

UNIVERSITY OF KWAZULU-NATAL

Barriers to effective workplace skills development in the electrical sector

By

Kogilan Reddy

210512551

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College of Law and Management Studies

Supervisor : Professor Anesh Maniraj Singh

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DECLARATION

I, Kogilan Reddy declare that

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

Electrical contractors are evolving through a challenging phase in the maturing democratic South Africa. Government has allocated funding and has mandated skills development to the Sector Educational and Training Authorities (SETA), however, this strategy has lost its focus. With the golden thread lost in the maze of institutional bureaucracy. Implementation strategies at government and industry level should overlap each other, compliment and reinforce one another and form the core of South Africa's Skills Development Strategy. Whilst it is true that there is a severe skills shortage in all technical fields, the reasons behind these shortages is not clear. The aim of this study was to determine what challenges electrical contractors in KwaZulu-Natal faced that prevented the development of skills in the industry. The lack of actual sector skills intelligence transfer from industry to government departments resulted in incorrect statistics of the electrical contracting sector. The objective of distributing the survey to all electrical contractors that were registered with the Electrical Contractors Association SA (ECA SA) in KwaZulu-Natal Durban and surrounding areas including Richards Bay was to conduct a study amongst the total population and then establish a simple random sample. An electronic questionnaire was mailed to all contractors registered with the ECA SA KwaZulu-Natal. A total of 540 respondents viewed the survey and 269 completed it. This translates to a 50% completion rate. It has been proven that 58% of electrical contractors were training electricians. Further analysis revealed that there was a relationship between the age of a business and the man hours invested in training. Older businesses conducted more training. There was also a relationship between the number of man hours invested in training and the number of qualified electricians employed. The greater the man hours of training the larger the number of qualified electricians employed. Whilst there was no relationship between man hours invested in training and accessing SETA funding, electrical contractors believed that the full reimbursement for training would accelerate the skills development processes.

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Chapter One

Overview of study

1.1 Introduction

Many developing countries are challenged with severe skills shortages and are confronted with difficulties of developing strategies that can enhance their current situation. South Africa is no different, skills shortages in all sectors are rated by industry as acute (Kraak, 2003). While government has committed support and funding to training, the implementation policies have resulted in unfavourable outcomes (Bhorat & Lundal, 2002). Industrial technological growth in South Africa has created a demand for skilled labour that has surpassed supply (Daniels, 2007). The skills development strategy has been revised over the past ten years as industry needs have been reviewed (Daniels, 2007). This indicates Government's willingness to work with industry and encourage growth. The electrical industry was an industry that produced high quality artisans and skilled labour, however, in the period 2001 - 2011 it has deteriorated to a position where qualified artisans are unable to perform basic tasks, placing the industry on the scarce and critical skills list (Kraak, 2003). This chapter will provide an overview of the study which includes the scientific rationale, the focus of the study, the research questions, and the objectives.

1.2 Problem Statement

The electrical contracting industry is a technologically driven industry that has found itself ranking high in the scarce skills category in South Africa (Mcgrath, Badroonien, Kraak & Unwin, 2004). There is very little, if any, documentation or studies focused on electrical contractors in South Africa (ESETA, 2010). The question still remains, why are electrical contractors failing to make use of government initiatives in skills development? According to the Electrical Sector Educational and Training Authorities (ESETA) (2010) draft report there are assumptions made in this sector that need sound research. This study will attempt to determine whether there is a lack of knowledge about the Sector Educational

and Training Authorities (SETA), and the reasons why electrical contractors are not engaging formal training. According to James (2009) the Skills Development Act was established to encourage employers to implement skills training at the work place through the use of the skills development fund which is linked to the firm's payroll. Ten years into the Skills Development fund the scheme is weighted down with administrative red tape (James, 2009). Collaboration between government and business must take place in order to make available the most efficient and direct way of solving the skills shortage (Besson & Haddadj, 1999). This study will answer the question: What are the challenges that electrical contractors in KwaZulu-Natal face that prevents skills development in the sector?

1.3 Motivation for the Study

Businesses in the electrical contracting industry are mainly owned by entrepreneurs. This study will empower these individuals to engage with the SETAs and contribute towards development targets in the national skills plan. The data collected from this study will confirm, the key challenges that are faced by electrical contractors in KwaZulu-Natal with regards to skills development, the types of incentives electrical contractors would prefer for training and whether the Skills Development Levy (SDL) is catering for the electrical contractor's training needs.

1.4 Focus of the Study

The study will focus on electrical contractors who are registered members of the Electrical Contractors Association of South Africa (ECA SA) in Durban, Richards Bay and surrounding areas in KwaZulu-Natal. Although there are many other issues that need research in the sector, skills development and incentives for training feature top of the list of challenges. In order to get a wide range of responses from electrical contractors of different sizes the survey was sent to all electrical contractors listed on the data base of the ECA SA.

1.5 Research Objectives

In order to answer the research question, the study aims to achieve the following objectives:

- To determine whether electrical contractors develop electricians.
- To investigate the challenges that electrical contractors in KwaZulu-Natal face in developing skills in the sector.
- To determine whether electrical contractors are aware of the incentives available for developing skills.
- To determine whether electrical contractors are accessing the incentives available for developing skills.
- To determine what electrical contractors believe should be done to increase the skills labour pool in the electrical sector.
- To determine whether relationships exist between:
 - Man hours invested in training and age of the business.
 - Man hours invested in training and number of qualified electricians.
 - Man hours invested in training and accessing SETA funding.
 - Number of staff employed and the age of the business.

1.6 Research Questions

The questions that will be answered by the research are as follows:

- Are electrical contractors involving themselves in the training and up-skilling of electricians?
- Will the initiatives by electrical contractors improve the development of electricians in the sector?
- What are the challenges that electrical contractors face in the development of electricians?
- What type of incentives would electrical contractors prefer for training and up skilling of electricians?
- What initiatives can be implemented to increase the skilled labour pool in the electrical sector?
- Is the Skills Development Levy (SDL) catering for the electrical contractor's training needs?

In order to answer these questions, a survey will be conducted among electrical contractors in the Durban, Richards Bay and surrounding areas.

1.7 Proposed Methodology

In order to get a balanced and informed perspective this study will target senior decision makers including owners and senior management. Due to the large population of electrical contractors registered with ECA SA, a quantitative study will be conducted. An electronic questionnaire will be issued to each member of the ECA SA via email link to Question Pro or a personally administered electronic questionnaire.

Due to the geographic spread of respondents, a sample will be drawn from the population. Probability sampling, specifically simple random sampling will be used to give all elements (contractors) in the population an opportunity to participate ensuring a high generalizability of the results (Sekaran & Bougie, 2009). The data will be analysed using the statistical functions of Question Pro. A more detailed outline will be provided in Chapter Three, Chi², means analysis and cross tabulation.

1.8 Chapter outline

This study will be presented in five chapters as follows:

Chapter One: introduces the research problem, the focus of the study, the research objectives and research questions.

Chapter Two: presents the literature review of the study. It focuses on the definition and understanding of skills shortages, the impact of skills shortages, the overview of skills strategies and solutions to tackle skills development. This chapter is the most important as it provides the basis of this study.

Chapter Three: describes the research methodology, the participants and location of the study, the research approach, data collection and sampling method, the development of the questionnaire, pretesting and validation.

Chapter Four: is the presentation and discussion of results. This will be presented in the form of figures, tables and narratives.

Chapter Five: is the concluding chapter that closes the study and offers recommendations that will contribute to development of skills, and recommendations for future study.

