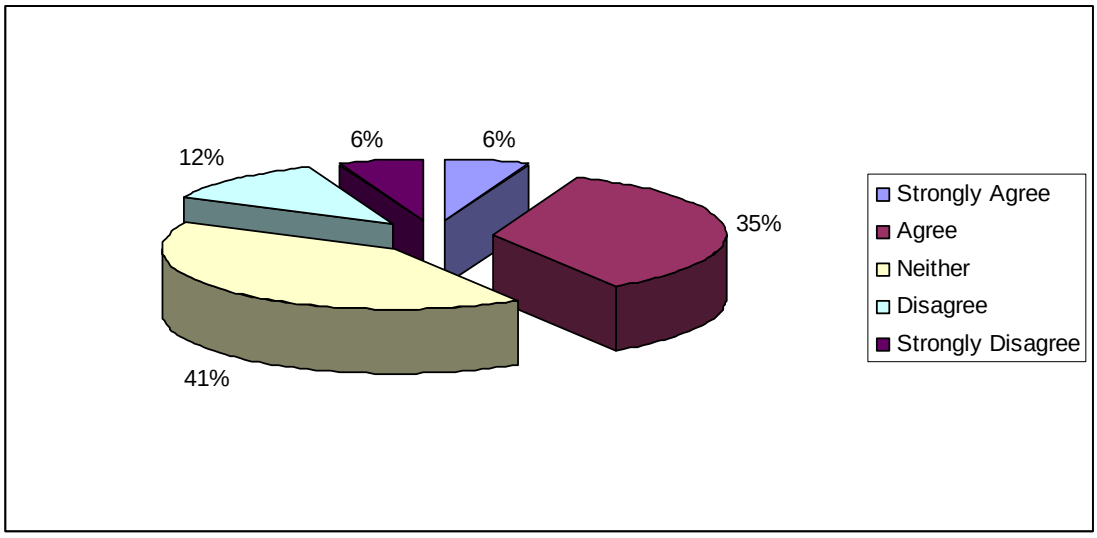
4.4.9 Knowledgeable engineers are retained in the CED



Zero percent (0%) of the respondents strongly agreed; six percent (6%) of the respondents agreed that knowledgeable engineers are retained in the CED. Forty seven percent (47%) of the respondents neither agreed nor disagreed, thirty five percent (35%) disagreed and twelve percent (12%) of the respondents strongly disagreed that knowledgeable engineers are retained at the Camden Power Station. This implies that forty seven percent (47%) disagreed. Only six percent (6%) of the respondents agreed. This tells us much and raises a question of whether or not the organisation has a strategy in place at present to retain its engineers or will there be one in the future?

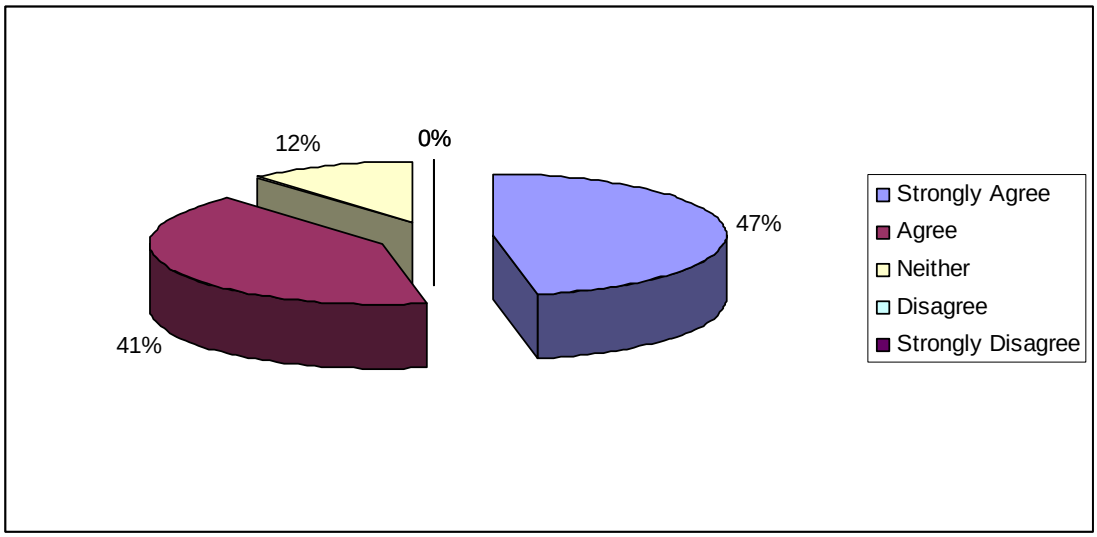
According to Reuters Business Insight: Leadership (2001), the relationship between employees and the organisation can increase retention of employees and knowledge. The culture of the organisation and its policies and procedures can also ensure retention. Good communication, flexible working conditions, reasonable pension, good benefits and packages and creating a good psychological contract through primary management of an organisational culture (Reuters Business Insight: Leadership (2001) can all be involved in this exercise. The survey tells us that improved communication, flexible working conditions, etc are needed if the organisation is to improve on the negative results.

4.4.10 Sufficient time has been allocated for graduates in training to do training



Six percent (6%) of the respondents strongly agreed; thirty five percent (35%) percent of the respondents agreed; forty two percent (42%) of the respondents are not sure about the statement: “Sufficient time has been allocated for graduates in training to do training”. Twelve percent (12%) of the respondents disagreed and six percent (6%) of the respondents strongly disagreed that sufficient time has been allocated for graduates in training to do training. From the above eighteen percent (18%) of the respondents disagreed while forty one percent (41%) agreed and the other forty two percent (42%) neither agreed nor disagreed. From the survey, it seems that the question of the availability of time for training is not an issue for most of the respondents.

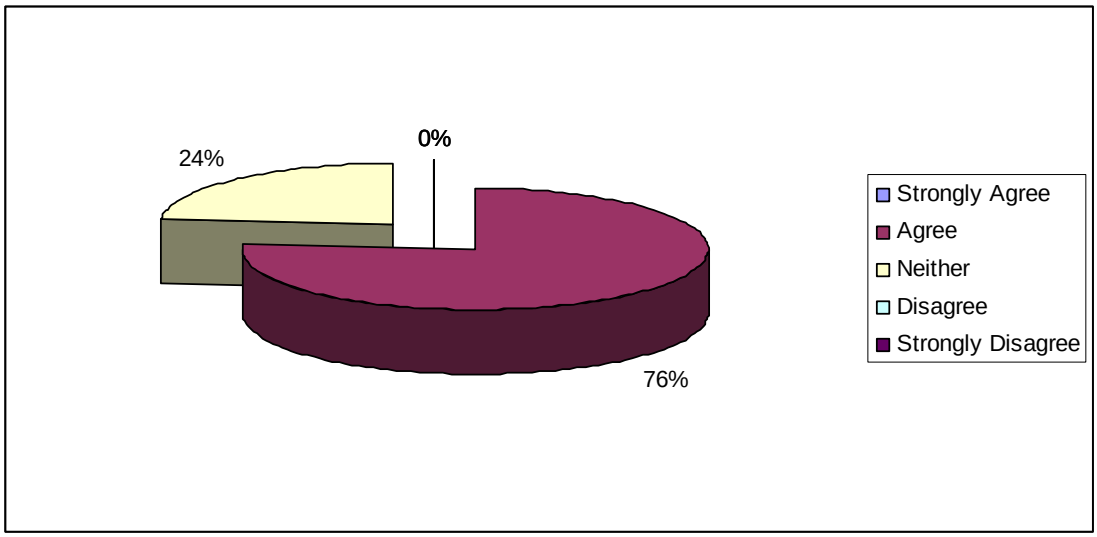
4.4.11 On-the-job training is available and encouraged at Camden



Forty seven percent (47%) of the respondents strongly agreed, and forty one percent (41%) of the respondents agreed that on-the-job training is available and encouraged at Camden. Twelve percent (12%) of the respondents were not sure about the statement. Eighty eight percent (88%) of the respondents agreed and no body disagreed. From the results above it can be concluded that respondents are positive about availability and encouragement of on-the-job training.

The advantages of on-the job training is that if it is done, most of the critical training elements are covered, namely, job rotation, enlarged and enriched job responsibilities, job instruction training, coaching and mentoring. Off-site programmes are sponsored by a professional association or a government department; (e.g. lectures; conferences or discussions; case studies; role playing; assessment centres and membership of professional organisations). The survey indicated that respondents were certain that on-the-job training was available at Camden and they just need to promote this.