1.9 Summary

The problem statement, research objectives, research questions and focus were highlighted in this chapter whilst giving a brief overview of the chapters that follow. It was established that the study will be conducted in KwaZulu-Natal and the respondents will be registered members of the ECA SA. This study will take a descriptive approach and contribute to the available literature of skills development in the electrical industry. Chapter Two will present the review of literature which forms the background to the study.

Chapter Two

An overview of skills development in South Africa

2.1 Introduction

There are a number of factors which have influenced the shortfall of skills development in South Africa from 1994 to present. These factors can be attributed to South Africa's rapidly changing and growing global market share over the past seventeen years (Daniels, 2007). Economic growth, industrial and technological development has created a demand for a skilled work force that has surpassed supply in South Africa. Government agencies and the private sector are faced with the challenge of bridging the ever growing skills gap. Over the past seventeen years the South African government has developed policies that encouraged training and social development but these have not made a substantial impact on alleviating the skills shortage (Kraak, 2003). Government's willingness to work with industry and encourage growth has been noted. The adoption of the primary skills development strategy to address the skills shortage, inequity, alleviate poverty and create employment has been an attempt by government, but this intervention has had a low success rate which is of concern to industry role players (Bhorat & Lundall, 2002). Among the various industrial sectors, the electrical contracting sector consisting of Small, Medium and Micro business Enterprises (SMME) who employ between 1 and 50 people have produced high quality artisans and skilled labour, however, under the new skills development strategy it has deteriorated to a position where qualified artisans are not able to perform tasks that are basic, placing the industry on the scarce and critical sector list (Kraak, 2003). In this chapter relevant literature relating to barriers in implementation strategies of skills development and the understanding of scarce skills and critical skills will be reviewed.

2.2 An understanding of Scarce and Critical Skills

According to studies conducted by Lobo and Wilkinson (2007), Addis (2003) and Baldwin-Evans (2006) scarce and critical skills are a global concern and it is of great importance for all role players to engage in creating sustainable development to improve the current skills shortages. The skills shortage is not a new barrier within industry, it has been a recurrent problem.

Clarke and Herrmann (2007) found that there is an increase in skills shortages and employment positions such as site managers and tradespersons that are hard to fill within the construction sector. According to Besson & Haddadj (1999), the global economy demands flexibility in industry and new high technology state of the art production methods are being employed, the success of which depends on a well trained labour force to compete effectively with those countries that have already made state of the art production top of their economic priorities. Companies that take little or no responsibility for resolving the skills shortages and developing training needs will not progress and will allow market share to be taken away from them (Clarke & Herrmann, 2007).

According to the Department of Labour (DOL, 2006) the Skills Focus Group had adopted in principle that the definition for Scarce and Critical Skills be interpreted as the absolute and relative demand for skilled, qualified and experienced people. Scarce skills are measured in terms of occupation or qualification, while critical skills make reference to a specific capability needed within an occupation (National Scarce Skills List, 2007). The electrical sector has a critical skills shortage. This has been highlighted by the ECA SA, which reported that industry feedback has shown there is a supply and availability of persons who have a high level of theoretic qualifications but lack practical field experience (ECA SA, 2011). The Annual report of the ESETA for 2007 to 2010 has shown that there has been an increase in National Theory qualifications certificates that have been issued compared to Trade Test Practical Certificates (Table 2.1). The National Theory qualification is achieved at a learning institution and is classroom based while the Trade Test Practical Certificates are achieved through practical training gained at registered practical training centres and on the job training at plant level. The increase in National Theory qualifications is a good indication that the educational

system is improving and will result in more available students that will require the practical component of skills development that would lead to an increase in Trade Test Practical Certificates (Paterson, Visser & du Toit, 2008).

Table 2.1 Actual number of National Theory Certificates issued compared to Trade Test Practical Certificates.

Year	National Qualification Certificates	Trade Test Certificates
2006	814	303
2007	801	514
2008	1979	469
2009	1459	468
2010	1191	552

Adapted From: ESETA Scarce Skills Report, 2010

The number of National Qualification Certificates issued peaked in 2008, with 1979 certificates being issued. There was a decrease of certificate issued in 2009 and a further decrease in 2010, whilst trade test certificate increased in 2007 and decreased in 2008 and 2009 and thereafter spiked up in 2010. According to Paterson *et al.* (2008) the number of young learners that are educating themselves is increasing but firms are not employing these learners and translating these qualifications into trade test certificates.

Absolute demand refers to a position where adequately skilled persons are not available (DOL, 2006). This could be as a result of new or emerging professions, where there are a small number of individuals with the necessary skills or where organizations and sectors are unable to execute planned development strategies to overcome difficulty in productivity, service delivery and quality problems, this can be attributed to the lack of skilled people (DOL, 2006). Relative demand refers to a condition where suitably skilled persons are available but do not fulfil other employment requirements and criteria (DOL, 2006). Geographical locations pose the greatest constraints, where skilled people are not willing to relocate and work

in underdeveloped regions, equity considerations and replacement demands are the most pressing issues that contribute to the relative scarce skills condition in South Africa (DOL, 2006). Replacement demand reflects a relative scarcity if there are persons in higher learning institutions and in work-place training who are in the process of acquiring the required skills but are not immediately available to meet the short term replacement demands (DOL, 2006). The objectives and indicators of the National Skills Development Strategy 2005 – 2010 has shown that the participation of small, medium and large firms in training have increased and fifty percent (50%) successfully complete the program. The reports further states that seventy percent (70%) of those who complete the training are placed in employment (DOL, 2006).

The electrical sector has an absolute demand for adequately skilled persons as the ESETA reports have shown that below fifty percent of qualifications in electrical training resulted in trade test qualifications (ESETA 2006 to 2010). The sector also shows that replacement demand is lacking as only 0.4 % of registered apprentices in South Africa are stored on the ESETA system (Paterson *et al.* 2008).

Employer definitions of skills shortages include a series of performance attributes such as dependability and stability of employment (Skinner, Saunders & Beresford, 2004). According to Wallis (2002, cited by Skinner *et al.* 2004), the definition of skills shortage in the terms used by the Department for Education and Skills Training, is a state of affairs where there is a real and indisputable scarcity in the accessible outside labour market of the category of skill being sought after, which results in staffing difficulties. An internal skills gap suggests a condition where employee's present skills are inadequate to meet an organization's objectives (Skinner *et al.* 2004). In South Africa the Employment Equity Act No.55 of 1998, calls for affirmative action measures to be adopted (Nel, Kirsten, Swanepoel, Erasmus & Poisat, 2010). In South Africa most large companies should have equity plans which they will implement, and appointment of staff would be through affirmative action policies (Hunter, 2010). Persons who are appointed into affirmative action positions often need to be coached, guided and trained to achieve results (Hunter, 2010). This elevates the equity consideration

high on the agenda of scarce skills as there may be few if any candidates with the necessary skills from some groups, available to meet the skills prerequisite of firms and enterprises (DOL, 2006).

According to Besson and Haddadj (1999) skill is not an inherent capital, but is positioned as a scarce resource, where firms are frequently renowned by the actions taken on skills development. Electrical contractors tend not to train artisans formally and this is a critical aspect that has been identified by the ECA SA, as their training centre in Durban had to be closed due to the lack of interest (ECA SA, 2011).

According to Addis (2003) the lack of basic skills will lead gradually to an ever marginalised workforce. When the workforce is highly skilled and highly motivated, the entire flow of performance within the organization is much more effective, both growth and development are important to people and the organization to meet world class standards (Hellriegel, *et al.* 2009). Hunter (2010) is in agreement that businesses should continue to spend on training as research has shown that when employees have undergone training their attitudes to the company improves and the person feels more confident about the job and strives to perform better. The electrical industry has a high turnover of staff as a result of the lack of training and development taking place in the sector (ECA SA, 2010).

According to the South African National Skills Survey 2007 which was commissioned by the Department of Labour, the final results of the survey did not identify a single skill to be lacking or underdeveloped or even extremely lacking (Paterson *et al.* 2008). Employers across all sectors of industry in South Africa have invested more in training of technicians and trade workers in 2007, which indicates that new technologies and changing business processes have forced industry to up skill and train technicians (Paterson *et al.* 2008). The Department of Labour (2007) quarterly reports showed that the ESETA had 0.6 % of all learnerships registered in 2002/03 and in 2006/07 this figure dropped to 0.4 %, the drop in training has added to the pressure of skills shortages in the sector (Paterson *et al.* 2008).

2.3 The impact of skills shortages in industry

The skills shortage was highlighted by the poor performance of various government organizations which resulted in the collapse of municipalities, to the extent that poor or no service was provided (Nienaber, 2007). The challenges faced by Government and business in South Africa in 2003, 2004 and in 2005 has been the same, skilled labour was not readily available, standards of organizations lacked competitiveness and experienced senior managers, professional and technical workforce were steadily decreasing from 22% in 2003 to 20,7% in 2005 (Nienaber, 2007).

The Minister of Higher Education and Training Dr Nzimande (2011) shared the view that although the National Skills Development Strategy had achieved a great deal since the inception of the Skills Development Act of 1998, the country still had a severe skills shortage.

The Skills Development Act of 1998 established the National Skills Authority (NSA) in April 1999. The core functions of the NSA were to create the SETA and the National Skills Development Strategy (NSDS). The Skills Development Act of 1998 proposed a very ambitious new framework aimed at providing a structured and systematic workplace learning programme which should have produced higher quality skills (McGrath, Badroodien, Kraak & Unwin, 2004).

The South African economy cannot grow with the pressure of severe skills shortage and the absolute demand of skills in the electrical sector is directly linked to training and development (Nzimande, 2011). Electrical contractors are SMME's who are mostly owner managed and owner operated businesses, where the learning approach is predominantly informal and very little value is placed on learning as training is principally delivered by the owner of the company (ESETA, SMME skills development strategy, 2009). McGrath, Badroodien, Kraak and Unwin, (2004) support the view that the new government in 1994 inherited a poor administration that was based on voluntarism, low quality and constricted employer-led description of skills. This can be related to the electrical contractor's demonstration of the lack of knowledge about the ESETA and the reluctance to

deal with the SETA associating the SETA with government interference and restrictions (ESETA, SMME skills development strategy, 2009).

Research that was conducted in Zambia showed that self employment and labour only sub-contracting, seemed to be on the increase which was hindering training and innovation, this is the trend in most developing countries (Muya, Price & Edum-Fotwe, 2006). Large industrial and construction companies are sub-contracting most of their projects, trade workers are being employed for specific projects and they are laid off on completion of these projects, this trend shows a complete lack of concern for the individual need to improve (Lill, 2008). Self-employed tradesmen, are unable to further their qualifications, and there is a direct correlation between the decrease in trainee figures and the increase of self-employed tradesmen and subcontractors (Lill, 2008).

The challenge with human resource development does not lie only with the absence of equal opportunity for acquiring technical and managerial skills but also with the personal need to achieve life skills and improve self-confidence, and organizational culture and remuneration systems which have limited opportunities for progress (Howitz, Bowmaker-Falconer & Searll, 1996). Hough, Arthur, Thompson, Strickland and Gamble (2011) share a similar view as they believe that employees at all levels are expected to take an active role in their own skills development to keep up-to-date with the organizations needs. Skinner *et al.* (2004), agreed that individuals need to take responsibility for their own learning and this will be beneficial to the individual and lead to increased employability and maximise earnings. Cornford and Athanasou (1995) discussed implications for on-the-job training and concluded that skills learnt in a class workshop does not equal the practical skills obtained in a natural workplace. The most successful learning includes good theory that takes place within a specific, place of work where there are clear visible models of relevance involving theory, skill and attitudes (Cornford & Athanasou, 1995). The electrical industry training process in New Zealand was examined and apprentices spent fourteen percent (14%) of their time in technical institutions and eighty six percent (86%) of time spent on the actual practical factory and plant processes, here again it was clear that substantial experience occurs outside normal classroom teaching (Cornford & Athanasou, 1995). An inclusive move towards training must be adopted where all aspects in the training

environment are considered and training and development is integrated into the actual running processes of the company (Hunter, 2010). In any industry much of what is trained fails to be applied in the work setting, but a study conducted amongst 60 engineering companies showed that forty percent (40%) of what trainees learned at classroom level, and sixty percent (60%) of what they learned practically at plant level was in fact applied by them straight away after training (Hunter, 2010).

Industry needs are ever changing with new technology. Training forms a key process in business where technical know-how is crucial and brings the latest cutting-edge knowledge that makes a firm competitive (Hough *et al.* 2011). Successful strategy implementers insist that if training is adequately supported this could improve the current absolute demand for skills (Hough *et al.* 2011).

South African managers are faced with additional pressures that intensify the challenges they have to face, such as the critical shortage of skills and generally low level of technical education of the population (Hunter, 2010). It can be argued that the shortage of skills in the country is the main factor preventing the economy from growing at the target rate of six to seven percent a year (Hunter, 2010). This shortage was as a result of the lack of adequate technical and managerial training in the past (Hunter, 2010). Hunter (2010) defined skills as a practised ability to perform a specific task and it is what a person can do. The educational levels are very low and it would take many years to raise the level, and in the meantime the workforce remains weak and incapable of performing jobs that require knowledge of accounting, science and mathematics, therefore companies should provide development programs that would close this gap (Hunter, 2010).

Employers in industry have traditionally not invested in training and skills development and have failed to engage in systematic planning or forecasting that results in learning that is not compatible or synchronised (Keep, 2005). According to Clarke and Herrmann (2007) when skills are completely depleted and government regulation and training policies are weak the external labour market becomes more important. Electrical contractors in South Africa are employing foreign nationals from the external market due to the scarce skills condition (ECA SA, 2010). In South Africa skills development is clearly oriented away from low

skills occupational categories which results in less than fifty percent of the workforce being exposed to training (Bhorat & Lundall, 2002).

According to Sutherland (2009) a skills shortage is known as the absence of potential persons with the required technical abilities to carry out a task required by the firm in the external labour market. Electrical contractors have shown an understanding of skills development and have expressed the need for such training but have not engaged in formal training (ESETA, SMME skills development strategy, 2009). Sutherland (2009) believed that skills gaps are deficiencies on the part of a firm's existing labour force. Firms may go to the extent of changing their conventional hiring practices in an attempt to alleviate the skills gap but this makes the problem worse (Sutherland, 2009). In spite of the critical skills shortages experienced by firms, conventional and often traditionally informal processes prevail, recruitment based on skill and experience, and not on educational qualifications are the main criterion and on poaching which is common in the construction labour market (Clarke & Herrmann, 2007). Lobo and Wilkinson (2008) also believe that poaching of workers in an economy that has a lack of skills, leads to inflationary increases in construction costs, and eventually, a skills shortage in a sector leads to a steep decline of development and growth of an organization.