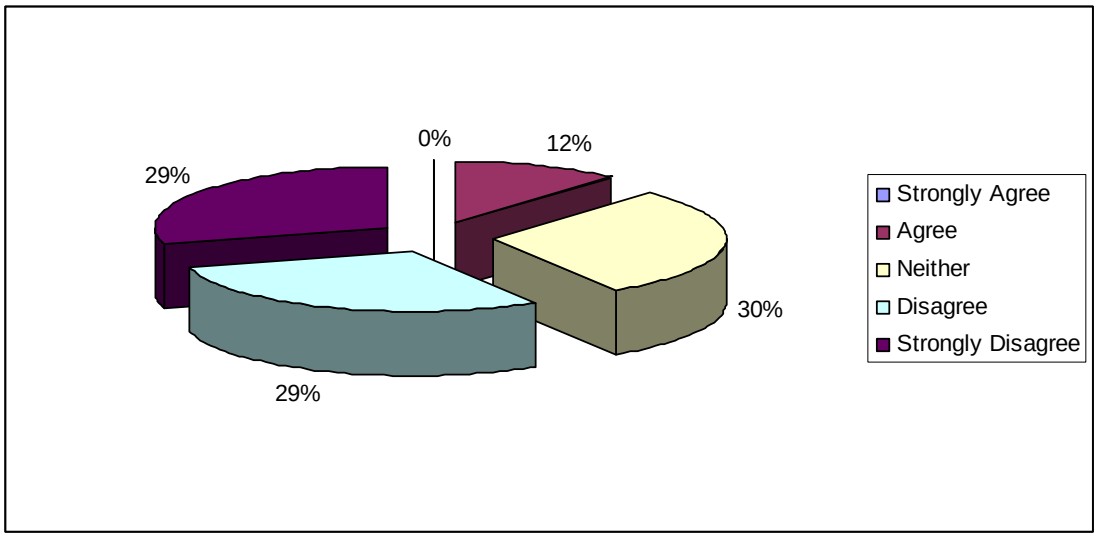
4.4.12 Continuous improvement is available for graduate engineers in the CED



None (0%) of the respondents strongly agreed; seventy six percent (76%) of the respondents agreed and twenty four percent (24%) of the respondents neither agreed nor disagreed that continuous improvement is available for graduate engineers in the CED. None (0%) disagreed that there is continuous improvement available for graduate engineers in the CED. The largest number of respondents agreed which therefore means that continuous improvement exists at Camden.

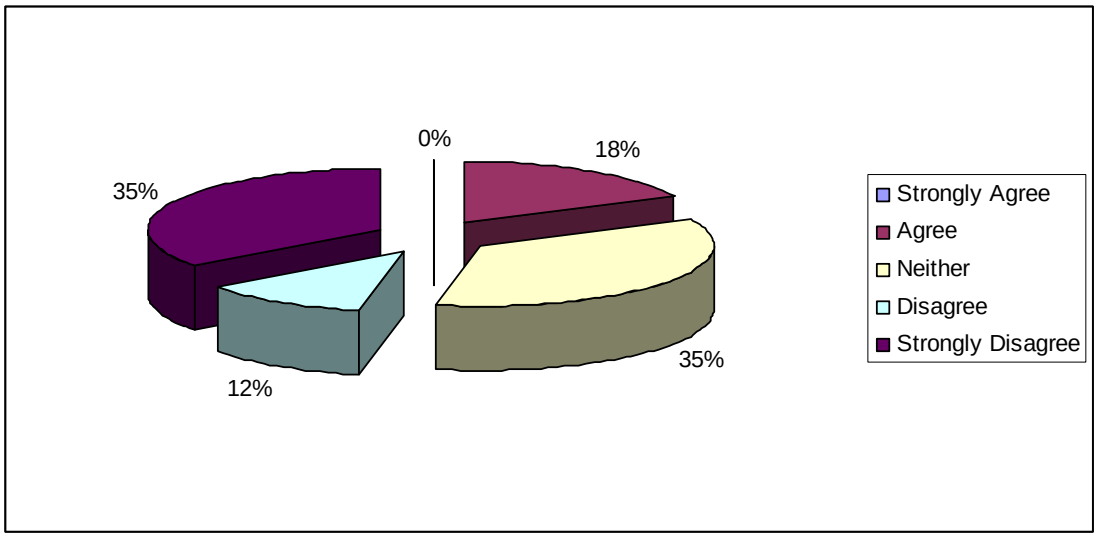
Development plans should be regularly updated and training should be on-going (Fieldman, Hatch, Walker, 1998). This will improve the knowledge of engineers and engineers will be kept up to date with training and development and the application of new technologies.

4.4.13 Mentors are well trained



None (0%) of the respondents strongly agreed, twelve percent (12%) of the respondents agreed and thirty percent (30%) neither agreed nor disagreed that mentors are well trained. Twenty nine percent (29%) of the respondents disagreed and another twenty nine (29%) percent of the respondents strongly disagreed that mentors are well trained. Fifty eight percent (58%) of the respondents therefore disagreed with the statement. This is an area of concern for the CED to look at. This implies that the feeling is that at Camden, mentors are not well trained.

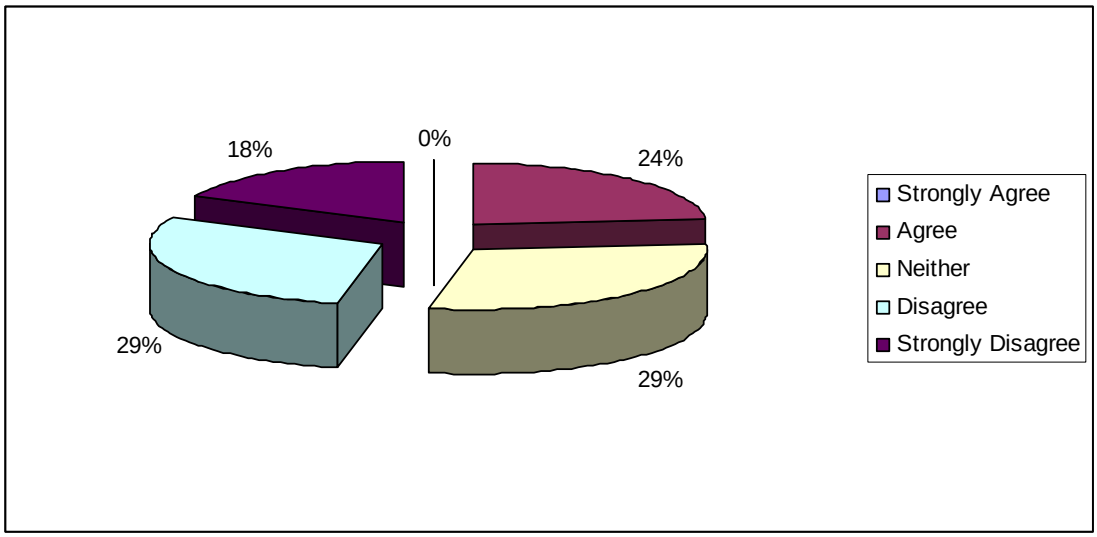
4.4.14 Mentors understand the mentees



Zero percent (0%) of the employees strongly agreed; eighteen percent (18%) of the respondents agreed and thirty five percent (35%) of the respondents were not sure about the mentors understanding mentees. Twelve percent (12%) of the respondents disagreed and thirty five percent (35%) of the respondents strongly disagreed that mentors understand mentees. Therefore, forty percent (47%) of the respondents disagreed that mentors understand mentees.

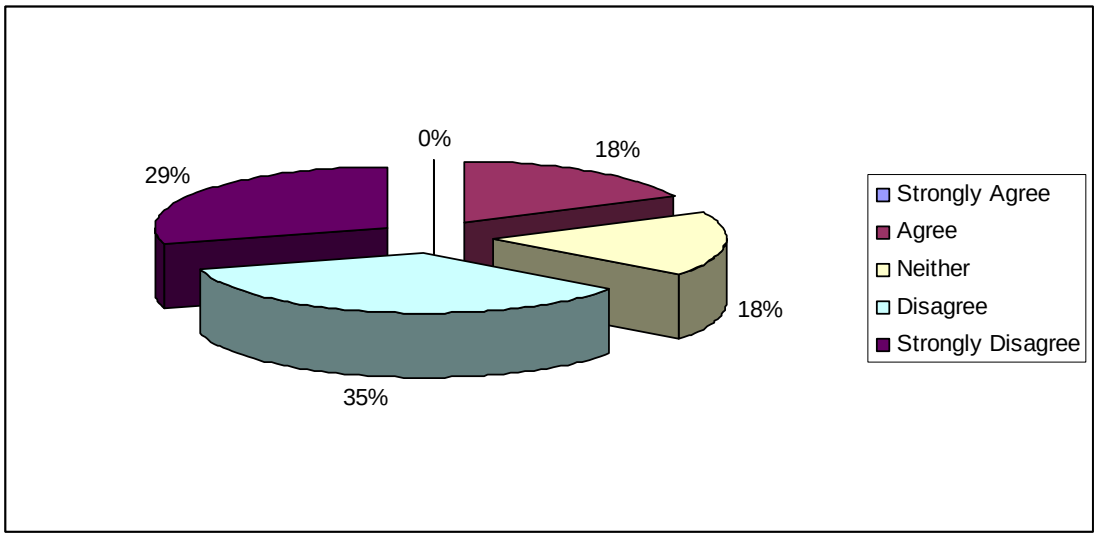
Having a good relationship with mentors is another significant factor characterising an environment where good human relationship, acceptance and cohesiveness exists and trust, respect and support are demonstrated (Sithole, 2001). Sithole (2001) further says that where good open relationships with the individual's superior existed and trust, respect and support are demonstrated and provided. The survey indicated that the relationship is not good between mentors and mentees.