Business managers and owners are not in essence communicating their skills requirements to the employee, nor are employers focusing on skills development where gaps exist, or it could be that employees do not understand the needs and short fall of skills in the business process (Skinner *et al.* 2004). Electrical contractors tend to employ staff for specific projects and the transfer of skills are limited due to the absence of communication and long term employment (ECA SA, 2011). Labour development of practical engineering workers and artisans has an enormous influence on an organizations performance as they are valuable un-reproducible resources (Lill, 2008). Besson and Haddadj (1999) question, who is responsible for training? The answer is central to achieving future continual economic growth, since positive changes in the labour market depends on a range of factors, such as politics, labour unions, management and demographics.

According to Hunter (2010) managers, training facilitators, training providers and employees should all work together to achieve high levels of learning, transfer of learning and transfer of skills. The levels of education are slowly increasing in South Africa in the meantime management of organizations should provide development programs that will meet their specific requirements (Hunter, 2010).

The electrical industry is directly aligned to technology, and any shortfall in growth can only be achieved through sustained training and development in the sector. According to Lill (2008), the shortfall in highly technological sectors includes:

- The fast introduction of new technology.
- The growth of self employment which results in a decrease of investment in training and development.
- A poor image of the industry portrayed among the workers themselves.
- The high change over rate of employees as a result of irregular workload.
- Poor labour support organizations and poor site safety.
- The continuous race for organizational financial earnings and the brain drain of workers seeking better financial reward in other firms and countries.

The need to invest in training and development to improve employee and organizational performances is an integral and important part of any business and should be managed professionally as with any other function (Hunter, 2010). Government agencies involved with skills development are acutely aware of the shortage of skilled management in South Africa (National Scarce Skills List, 2007). The electrical sector can improve its focus on development and training and change the present poor perception of the industry.

2.4 Overview of the National Scarce Skills List

A comprehensive report of the National Scarce Skills has been submitted by the Ministry of Labour (2007) which clearly illustrates the negative constraint that scarce skills has on economic growth and development. A list was created that showed the most important skills that South Africa requires in order to sustain growth and development and for a variety of strategies to be formed and

implemented to address the skills scarcity (National Scarce Skills List, 2007). The list was prepared using data from the SETA Sector Skills Plan (Table 2.2).

Table 2.2 Summary of Scarce Skills 2007

Occupational Grouping	Specialisation	Shortage
Farm workers and garden workers	Crop Farm Workers	180,000
School Teachers	Further Education and Training Teachers	24,015
Fabrication Engineering Trade Workers	Structure Steel and Welding Trades Workers	15,705
Chief Executives, managers	Managing Directors and General managers	13, 525
Engineering professionals	Industrial, Mechanical and Production Engineer	6,220
Other educational and Training Professionals	Vocational or Occupational Instructors and Training	5,300
Construction, production and operational managers.	Engineering Managers and engineering project managers.	3, 875
Electricians	Electricians	3,585
Human resources and training professionals	Training and Development Professionals.	2,115
Building and Engineering	Electrical Engineering Draftsperson.	855

Adapted from: National Scarce Skills List, 2007.

It is evident from Table 2.2 that although the need for electricians is only ranked 8th, in terms of the industry needs, it is a problem. The National Scarce Skills list was intended to assist the department of labour to take informed decisions, provide information for education and training service providers, serve as a benchmark to measure the progress of skills development in each sector.

The list highlighted the needs of all sectors including government, education and industry, and has led to different solutions but ultimately to be a combined focal point where training will have long term sustained improvement on skills development (Lobo & Wilkinson, 2008). New Zealand has used various techniques to challenge the skills shortages in the construction industry. These techniques include better wages, overseas recruitment and redesigning of training programs,

even with these techniques, a shortage of skilled and semi-skilled workers in the construction industry persists (Lobo & Wilkinson, 2008). The list provides an overall summary of the requirements in the various sectors and will fast track skills development.

In South Africa the issue of development of human ability and competence to meet future demands has become a national priority for business and individuals (Skinner *et al.* 2004). A collective understanding of skills and competences needs to be acknowledged for present and future implementation and industry needs to provide this information so that informed analysis of data can be done and strategies can be developed in line with actual industry requirements (Skinner *et al.* 2004). Cooperation between government and industry must take place in order to provide the most effective and most immediate means of solving the skilled-labour shortage (Besson & Haddadj, 1999). Accurate intelligence of the skills shortages should be shared at a ground level and government agencies namely the SETA's should have access to this information (South African National Skills Survey, 2007)

The data presented in table 2.2 on the scarcity of electricians could be directly linked to the draft report that was issued by the ESETA for electrical contractors, that highlights, that there is very little information that is known about this part of the sector (ESETA, SMME skills development strategy, 2009). Sector intelligence is crucial to Government reporting and planning. The information captured in the Summary of Scarce Skill list 2007 will disadvantage the electrical sector as government has other higher priorities sectors to focus on.

Hunter (2010) stated that there are many managers who are highly qualified with various business degrees who tend to focus on theories rather than specific issues such as problem-solving, planning and skills development. The National Skills Survey (2007) showed that medium and large firms spent more funds on middle and top management training rather than on low level employees. Other acute shortages included artisans, accountants, engineers and technicians (Hunter, 2010). Clarke and Herrmann (2007) believed that without an industry wide training scheme to revitalize and push forward the obligation to up skill the workforce there will be no advancement of the sector. The electrical SMME's have an advantage

of training and administration from the industry arranged platform via the ECA SA that provides all its members with support which included training (ECA SA, 2011).

2.5 An overview of the Electrical Contractors Industry

The ECA SA has been instrumental in addressing the needs of skills development in the electrical industry for the past fifty years (ECA SA, 2010). The ECA SA was established in 1950 and serves the interests of all employers in the industry (ECA SA, 2010). The association has grown to over 3700 members and represents sixty percent of all registered employers in the electrical industry, these members employ about seventy five percent of the workforce registered with the Electrical Bargaining Council (ECA SA, 2010).

The KwaZulu-Natal (KZN) branch of the ECA SA confirmed that they had a total of 626 members in the province, of which about twenty percent (20%) were affiliate members that provided electrical contractors with raw materials and other related services (ECA SA, 2012). The electrical contractors in KZN are made up of eighty percent SMME's who employ between one and fifty employees, and who operate in the construction, industrial or the domestic sector (ECA SA, 2011).

It is evident from Table 2.3 that 2400 electrical contractors in South Africa are not registered with the ECA SA. There are 2974 electrical contractors registered nationally and 626 electrical contractors registered in Durban with the ECA SA (ECA SA, 2010).

Table 2.3 Electrical Contractors in South Africa

2400	Electrical contractors are not registered with the ECA SA
2974	Electrical contractors registered with the ECA SA (National)
626	Electrical contractors registered with the ECA SA. KwaZulu-Natal

Adapted from: Electrical Contractors Association 2010.