4.4.15 Mentors are open



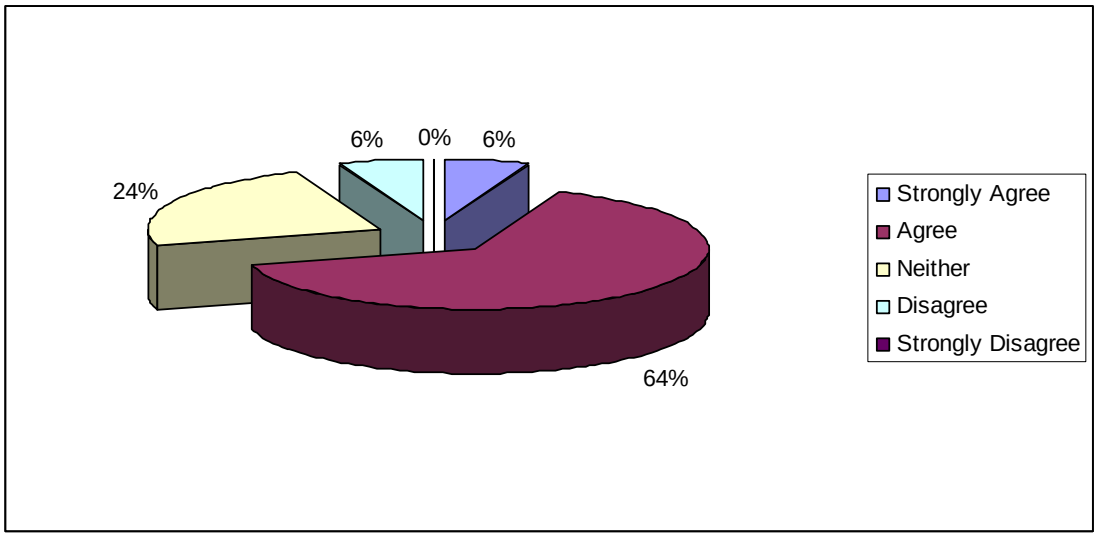
None (0%) of the respondents strongly agreed; twenty four percent (24%) of the respondents agreed and twenty nine percent (29%) of the respondents neither agreed nor disagreed that mentor are open. Twenty nine percent (29%) of the respondents disagreed and eighteen percent (18%) of the respondents disagreed that mentors are open. This implies that forty seven percent (47%) disagreed with the statement and only twenty four percent (24%) agreed. This means that mentors are not open to graduate engineers in training and therefore major improvement is required.

4.4.16 Mentors are aware of the training available and offered outside Eskom



None (0%) of the respondents strongly agreed; eighteen percent (18%) of the respondents agreed and another eighteen percent (18%) of the respondents neither agreed nor disagreed that mentors are aware of the training available and offered outside Eskom. Thirty five percent (35%) of the respondents agreed and twenty nine (29%) of the respondents strongly agreed that mentors understand and are up to date with the training offered outside Eskom. A total of sixty four percent (64%) therefore agreed, implying that mentors are aware of the training. This implies that training is available outside Eskom and since mentors are aware of the availability this is positive for Camden.

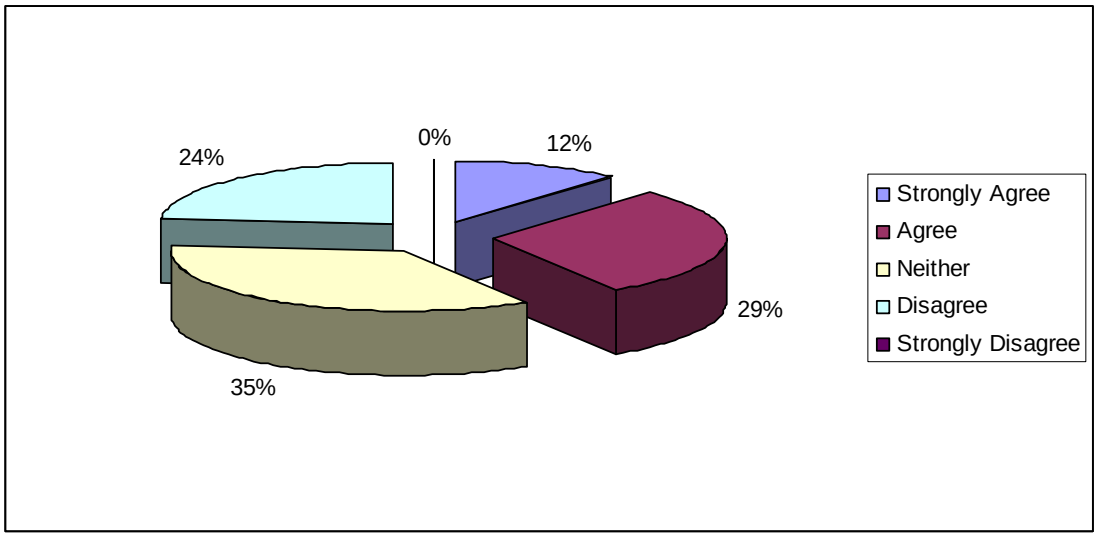
4.4.17 Senior engineers or mentors share their knowledge with newly graduated engineers



Six percent (6%) of the respondents strongly agreed; sixty four percent (64%) agreed and twenty four percent (24%) neither agreed nor disagreed with the statement that senior engineers or mentors share their knowledge with newly graduated engineers. Six percent (6%) of the respondents disagreed and none (0%) of them strongly disagreed with the statement that senior engineers or mentors share their knowledge with newly graduated engineers. The total of seventy percent (70%) of respondents agreed and none disagreed. This means that graduate engineers in training are certain that senior engineers share knowledge with them.

According to Ngwenya (2002), in order to invest in the survival of the organisation and future skills, management needs to put sustainable strategies in place to develop employees. Practically more experienced employees need to be used to transfer skills to inexperienced workers though formal mentoring and coaching programmes. Skill-sharing does take place at Camden and this is indicated by the survey results.

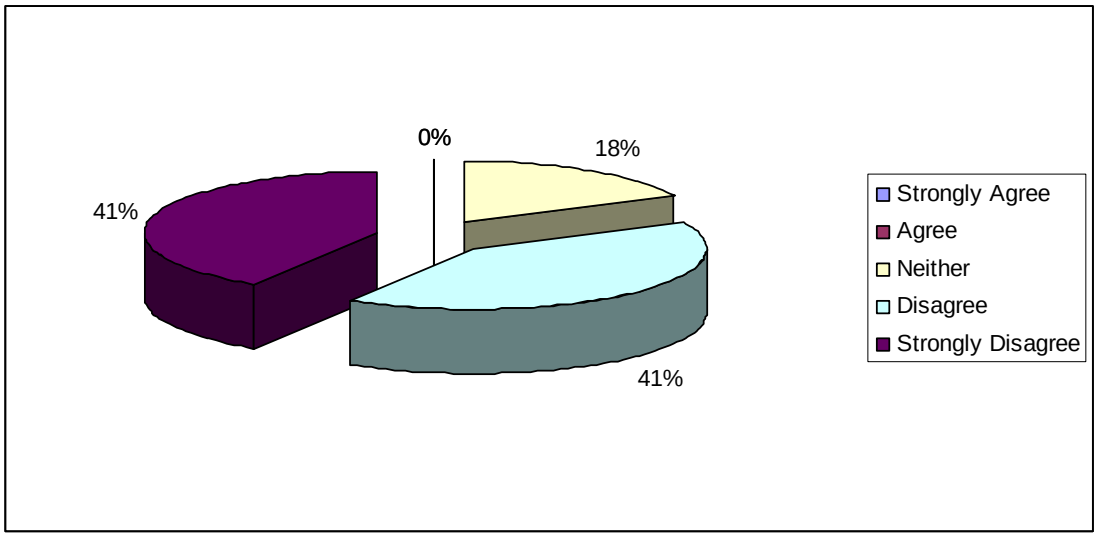
4.4.18 Graduates in training are assessed for improvement from time to time for the purposes of advancement



Twelve percent (12%) of the respondents strongly agreed; twenty nine (29%) percent of the respondents agreed and thirty five (35%) percent neither agreed nor disagreed with the statement that graduates in training are assessed for improvement from time to time. with purpose of advancement Twenty four percent (24%) of the respondents disagreed and none (0%) of the respondents strongly disagreed with the statement. It means that forty one percent (41%) of the respondents agreed and twenty four percent (24%) disagreed with the statement.

Nadler (1983) and Goldstein (1974) as cited by Cilliers (1999) indicate that training assessment and feedback are the last phases in the training process and this phase investigates whether or not the training process achieved its objectives and whether or not the programme was implemented according to the specified prearranged plans. They further say that the evaluation phase also includes the determination of whether or not the behavioural and performance changes have occurred. The survey indicates that evaluation at Camden is a problem and some responses are positive and some are negative. There is too much of a gap in terms of the results. This is found to be a critical factor for Camden to be able to assess its engineers to identify where skills are still lacking.