The ESETA 2009 reported that there is very little data on the structure and the skills requirements of SMME electrical contractors. It is estimated that out of approximately 5500 companies that form part of this sector more than half are organized with the ECA SA (ESETA, 2009). The electrical industry is one of the most regulated in the country that uses the South African National Standards (SANS) 10142 as the guideline for its installations and power connections (ECA SA, 2010). Financial pressure resulting from the economical down turn and a large reduction of available work in the sector has resulted in firms cutting back on employment which has affected any training that was undertaken in the sector, thereby resulting in a short to medium term critical shortage of skills (ECA SA, 2010). The electrical industry has faced skills shortages as a result of Government strategies which have not been implemented effectively, and the ESETA have been criticised for being inflexible, single minded and for not taking into consideration the economic requirements and conditions that different sectors are faced with (Department of Higher Education and Training, 2010). The ESETA engaged proactively with the electrical contractors in 2010 and the results of the engagement formed the basis of the SMME skills development strategy (ESETA, 2010). The key pertinent assumptions that listed as the current reality of the sector:

- The general acceptance that there was a need for skills development and training.
- The current lack of information about the ESETA and its purpose.
- The lack of conformance with the Skills Development Act and the complexity of the process.
- The SMME's were in favour with short term solutions and a quick fix approach.
- The lack of incentives to engage with formal training.

(ESETA, SMME skills development strategy, 2009).

The proposed skills development strategy for the sector has shown that the gap in the sector training and development needs immediate attention. It concluded that

the ESETA delivery mechanism was ineffective in creating a good network for collaboration with the SMME's (ESETA, SMME skills development strategy, 2009). Electrical contractors have demonstrated a lack of knowledge about the ESETA and showed a reluctance to deal with the SETA associating the SETA with

government interference and restrictions this could also explain the incorrect information in the Scarce Skills Listing 2007 that records a low scarcity rate (ESETA, SMME skills development strategy, 2009). Insufficient incentives to engage in formal training has discouraged SMME's from investing in training and has driven the sector to follow a short term approach of short duration skills development programmes (ESETA, SMME skills development strategy, 2009).

The electrical industry is burdened by a severe lack of skills, and the continuation in this direction is resulting in an increase in the cost to employ middle level skilled workers (ECA SA, 2010). A study conducted by Bhorat and Lundall (2002) revealed that larger firms were paying higher wages for workers in similar occupation levels, as much as twenty percent or more. The demand for skilled workers has resulted in an increase in labour cost in the sector (ECA SA, 2010). Industry is forced and in some cases willing to pay more for experienced skilled workers, but in the long run it will be cheaper to train and up skill new entrants in the market (Bhorat & Lundall, 2002). This trend of accepting the current skills shortage and the lack of participation in government skills development programs raises concern in the electrical sector.

According to the South African, National Skills Survey (2007), the employment structure between employee and employer impacts on the training that could be undertaken. The total number of staff and the wage bill of the organization had a great effect on the ability for that company to train staff. The smaller the firm the less training is provided, this was a global finding. The current skills shortage in the labour market bears the effects of apartheid racial discrimination (National Skills Survey, 2007).

According to Marshall (1992, cited in Besson & Haddadj, 1999), collaboration between government and business must take place in order to make available the most efficient and direct way of solving the skilled labour shortage. Bridging the skills gap and skills shortage is not a new occurrence within business, in the

United Kingdom (UK) where the technical skills shortage has been a periodic hindrance over the past 30 years and unsuccessful efforts to deal with the industry recruitment and training crisis in the UK has parallel lines in country's around the world (Dainty, Ison, & Root, 2004). According to Bhorat and Lundall (2002) the electrical sector is one of the most skills-intensive sectors, and it requires all stake holders to engage with the reality for development and training needs.

2.6 An overview of strategies for skills development.

The inherent problems that underline the skills crisis requires continued and well co-ordinated action plans for the situation to be addressed (Dainty *et al.* 2004). Industry leaders in skills development have agreed that vigorous policy implementation by an influential pan-industry forum could result in an improved and highly refined implementation policy that could sustain skills development into the future (Dainty *et al.* 2004). The formation of such a forum would ensure a more organized and holistic move towards a solution of the skills and labour market issues (Dainty *et al.* 2004). Participants in the study conducted by Dainty *et al.* (2004) believed that the most relevant factor preventing a successful regional skills strategy was the need for regional industry identity. A number of local business groups, industry associations and employer forums made attempts to deal with the skills crisis through localised plans without success (Dainty *et al.* 2004). Great emphasis was placed on developing collaboration between individuals and organizations for a collective sense to be developed and implemented. This would create regional identity that would be required for a well-argued approach for addressing skills concerns (Dainty *et al.* 2004).

Organizations have been recruiting fewer full time employees over the past ten years, and lower skilled positions are filled with temporary contract workers or flexible employment arrangements via labour brokers (James, 2009). The skills profile of companies will be directly reflected in their employment policies, which will show that lower skilled workers are outsourced rather than focusing on skills development and industrial knowledge transfer. Investing in skills education throughout organizational departments is vital and equally important is rewarding

managers who are committed to training and development of staff (Howitz *et al.* 1996).

The industry leaders and government agencies are aware of the need to develop and improve skills throughout all economic and education sectors of South Africa, the difficulties experienced in education has been receiving consistent and ongoing attention (Alexander, Lotriet & Matthee, 2009). Training in small businesses are the most difficult to achieve as most small businesses are target driven and less accommodating and supportive of learning (Holden, Nabi, Gold & Robertson, 2006). The findings of the ESETA, SMME's skills development strategy confirms this that firms with no or little history of employee development are not likely to participate in any training development unless it is cheap or preferably free and this characteristic mirrors the businesses themselves (Holden *et al.* 2006).

According to Heyes and Stuart (1994) investment in training needs government intervention, but it was argued that the decision of how and when to invest in training should be decided by the individual sectors of the industry who understand the skills that will benefit the economy. The absence of state-led skills development and training in the UK had a detrimental impact on the competitive development of industry (Heyes & Stuart, 1994).

In New Zealand innovative re-engineered solutions were attempted, which included, working holiday programmes, multi skilling and employing professionals were in their final year of training, but there was a lack of collaboration between government, business and centres of education to address construction skills shortages (Lobo & Wilkinson, 2008).

According to Lobo and Wilkinson (2008) a study conducted in New Zealand found that, among the most common explanations for skills shortages included, a low number of people entering the trade sector, a sharp decline of trainees completing their qualifications, a lack of appeal of some occupations in terms of wages and working hours, the slow development of a knowledge economy, the growing demand for skilled labour, and international competition for skilled labour. The current conditions are similar in South Africa as the number of trade certificates issues has not increased (ESETA financial reports from 2006 to 2010). According

to Clark and Wall (1998, cited in Lobo and Wilkinson, 2008), some of these findings are similar to those identified in the UK, poor training, mismatched and unsuitable training, difficulty in attracting people into the trade and retaining them, difficult employment conditions, and low wages.

A study conducted by Bendoly and Prietula (2008) concluded that in the absence of supplementary workload challenges the improvement of skills may drastically limit and in some cases essentially reduce overall objective performance. More specifically training alone may actually be counter-productive for those already working at peak performance levels in their respective tasks (Bendoly & Prietula, 2008).

Besson and Haddadj (1999) believed that in order for firms to expand the external labour supply they should recruit non-traditional workers, workers from outside local areas and workers from private industry and government programs. To manage the internal labour force firms should pay incentives, increase salaries, and practice good market policies which include up-grading the skills levels of the workforce through retraining programs (Besson & Haddadj, 1999).

The research conducted by Borat and Lundall (2000) on Employment, Wages and Skills development in South Africa, concluded that manufacturing firms were more likely to invest in training than their counterparts in developing countries. More importantly they found that small firms were more likely not to participate in internal or external training compared to medium or large firms (Bhorat & Lundall, 2000). They also found that medium sized firms with less than two hundred employees were more likely to invest in training than firms with more than two hundred employees. The study revealed that incentives drive training and the current approach of Government rebate based on the firms total payroll, it is not attractive for small firms as the total claim that they can make is so small it does not cover their training costs (Bhorat & Lundall, 2000).