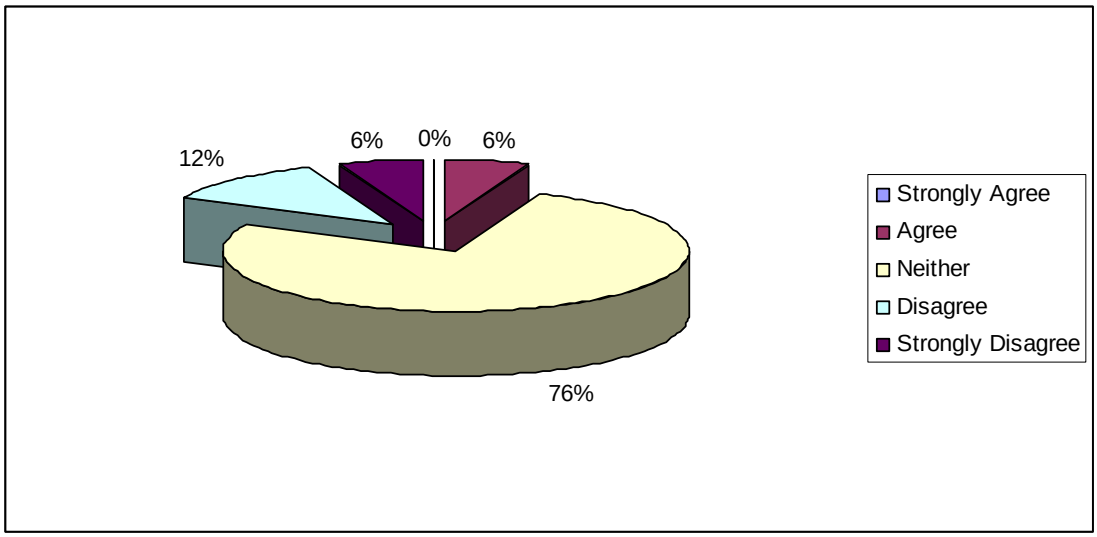
4.4.19 Mentors or senior engineers are remunerated for training newly appointed engineers



None (0%) of the respondents strongly agreed; none (0%) of the respondents agreed and eighteen percent (18%) of the respondents neither agreed nor disagreed with the statement that mentors or senior engineers are remunerated for training newly appointed engineers. Forty one percent (41%) of the respondents disagreed and another forty one percent (41%) of the respondents strongly disagreed with the statement. This implies that eighty two percent (82%) of the respondents are saying mentors or senior engineers are not remunerated for training newly appointed engineers.

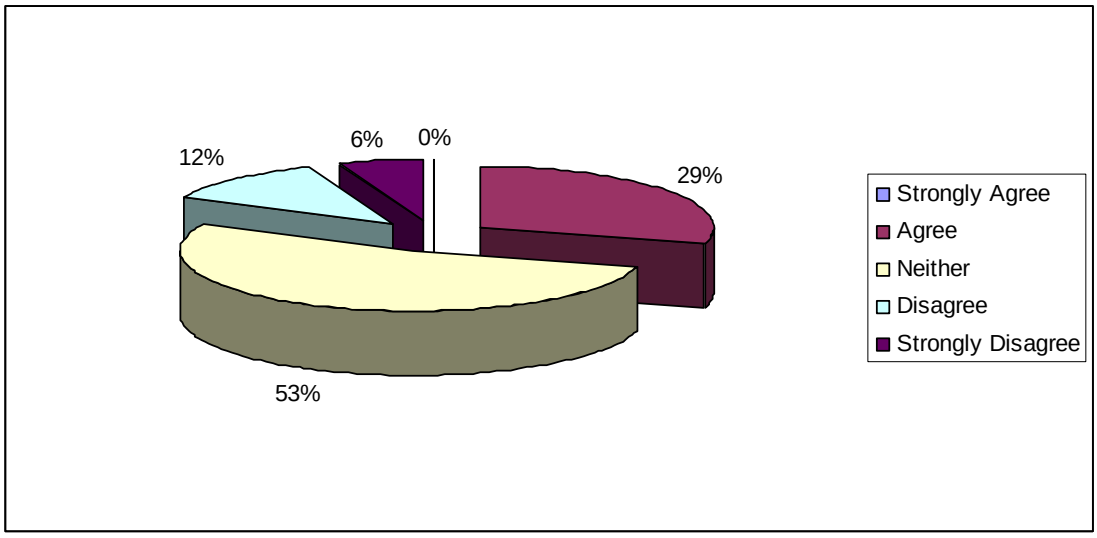
According to Sherratt and Wilhelm (as cited by Mutetwa (2001:39), knowledgeable employees would be attracted to an industry or organisation that remunerates employees for their good work. He further says that matching an employee with the right position at a right time can create employees edge, and this enables the organisation to keep ahead of the pack in an increasingly competitive market. This can mean that Camden is still not considering reward system as a retention strategy. This would also have an impact on the resignation rate of engineers.

4.4.20 Training of graduate engineers is in line with Eskom's and government policies



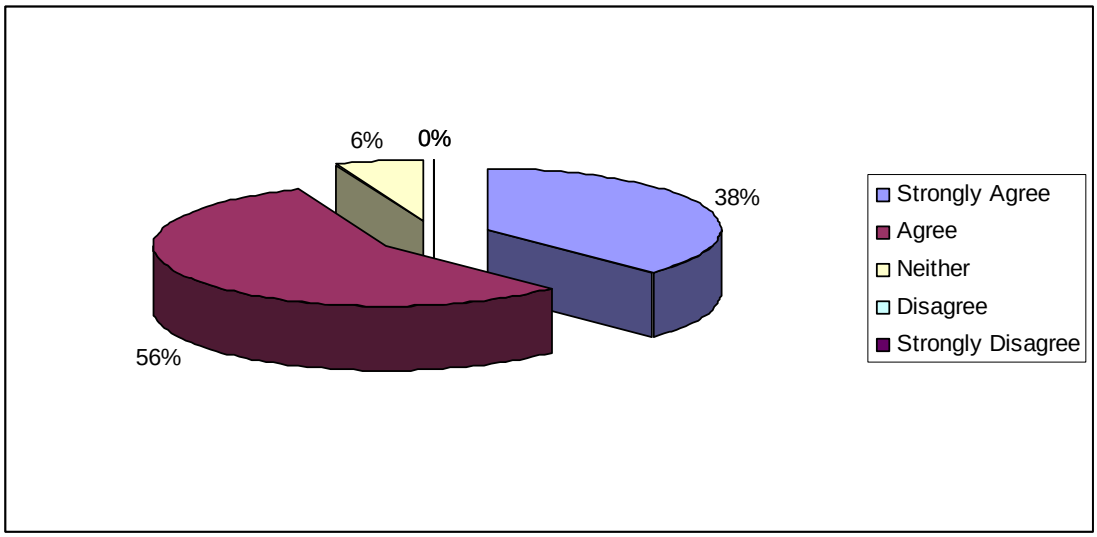
None (0%) of the respondents strongly agreed with the statement; six (6%) of the respondents agreed; seventy six percent (76%) neither agreed nor disagreed; twelve percent (12%) of the respondents disagreed and another six percent (6%) strongly disagreed with the statement that Training of graduate engineers is in line with Eskom's and government policies . This indicated that most of graduate engineers do not know what is going on with training policies and how they apply to training as discussed in the literature in chapter 2. Only twenty four percent (24%) of the respondents understand training policies of which six percent (6%) agreed and eighteen percent (18%) disagreed with the statement. This can be considered as not being clear to the respondents because they were not clear in their response by answering agree or disagree. This is one of the points that needs attention in the organisation, specifically at Camden.

4.4.21 The Management team is aware of the purpose of training and management supports the purpose



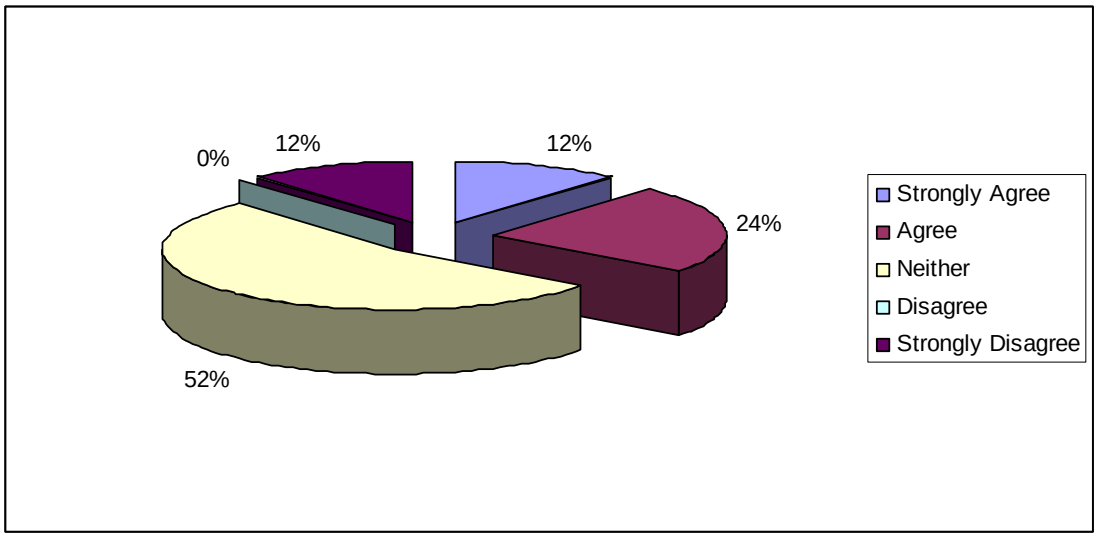
None (0%) of the respondents strongly agreed; twenty nine (29%) percent of the respondents agreed and fifty three percent (53%) of the respondents are not sure whether the management team is aware of the purpose of training and management supports the purpose or not. Twelve percent (12%) of the respondents disagreed and six percent (6%) of the respondents strongly disagreed with the statement. Again here, more that fifty percent of the respondents neither agreed nor disagreed. Training purposes or needs were not clear to managers and these need to be looked into in order to familiarise engineers and managers with these needs at Camden.