Bhorat and Lundall (2000) concluded that firms that invested in training reaped the rewards in the form of growth in production levels. Daniels (2007) supports the views of Borat and Lundall, that without the proper development of training programs the SETA's will not be able to effect meaningful change in the national

labour market. Daniel (2007) emphasised that the SETA's must maintain a strong focus on the set targets in order to make meaningful changes within the sector.

According to Besson and Haddadj (1999) firms do not use all the methods available to them in order to resolve their respective skills shortage problems. In most companies the volume of informal learning is overwhelming, and up to seventy percent or more practical on the job learning takes place outside the formal training sphere (Baldwin – Evans, 2006). The question that Baldwin-Evans (2006), poses is “why do most organizations invest large sums in formal training when a large number of employees learn informally?” (Baldwin-Evans, 2006, p.156).

According to Lobo and Wilkinson (2008) various strategies have been implemented to try to respond to the construction skills shortage. Dainty *et al.* (2004) recommended that a development of skills strategies should be targeted at particular regions of a country rather than a single skills strategy for all regions. The study highlighted that there should be better labour market planning done at regional level to alleviate the consequences of future skills shortages. A focus on training and skills with an industry wide training plan should be developed to predict expected skills shortages prior to their onset (Sloman & Philpott, 2006).

Collaboration between industry, government and the unions to tackle the skills shortage has been tried in the USA (Hysong, 2006). The traditional responses in New Zealand, where they have tried to increase funding for industry training, increase wage rates substantially in order to attract and retain existing staff, investments in marketing at school level through collaboration softened the impact on scarce skills but did not meet the need (Lobo & Wilkinson, 2008).

2.7 The Skills Training Levy

Although government budgets are generally the main source of funding for trade skills development in typical pre-employment markets, employers and trainees should contribute funds to improve training development (Muya *et al.* 2006). The levy contribution system is generally the most common way of ensuring business and private sector involvement in training in both developed and developing

countries (Muya *et al.* 2006). Financial funding of training and development is an important element of a training strategy, and in many developing countries, funding is via government budgets which is a vulnerable and unreliable source of financing of development and training (Dar, Canagarajah & Murphy, 2003). Dar *et al.* (2003) believed that there should be an increase in financing contributions by the beneficiaries namely the employers and the trainees.

According to Dar *et al.* (2003), in countries where there has been effective and good administration of the skills levy scheme, studies have shown an increase in training and development of skills, however, on the other hand countries which have very complicated rules governing training requirements there was a steep decline in the number of trainees as employers found no value in applying for funding from the skills development levy fund. Small companies do not benefit significantly from these schemes as evidence shows that educated workers are more likely to work for larger firms and enjoy the training and development. Small and medium sized employers have rarely benefited from payroll levies as they may not be compliant or even if they paid their levies the bureaucracy involved in claiming reimbursements is simply not worth their time and effort (Dar *et al.* 2003). These barriers were noted in the SMME skills development report (ESETA, 2010).

The Employment Equity Act (EEA) was promulgated in 1998, with the principle aim to address the issue of discrimination in the workplace and to ensure that businesses implemented affirmative action (Nel *et al.* 2010). During the same period the Skills Development Act (SDA), 97 of 1998 was negotiated and promulgated, with the main aim of encouraging business organizations to initiate training and development for their employees (Nel *et al.* 2010). Nel *et al.* (2010) were of the opinion that, all these new labour laws were brave attempts to normalise and improve the workplace and to ensure that the problem of lack of skills among workers was addressed. The lack of sustainable finance was a major obstacle to training and development of the workforce worldwide. According to Godfrey (2000, cited in Dar *et al.* 2003) employers believed that government control over levy grant schemes was too strong and this reduced the effectiveness of the levy system for example in Hungary. They suggested that if such a system was to be successful government should involve business in the design, implementation and evaluation processes. The South African implementation did

not involve the private sector at the initial stages which created a gap in the success of the implementation (ECA SA, 2010).

In South Africa in terms of the SDA, employers have to pay a one percent skills development levy on their total wage bill and they are able to benefit directly by claiming the grant to compensate them for the costs incurred for training staff (Hunter, 2010). However, the low commitment in participation between government and industry has resulted in the skills development levy being seen as just another tax burden by firms (McGrath, 2004). The total number of firms paying the skills levy has risen however the pay-out of funds back to eligible contributors to the levy appeared to be very slow (McGrath, 2004).

There are growing numbers of firms who have trained workers but have not claimed back their levies (McGrath, 2004). According to James (2009) the aim of the Skills Development Act was to encourage employers to implement skills training at the work place through the use of the skills development fund which is linked to the firm's payroll. Ten years into the skills development fund the scheme is weighted down with administrative red tape (James, 2009). More specifically James (2009) concluded that although there was confirmation of growing skills training, it varied significantly within and among sectors. She found that many small to medium sized firms lacked the human resources to fulfil the criteria to receive and manage the funds, adding the one percent skills development training levy to their tax burden (James, 2009).

An alternate levy grant system that Dar *et al.* (2003) suggested for countries which are mainly concerned with the skills of their workforce could implement a revenue neutral overall system where government collects the levy and takes a small administration fee and firms that train more would get back a larger proportion of funds. This would create an incentive to encourage small firms to train more, but the drawback is similar to that of any other system it is administratively difficult to implement (Dar *et al.* 2003). Sector or industry based training funds offer a good alternative to a national centralised levy system although the shortfall is the weakness in implementation and administration and quite often the funds collected are diverted to other unintended uses (Muya *et al.* 2006).

The ESETA has produced an average of 576 electricians a year between 2006 and 2011. There are two sections under which an individual can choose to qualify, one is the Section 13 qualification that requires a candidate to undergo the full learnership which includes theory and practical, and the other is Section 28 which allows a person who has the required years of experience in the field and a minimum theory qualification to undergo a trade test. These two methods were introduced to fast track those who could not qualify under the old government policies (ESETA Scarce Skill Report, 2010).

Figure 2.1 shows the Section 28 qualifications in 2006 which peaked in 2007 and shows a decline from 2008. Section 13 qualifications were very low from 2006 to 2008, and then saw a drastic increase in 2009 and 2010.

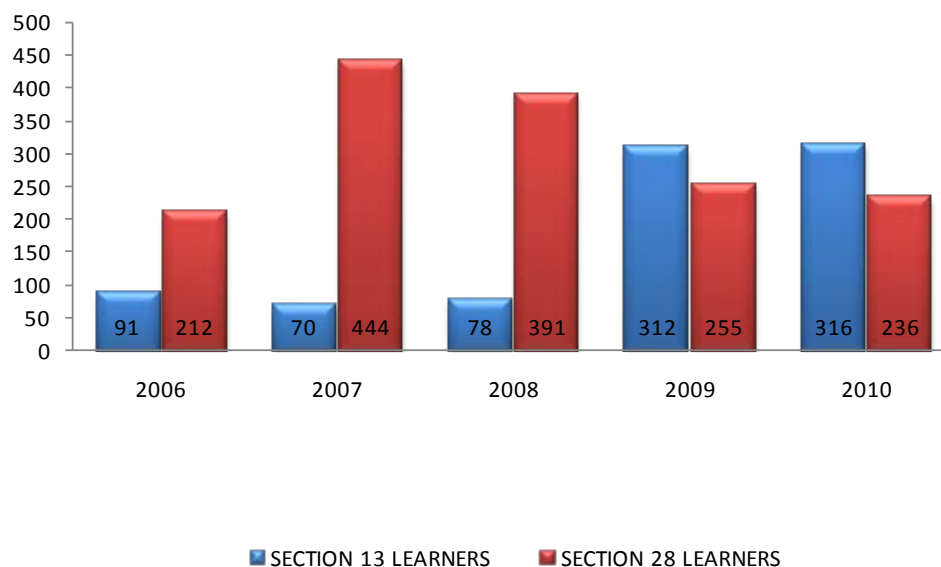


Figure 2.1 Total number of certificates issued for the period 2006 to 2010.

Adapted from: Energy Sector Education and Training Authority, 2009

According to the annual reports of the ESETA for the years 2006 to 2010 it is evident that there has been an increase in 2007 and thereafter a drop in the number of certificates issued (ESETA 2006 - 2010). According to the South African National Skills Survey (2007) the ESETA showed an improvement in

2006/07 in training from 50% that trained in 2002/03, to 70% that trained in 2006/07, hence the increase in certificates that were issued.

According to Paterson *et al.* (2008) the average national training rate in private sector firms was measured by the National Skills Survey of 2003 (NSS2003) at twenty percent and in 2007 it was measured at fifty three percent. These surveys show that the amount of training has doubled during this period which is clearly shown in (Figure 2.1).

2.8 Solutions to tackle skills development

Harnessing the collective actions of all industries together would resolve the skills shortage as other sectors have used their collective bargaining power to force change from government agencies and funding institutions (Dainty *et al.* 2004). According to the ECA SA (2009) the fragmented nature of the industry has prevented it from addressing the skills shortage with a single voice. Most electrical contractors fall within the small business sector which employs between eleven and forty nine employees (ECA SA, 2011). According to the South African National Skills Survey 2007 the access to training was better in larger companies. Training expenditure was an important measure to gauge the seriousness of addressing skills development as the survey pointed out training almost doubled between 2003 and 2007, but the cost of training was low. Small enterprises only increased their training expenditure by 0.6 % to 1.6% compared to large enterprises which increased their training expenditure by 1.3% to 3.8% (South African National Skills Survey, 2007). The results indicated that companies invested in less expensive training or lower quality training.

According to Lobo and Wilkinson (2008), forty five percent (45%) of firms in New Zealand stated that they relied on importing high skills from outside, mainly from the UK and South Africa in response to tackling the skills shortage. Other major plans used to improve the skills shortages in New Zealand were, creating a strong partnership between firms and new entrants, marketing of their own firms as good employers and stable career options (Lobo & Wilkinson, 2008). A substitute solution that the study revealed for resolving the skills shortage, was through macroeconomic interest rate adjustments both as a long term and a short term solution (Lobo & Wilkinson, 2008). A comprehensive economic approach to

resolving the skills shortage was identified as an alternative which concluded that training of new entrants was seen as the best option for a short to long term solution (Lobo & Wilkinson, 2008). The involvement of a collaborative approach between government, industry and education is vital to the success of skills development (Lobo & Wilkinson, 2008). Transformation of training was found to be a more result driven strategy, where on completion of training full time employment would be possible rather than on intake numbers (Lobo & Wilkinson, 2008).

Research conducted in New Zealand in 2008 showed that if Government provided better incentives to employers to train and develop employees the sector will move towards a more structured and training conscious sector (Lobo & Wilkinson, 2008). Addressing the actual lack of information was seen as an equally important area for government to concentrate on (Lobo & Wilkinson, 2008).

A study conducted by Dainty *et al.* (2004) on bridging the skills gap, concluded that an industry's medium to long term skills needs can be achieved by increasing the number of new employees in the industry, committing to workforce training and development programs, contributing to government training frameworks and providing labour market intelligence so that more effective labour plan can be created.

There is a desperate need for industry to join forces and create a proactive strategic plan to overcome skills shortages (Dainty *et al.* 2004). Particular emphasis was placed on the formation of a regionally driven strategy to bring together recruitment, training, and labour force development suitable for a particular region which could result in simpler and more consolidated training, development and funding initiatives that would overcome industry fragmentation (Dainty *et al.* 2004).

2.9 Summary

The skills development strategy in South Africa has evolved since 2001 and there is sufficient evidence to prove that the strategy has had some positive impacts on industry and the question of, who trains, how they train and what drives training is indeed crucial to a sustainable skills development program for the electrical sector. Firms in the electrical SMME sector are not embracing skills development and they seem to be relying on government policies. While government policies are stating that no skills category was considered extremely lacking. The scarce skills shortage in the electrical sector can be linked to various issues, the lack of communication with the SETA's, the declining training role played by the ECA SA and the lack of intervention and willingness from the electrical contractors to participate in the training strategy. The lack of actual sector skills intelligence transfer to the SETA's is resulting in incorrect statistics of the sector. The networking role that was to be played by the SETA's is the heart of the new skills formation plan which electrical contractors have not changed direction to embrace the challenges that the industry faces in order to promote growth and be part of the implementation strategies for skills development of electricians in KZN. It is evident that this literature review is incomplete as there is no information regarding the skills development strategies and practices of KwaZulu-Natal electrical contractors. An empirical study is therefore required in order to close this knowledge gap. Chapter Three outlines the research methods which will be followed to solve the research problem.

Chapter Three

Research Methodology

3.1 Introduction

Business research is conducted in a systematic and organized manner to investigate a specific problem that needs solutions in the work place. Research involves a carefully crafted strategy of investigation, examination, and experimentation that needs to be conducted systematically, diligently critically, objectively and logically with an end result that helps a manager to deal with a problem. In essence, business research provides valuable information that guides managers to take informed decisions to successfully deal with workplace challenges.

This Chapter will describe the research methodology and design that will be used to collect data and the research instrument. This chapter goes into further detail and discusses the construction of the questionnaire, the research methods, the reliability, validity of the data collection methods that will be employed in this study.

3.2 Aim and objectives of the study

The electrical sector is evolving with rapidly growing technology and automation of industry as a whole. This growth results in the demand for technical skills throughout the industry. This demand has led to the sector not being able to produce skilled labour, therefore the aim of this study is to identify the key challenges to skills development of electricians in the province of KwaZulu-Natal. In order to achieve the aim of the study, the following objectives will be addressed, whether electrical contractors develop electricians, the challenges that are faced in skills development in the sector, the awareness of incentives that are available to electrical contractors, whether electrical contractors are accessing these incentives and what electrical contractors believe should be done to increase the skills labour pool in the electrical sector.

3.3 Participants and Location of the Study

This study will include all members of the Electrical Contractors Association of South Africa (ECA SA) in KwaZulu-Natal. Due to the nature of the study owners, senior managers who are decision makers of electrical contractors will be specifically targeted. According to Nel *et al.* (2010) skills development planning would be an advantage to any businessperson who wants his workforce to be educated and trained therefore senior management were selected to participate in this study. Members of the ECA SA attend monthly meetings where various issues of concern are discussed and the participants of this study will be those who attend these meetings. A questionnaire was issued to each member of the ECA SA who were senior manager or business owner via email link to Question-Pro or a personally administered printed copy of the questionnaire. The survey was outlined to all at the monthly meeting and the questions were answered by the respondents via electronic or manual methods.