4.4.22 Graduate engineers in training are encouraged to ask questions



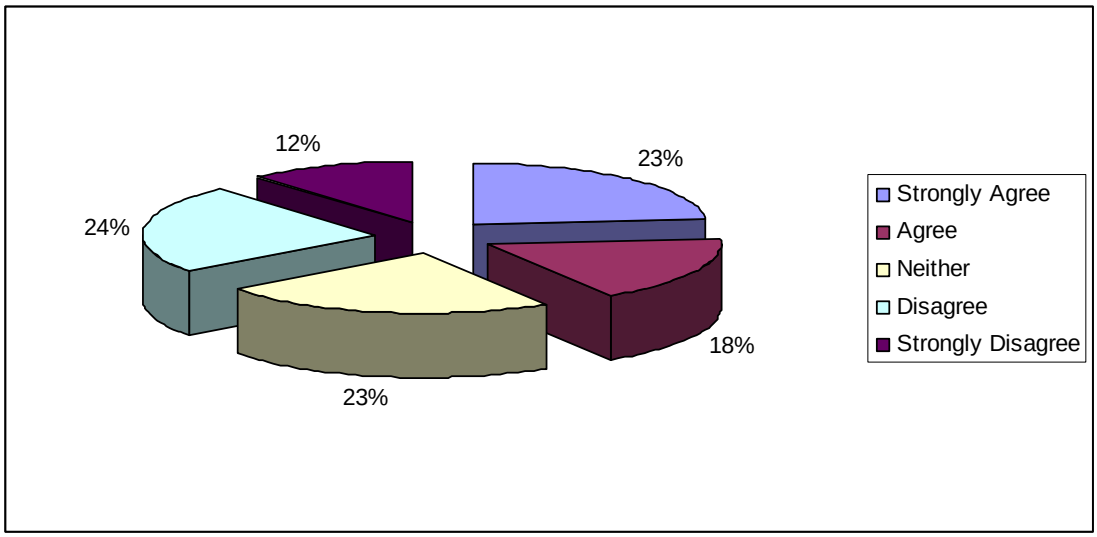
Thirty eight percent (38%) of the respondents strongly agreed; fifty six (56%) percent of the respondents agreed and six percent (6%) neither agreed nor disagreed with the statement that graduate engineers in training are encouraged to ask questions. None (0%) of the respondents disagreed and none (0%) of the respondents strongly disagreed with the statement. This implies that ninety four percent (94%) of the respondents are certain that graduate engineers in training are encouraged to ask questions. This looks very positive for the Camden Power Station and therefore only slight improvement is required to accommodate the other six percent (6%) of the respondents who were not sure.

4.4.23 Line management makes it clear as to what is expected from engineers



Twelve percent (12%) of the respondents strongly agreed; twenty four percent (24%) of the respondents agreed and fifty two percent (52%) of the respondents neither agreed nor disagreed with the statement that line management makes it clear as to what is expected from engineers. None (0%) of the respondents disagreed and twelve percent of the respondents strongly disagreed with the statement. Fifty two percent (52%) of the respondents neither agreed nor disagreed. This is already showing negative results as respondents were not sure about the statement. Twenty four percent (24%) agreed and none disagreed which is positive about the subject. This implies that Camden still needs to make significant changes on the issue of expectations from graduate engineers in training in order to make them aware of what is being expected of them.

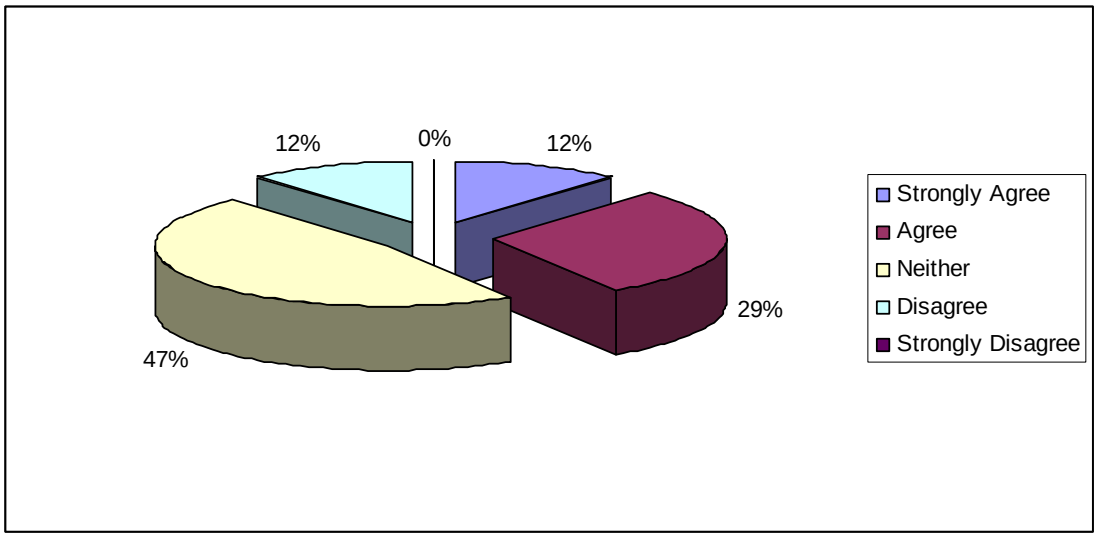
4.4.24 Responsibilities are clear to engineers



Twenty three percent (23%) of the respondents strongly agreed; eighteen percent (18%) of the respondents agreed and twenty three (23%) percent of the respondents neither agreed nor disagreed with the statement that responsibilities are clear to engineers. Twenty four percent (24%) of the respondents disagreed and twelve percent (12%) of the respondents strongly disagreed with the statement that responsibilities are clear to engineers. Here, it is difficult for one to tell whether the respondents agreed or disagreed since forty one percent (41%) agreed and thirty six percent (36%) disagreed. The responses are very close to each other with the difference of only five percent (5%).

Buckingham and Coffey (1998) state that the managers also have to focus on individuals' strengths and manage around weaknesses and should have an ability to describe, in detail, the talents of his/her employees. Knowing the strengths and talents of an employee would assist a manager to choose a suitable engineer for the job and would be in a position to assess the engineer in order to allocate them to trainees with clear responsibilities.

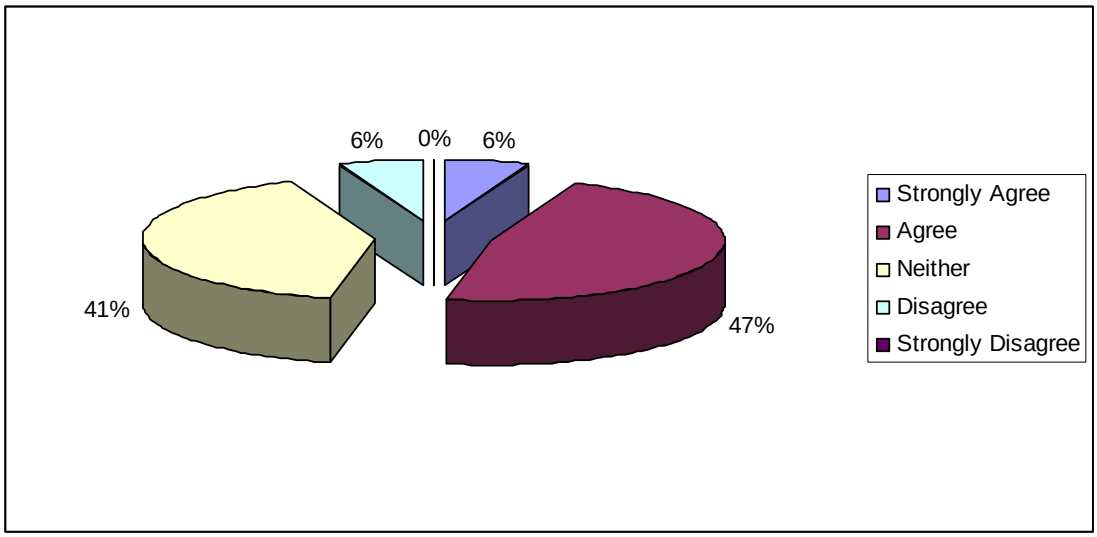
4.4.25 Feedback is being encouraged



Twelve percent (12%) percent of the respondents strongly agreed; twenty nine (29%) percent of the respondents agreed and forty seven (47%) percent of the respondents were not sure whether or not the feedback is being encouraged. Twelve percent (12%) disagreed and none (0%) of the respondents disagreed strongly. Forty one percent (41%) agreed and only twelve percent (12%) disagreed. The survey showed that feedback is a problem since employees were not aware whether feedback is encouraged or not.

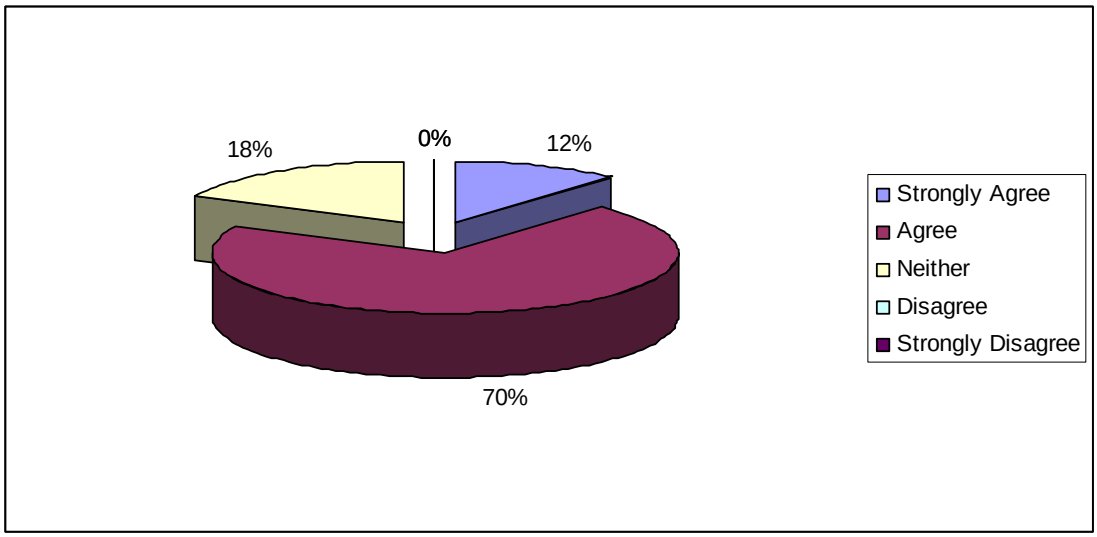
According to Sithole (2001), reliable constant feedback regarding performance measures has been referred to as a process in which knowledge skills are being developed and made available. This performance management system would have provided synergy in this respect through the process of feedback, to promote the information flow (Boyett & Conn, as cited by Sithole, 2001:100). The survey shows that feedback is also an area of concern because respondents are not certain. This would also help management to be able to conduct performance appraisals because they can track the performance of the employee through feedback.

4.4.26 Reporting arrangement is clear highlighting the role of each team player



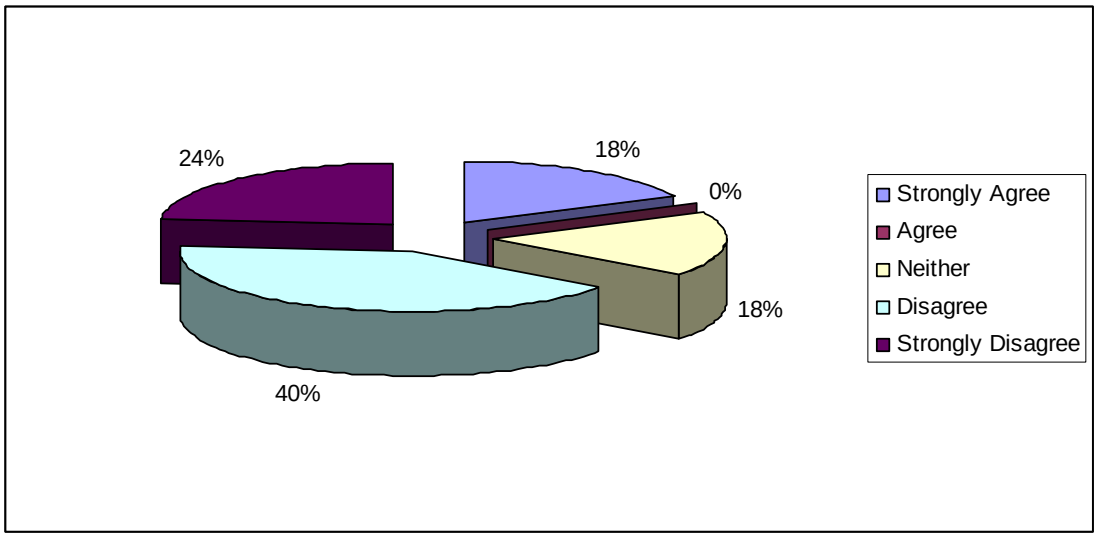
Six percent (6%) of the respondents agreed strongly; forty seven percent (47%) of the respondents agreed and forty one percent (41%) neither agreed nor disagreed with the statement that Reporting arrangement is clear, highlighting the role of each team player or not. Six percent (6%) of the respondents disagreed and none (0%) of the respondents strongly disagreed with the statement. Fifty three percent (53%) of the respondents agreed and this is positive, forty one percent (41%) neither agreed nor disagreed and that has a negative impact on the research because it is difficult to analyse their perspective. The positive thing about the results was that only six percent (6%) disagreed. The survey indicates that Camden seems to have structures that provide job role descriptions.

4.4.27 Management of time is encouraged



Twelve percent (12%) of the respondents agreed strongly with the statement; seventy percent (70%) of the respondents agreed and eighteen percent (18%) neither agreed nor disagreed with the statement that management of time is encouraged. None (0%) of the respondents disagreed and none (0%) disagreed strongly as well. This implies that eighty two percent (82%) agreed and none disagreed and this is positive since no major improvement is required to improve on the encouragement of time management. The negative part was that eighteen percent (18%) were not sure.

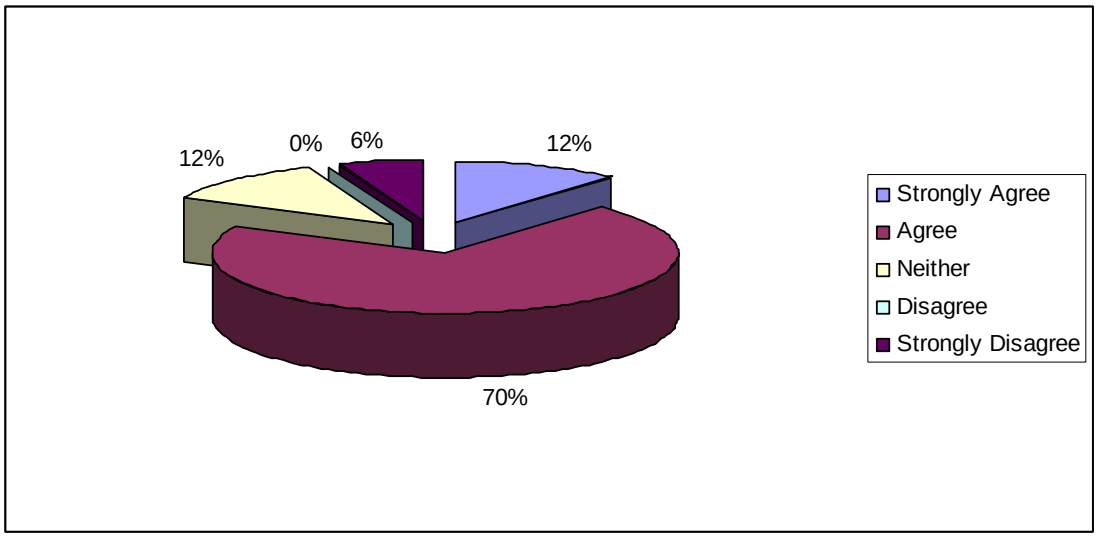
4.4.28 Job rotation is being encouraged



Eighteen percent (18%) of the respondents strongly agreed; none (0%) of the respondents agreed and another eighteen percent (18%) of the respondents neither agreed nor disagreed with the statement that job rotation is being encouraged. Forty percent (40%) of the respondents disagreed and twenty four (24%) percent of the respondents strongly disagreed with the statement that job rotation is being encouraged in the CED. It can be noted that the total of sixty four percent (64%) disagreed that job rotation is being encouraged and only eighteen percent (18%) agreed and that is negative in the organisation, specifically at Camden.

In non-hierarchical organisations where individuals work more often on a project-by-project basis, opportunities for skills development will be increased (*Leadership*, 2001). Moreover, in a multi-skilling environment (where job rotation takes place), individuals are expected to have and to develop broad and transferable skills. The survey indicated that multi-skilling is not considered to be one of the crucial aspects to look at.

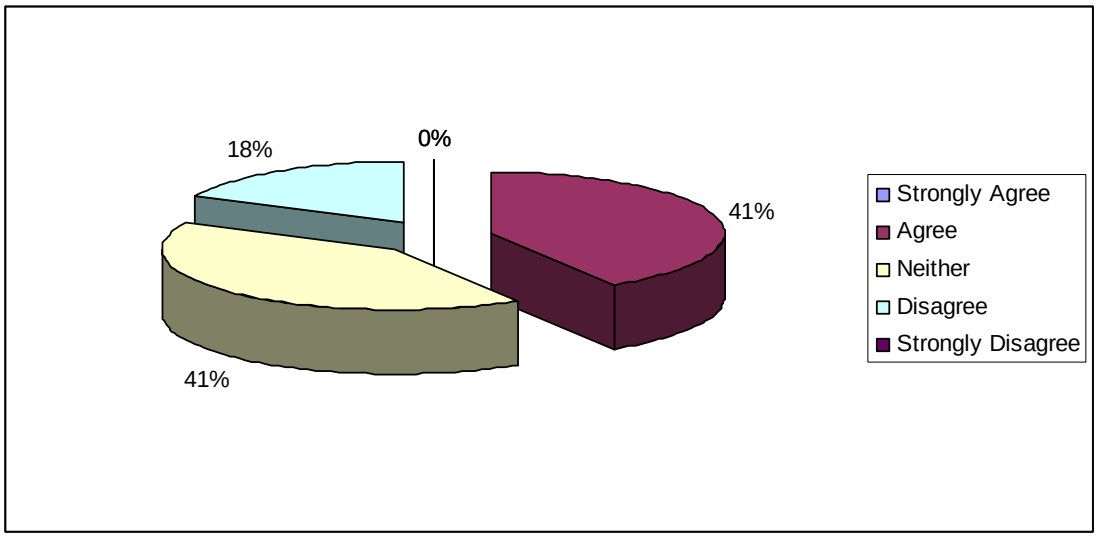
4.4.29 Off-the-job training is available



Twelve percent (12%) of the respondents strongly disagreed; seventy percent (70%) of the respondents agreed and twelve (12%) percent neither agreed nor disagreed with the statement that off-the-job training is available. None (0%) of the respondents disagreed and only six percent (6%) of the respondents strongly disagreed with the statement. Therefore, eighty two percent (82%) of the respondents agreed that external off-the-job training is available and only six (6%) disagreed and that is positive for the organisation.

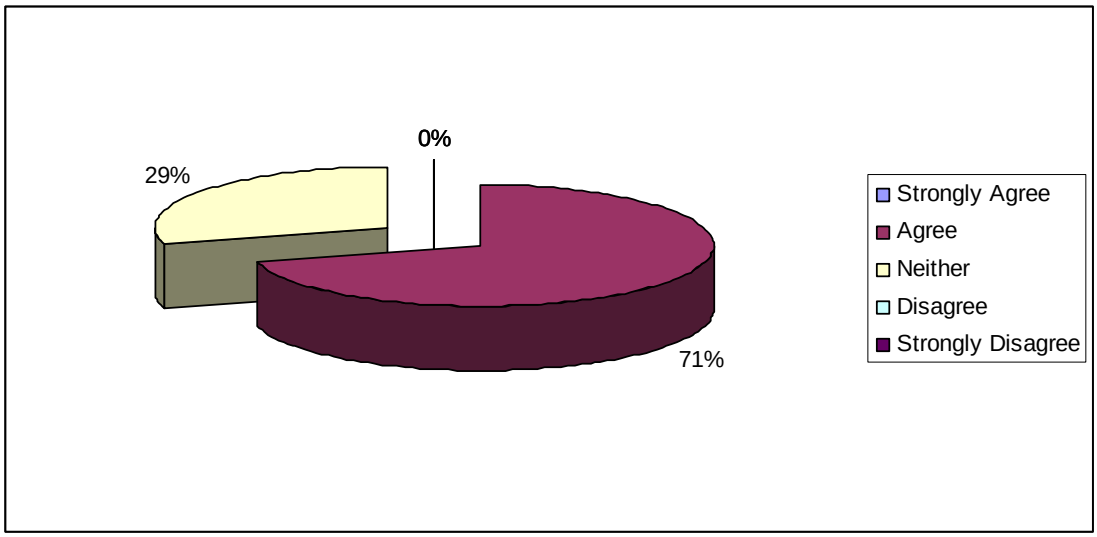
"Outsourced or external trainers can be selected on a project by project basis according to their specialisation. The model most often preferred, for larger companies, is the maintenance of a small in-house training department, supplemented by external trainers with whom a close relationship has been developed to ensure that the specific training needs of the firm are addressed" (*Reuters Business Insight,* 1998:92). The survey gave positive results where respondents agreed that external job-related training is available for graduate engineers.

4.4.30 On-the-job training is available



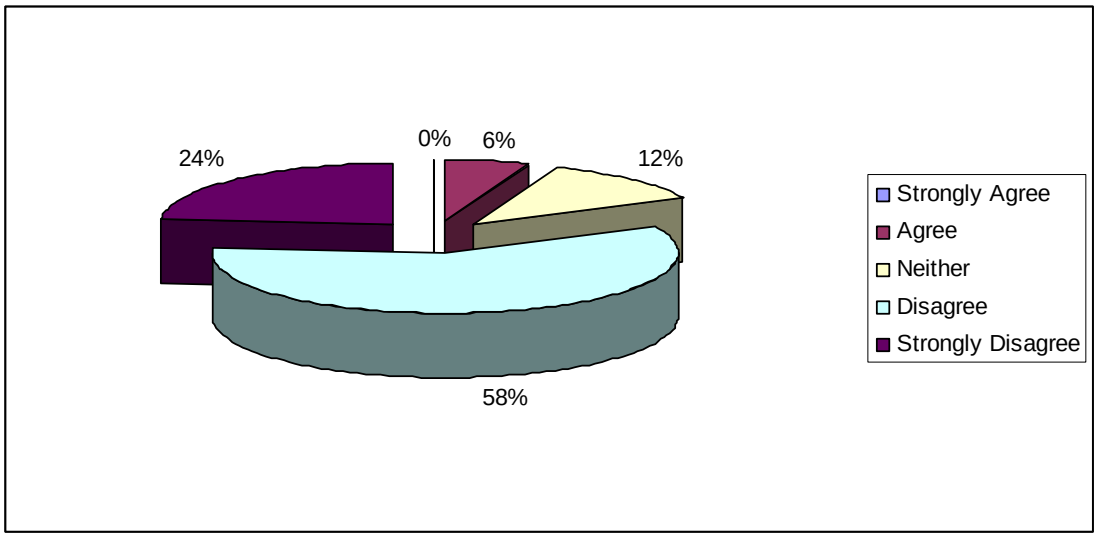
None (0%) of the respondents agreed strongly; forty one percent (41%) of the respondents agreed and forty one percent (41%) of the respondents neither agreed nor disagreed with the statement that on-the-job training is available. Eighteen percent (18%) of the respondents disagreed and none (0%) of the respondents disagreed strongly with the statement. The largest number of respondents agreed and same number neither agreed nor disagreed. The positive thing about these results is that only eighteen percent (18%) disagreed. This implies that Camden is not doing all the necessary tasks to make trainees aware of the availability of on-the-job training. The survey indicates that graduates are not aware of this training by recording forty one percent (41%) as neither agree nor disagree.

4.4.31 Workplace orientation gets done



None (0%) of the respondents agreed strongly; seventy one (71%) of the respondents agreed and twenty nine percent (29%) of the respondents neither agreed nor disagreed with the statement that workplace orientation gets done. None (0%) of the respondents disagreed and none (0%) disagreed strongly with the statement. Here, respondents are certain that there is orientation being done when new employees join the CED and none disagreed and that is positive. The other twenty nine percent (29%) need to be made aware of orientation that takes place. This indicates that Camden has a good strategy of welcoming new employees to Eskom by conducting workplace orientation.

4.4.32 There is a knowledge retention strategy



None (0%) of the respondents strongly agreed; and only six percent (6%) of the respondents agreed and twelve percent (12%) of the respondents neither agreed nor disagreed with the statement that there is skill retention strategy. Fifty eight percent (58%) of the respondents disagreed and twenty four percent (24%) of the respondents strongly disagreed with the statement. Eighty two percent (82%) of the respondents disagreed, only six percent (6%) agreed and that is very negative.

Retention can be improved by increasing employees' connection with the organisation. Retention can also be achieved by: improved communications, flexible working conditions, occupational pensions, benefit packages and employee share schemes, creating a good psychological contract through fundamental manipulation of an organisation's culture (Fieldman, Hatch, Walker, 1998). Hargrove (as cited by Ngwenya 2002: 143), maintains that the skills transfer should be done practically as far as possible to encourage learning while at work. He advises that, where possible, time be allotted daily by designated coaches to guide protégés in more job related tasks. This strategy would certainly facilitate the organisational skills retention, enable the organisation strategically to achieve set employment equity targets, and enable the organisation effectively to manage its succession programme. The survey indicates that there is too much of a gap in terms of a retention strategy. This should be of concern to Camden management because this contributes negatively to their performance appraisal. The gap should be closed as suggested by the survey done by

Fieldman, Hatch and Walker (1998) as cited by Reuters Business insight: Leadership (2001) and the one done by Ngwenya (2002).

CHAPTER 5

FINDINGS AND RECOMMENDATIONS

5.1 Introduction

This chapter details the conclusions and recommendations following the research findings discussed in chapter 4. The recommendations will, as far as possible, address findings with a view to improving the training process in Eskom's Capital Expansion Department of Eskom's Enterprises division. The recommendations present possible solutions as suggested by the author.

The research questions will be answered and the recommendations will be made in this chapter based on the analysis presented in chapter 4.

5.2 How effective is the current training strategy for new Graduate Engineers in Eskom's Capital Expansion Department specifically at the Camden Power Station?

5.2.1 Findings

- Communication channels do not seem to be working for the CED, they are not clear and effective.
- Growth and development is a critical factor in training and respondents seemed to be positive, agreeing that it is effective.
- According to the findings, senior engineers share their knowledge with young engineers. This is good for the company although training of mentors is lacking. This indicates that if trainees could be trained, appropriate knowledge would be transferred to trainees.
- Graduates in training do not get evaluated for progress with clear suggestions for improvements at regular intervals.
- Respondents were not clear on the issue of alignment of training with company management policy. The majority of them neither agreed nor disagreed and that might mean that they do not know company performance management policy. It could be concluded that this is being disregarded.

5.2.2 Recommendations

- Hargrove (as cited by Ngwenya 2002:137-138) indicates that coaching is not practiced in many organisations and that a more knowledgeable and influential senior manager should be assigned to a position of a programme sponsor to ensure that the staff with technical expertise volunteer to coach less experienced engineers.
- Management should support training and development and that would be achieved by communicating all elements of the process. The value of communication within the organisation should be recognised.
- A strong training programme should be built-up to prevent a decline in engineers' retention.
- Graduate engineers need to be equipped with the right skills and they should be retained in order to prepare them for being mentors in future. This would be improved by increasing employees' connection with the organisation and by aligning policies with the organisation's core culture (Fieldman, Hatch and Walker, 1998).
- Graduate engineers in training should be evaluated for progress with clear suggestions of improvements at regular intervals. This will determine whether or not the training process has achieved its objectives and whether the programme was implemented according to prearranged plans or not.
- The issue of training policies should be addressed. Graduates should be familiar with training policies because according to the survey, engineers are not clear about such policies.

5.3 What are the critical success factors for the current training strategy?

5.3.1 Findings

- From the analysis, there is no proper programme to be followed when developing graduate engineers during their training. There is a training programme available which graduate engineers and graduate engineers in training are not aware of.
- Induction is not properly done. Graduate engineers in training and new employees have not been inducted in a formal way. However, there is now an induction programme that has recently been drafted and it is being used.

According to the survey, graduate engineers have not been made aware of the induction programme.

- There are no mentors appointed to train newly graduated engineers.
- Mentors are simply not rewarded for their efforts to train or mentor newly graduated engineers. Rewarding employees also serves as a retention strategy. If this is not done, the organisation will suffer resignations.
- Line management is not conversant with training objectives. Their concern is to get designs done and all engineering issues sorted out.
- The findings indicated that there is continuous improvement and development in the CED. It is also indicated that respondents are certain about effectiveness of the continuous improvement and development at Camden.
- The survey showed that mentors are not trained for the job they are doing. This also leads to mentors not understanding mentees in terms of what they require and how to deal with different types of graduate engineers in training. The survey also indicated that mentors are not open to their trainees to ask questions where there is a lack of understanding.
- Mentors seemed to understand and are up to date about the availability of training offered outside Eskom.
- From the analysis, it can be identified that respondents do not know whether they are being coached or not. This was recognised because twenty nine percent of the respondents agreed and the other twenty nine percent disagreed.
- On-job-training is available to the graduate engineers as indicated by the analysis.
- Graduate engineers in training do not seem to be given enough time for training. They are expected to perform and tackle the tasks given to them without giving them time to align their university theory with the systems in the workplace.
- Retention strategy can be an issue since most respondents neither agreed nor disagreed and this can mean that they do not know whether there is such a strategy or not. The positive part about retention was, no one disagreed and the rest of the respondents agreed.

- Mentors are not trained to train, coach or mentor graduate engineers in training. They seem not to understand mentees and they are not open to engineers to ask question whenever they have problems.
- Line management is not conversant with training objectives. Their concern is to get designs done and all engineering issues sorted out.
- GIT's do not have clear expectations from their managers and / or mentors. From the analysis, very few respondents agreed and again very few disagreed with the very large number of respondents neither agreeing nor disagreeing.
- Responsibilities are not clear to engineers.
- Feedback is not encouraged.
- Job rotation is not encouraged.
- Internal job-related training is not available to the CED employees.
- The survey disagreed that there is skill retention strategy in the CED.

5.3.2 Recommendations

- Hargrove (as cited by Ngwenya 2002:137-138) indicates that coaching is not practiced in many organisations and that a more knowledgeable and influential senior manager should be assigned to a position of a programme sponsor to ensure that the staff with technical expertise volunteer to coach less experienced engineers.
- Management should support training and development and that would be achieved by communicating all elements of the process and the value of communication within the organisation should be recognised.
- Designs need to be checked and approved by senior engineers before being implemented. This would prevent wastage of money and time.
- Graduate engineers need to be equipped with the right skills and they should be retained in order to prepare them for being mentors in future. This would be improved by increasing employees' connection with the organisation and by aligning policies with the organisation's core culture (Fieldman, Hatch and Walker, 1998).
- Dedicated mentors need to be appointed to share knowledge they have with newly appointed engineers. This would ensure knowledge transfer between the employees.

- Graduate engineers in training should be evaluated for progress with clear suggestions of improvements at regular intervals. This will determine whether or not the training process has achieved its objectives and whether the programme was implemented according to prearranged plans or not.

5.4 Area of Further research

The majority of the respondents neither agreed nor disagreed with most of the critical success factors for the current training strategy and therefore further research needs to be done to identify why they don't have a clue on each of those points. This would help an organisation to identify areas that need to be covered in order to address the issue. Moreover, research that directly links training to performance improvement may be needed.

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APPENDICES

Research questionnaire for management, engineers in training and senior engineers intended to identify improvement areas in the Eskom Enterprises graduate engineer training programme:

Key:

- Strongly disagree: Very little to none of the statement is true
- Disagree: Statement reflects some minor truthfulness but has serious deviations
- 50-50: Have no idea
- Agree: Statement reflects a fair degree of truthfulness with little/minor deviations
- Strongly agree: Statement is a perfect reflection of the truth/ state of things

Question	**Strongly disagree**	**Disagree**	**50-50**	**Agree**	**Strongly agree**
1. There is training programme for Graduate Engineers.					
2. Induction is properly implemented.					
3. Mentors have been appointed					
4. Coaching is done in the CED					
5. Communication is clear and effective					
6. There is growth and development in the CED.					
7. Designs done by engineers do not often change.					
8. The CED has highly skilled engineers.					
9. There is a retention strategy for skilled engineers.					
10. There is sufficient time for graduate engineers to do					

training.					
11. On the job training is available to the graduate engineers.					
12. There is continuous improvement and development.					
13. Mentors are well trained					
14. Mentors understand the mentees					
15. Mentors are open					
16. Mentors understand and are up-to-date with training offered outside Eskom.					
17. Senior engineers share their knowledge with newly young engineers.					
18. Graduates in training are evaluated for progress.					
19. Mentors are rewarded for training their efforts.					
20. Training aligns with company performance management policy.					
21. Line management is conversant with training objectives and supports them.					
22. GIT's are encouraged to ask questions.					
23. Employees have clear expectations from their managers and/or mentors.					
24. Responsibilities are clear to engineers.					
25. Feedback is being encouraged.					
26. Reporting arrangement is clear					

highlighting the role of each team player.					
27. Good time management is encouraged.					
28. Job rotation is being encouraged.					
29. External job-related training is available.					
30. Internal job-related training is available.					
31. Workplace orientation gets done.					
32. There is a knowledge retention strategy.					

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UNIVERSITY OF
KWAZULU-NATAL

27 NOVEMBER 2009

MR. S SITHOLE (205527662)
LEADERSHIP CENTRE

Dear Mr. Sithole

APPROVAL NOTIFICATION
ETHICAL CLEARANCE APPROVAL NUMBER: HSS/0840/09M

I wish to confirm that ethical clearance has been granted full approval for the following project:

"Investigation into Training Strategy for Graduate Engineers in the Capital Expansion Department of Eskom Enterprises Division"

PLEASE NOTE: Research data should be securely stored in the school/department for a period of 5 years

Best wishes for the successful completion of your research protocol.

Yours faithfully

.....
PROFESSOR STEVEN COLLINGS (CHAIR)
HUMANITIES & SOCIAL SCIENCES ETHICS COMMITTEE

cc. Supervisor (Prof. RG Taylor)
cc. Mrs. C Haddon