A personally administered questionnaire to a group of respondents where they will be introduced to the survey, provided with clarification on the spot and where the questionnaires will be collected immediately after they are completed will provide 100% response rate (Sekaran, 1992). According to Hair, Money, Samouel and Page (2007) questionnaires are frequently completed without the researcher being present, the respondents have the knowledge and motivation to complete it on their own. If a study is closely related to the difficulties experienced by the respondents and the contents are appealing it is expected that the respondents would actually complete and return the questionnaire (Hair *et al.* 2007). The skills shortage in the electrical contracting sector is a priority on the agenda of the ECA SA monthly meeting and it was expected that the survey will create an interest in the sector.

3.4 Research Approach

There are two approaches to research namely quantitative or qualitative. Each will be explained and a selection will be made and justified.

3.4.1 Qualitative and quantitative research methods

Qualitative research is discovery oriented and uses data to generate ideas, which is based on an individual's reasoning to find patterns within a large amount of data (Hair *et al.* 2007). In the qualitative research approach the researcher attempts to build a theory or conceptualise a framework of their own around the data collected (Hair *et al.* 2007). Quantitative research involves taking an idea or conceptual framework and using the data to better understand and to confirm (or not) the original idea or theory (Hair *et al.* 2007). Qualitative research emphasizes the development of a theory while quantitative research focuses on testing that theory (McDaniel & Gates, 2010).

Qualitative research is used to examine an incident that does not take place often enough to allow reliable data to be collected, in contrast quantitative research can reveal statistically significant conclusions (Coldwell & Herbst, 2004). Qualitative research techniques are often blamed for not being scientific and it is argued that important managerial decisions should be made based on quantitative data (Coldwell & Herbst, 2004). According to Sekaran and Bougie (2011), the analysis of qualitative data is not easy, in comparison with quantitative data analysis. There are relatively only a few well established and commonly accepted rules and guidelines for analyzing qualitative data and the analysis and conclusions are made by making inferences from data in the form of words (Sekaran & Bougie, 2011). Qualitative research is used where little is known about the research problem or where previous research has not completely explained the research question (Hair *et al.* 2007). Among the major disadvantage of qualitative research the information generated cannot be generalized to larger groups of individuals thus limiting the use of its findings in action strategies (Hair, Bush & Ortinau, 2000).

Quantitative data collection involves gathering numerical data using structured questionnaires to collect primary data from individuals where the 'what' question of the research is answered (Page & Meyer, 2000). This study will use the processes of quantitative data collection with the main instrument being a questionnaire as the results will be analysed using a statistical process that does not require any special interviewing skills. Quantitative analysis is a scientific

approach to making sound management decisions, and it eliminates guesswork and emotions (Render, Stair & Hanna, 2009). Computers have been instrumental in the increase use of quantitative analysis where raw data is processed into meaningful information (Render *et al*, 2009). Quantitative research uses formal questions with predetermined responses and provides good validation of facts and estimates, it can be representative of larger samples, its generalisability is very good and quantitative methods can infer facts and relationships (Hair *et al* 2007). The advantages of quantitative research are measurement; causality; generalisation and replication (Render *et al*, 2009).

3.4.2 Data collection method

There are different data collection methods, which includes questionnaires, surveys, interviews, focus groups and case studies. The questionnaire method is a quick and easy way of getting information in a non-threatening way (Coldwell & Herbst, 2004). Electrical contractors are businesses where competition is great and the willingness to participate in other forms of surveys may pose difficulties. This study will employ the use of a questionnaire that will be administered personally to members of the ECA SA at their meeting and electronically distributed to those members who do not attend the meeting. Administering questionnaires to large numbers of members at the same time is less expensive, less time consuming, response rates are much higher, and it does not need much skill to administer compared to interviews (Sekaran & Bougie, 2011). Quantitative research is based on using formalized standard questions and predetermined response options in questionnaires or surveys administered to large numbers of respondents (Hair *et al*. 2000).

In a quantitative study, the research problem and opportunities are well defined and the researcher has a good understanding of what the precise information needs are (Hair *et al*. 2000). Quantitative research methods are more widely used in descriptive research designs and the success in collecting the primary data is greatly dependent on the administering of the survey instrument (Hair *et al*. 2000). The main goal of quantitative research is to collect data to make accurate predictions about relationships between market factors and behaviours (Hair *et al*. 2000). Data reliability and validity are serious concerns within quantitative

research procedures (Hair *et al.* 2000). Quantitative research relies on formalized standard questions and predetermined answers in questionnaires and surveys administered to large numbers of respondents (Hair, Bush & Ortinau, 2003). This study used the questionnaire method of data collection.

3.5 Sampling

Ideally a researcher would like to collect data from all members of a population under investigation, but in most cases it is not feasible therefore a sample of the population is drawn (Hair *et al.* 2007). The researcher must consider ways to minimise error that might occur due to the sampling process. According to Coldwell and Herbst (2004), a population is a group of people, items or units under investigation that share the same set of characteristics. A sample must be representative of the population from which it is drawn as the investigation of a small subset of the population will derive conclusions about the characteristics of the whole population (Hair *et al.* 2007).

A defined target population is a specified group of people who could provide answers for required data and information. The procedure where a researcher attempts to get the required data from all members of a defined target population is called census and a sample is a randomly selected subgroup of people from the pool of the defined population (Hair *et al.* 2003). There would be no need for statistical sampling theory if a census rather than a sample were always used to collect data of a population (Coldwell & Herbst, 2004). In practice there are five reasons why census is almost never economical, the timelines are long, the population may be very large, some of the population may be inaccessible and the accuracy will be lower therefore sampling would be the preferred method (Coldwell & Herbst, 2004).

The process of obtaining a sample is very important when designing a study that uses raw data collection. Generally there are two basic sampling designs: probability sample and non-probability sample (Hair *et al.* 2003; Coldwell & Herbst, 2004; and Sekaran & Bougie, 2011). In probability sampling the element (people) in the population have a known probability of being selected as sample subjects

and in non-probability sampling the elements (people) do not have a known or predetermined chance of being selected as subjects (Sekaran & Bougie, 2011). Coldwell and Herbst (2004) also stated that in probability sampling the elements have a known chance, but not necessarily an equal chance of being selected and the advantage of using probability sampling is when the sample is complete with the data transfer the results are unbiased and representative of the population.

Non probability samples are selected by the researcher's expertise or judgement (or lack thereof) and it is not possible to assess sampling errors and to conclude if it is representative of the population or not (Coldwell & Herbst, 2004). According to Hair *et al.* (2003) non-probability sampling, the selection of each element is unknown and this creates potential sampling error and the research accuracy will not be known. The selection of sample elements (people) is based on some type of judgement, desire, or knowledge of the researcher (Hair *et al.* 2003). Non probability sampling has many disadvantages, its representativeness is not accurate, it is unreliable, it has no true measure of sampling error and the estimated population parameters are biased (Denscombe, 2010).

Probability sampling is further refined into the following methods, simple random sampling, where the researcher uses a table of random numbers, or other random selection process that ensures each sampling element of the population has a known and equal chance of being selected into the sample (Hair *et al.* 2007). Systematic random sampling where the entire list of the population is subjected to a "skip interval" of every n th member until the necessary sample is drawn. This method accomplishes the same goal as simple random sampling but it is more efficient (Hair *et al.* 2003). Stratified random sampling where the sample is further refined into subpopulations is referred to as strata. This segmentation is created due to proportional and disproportional weighting factors which may be applied to the overall population values (Hair *et al.* 2003). Cluster sampling is used when the target population is segmented into geographic areas that are considered to be very similar to others, and the researchers randomly select a few areas then conduct a census of the elements in that area (Sekaran, 1992).

The most commonly used probability sampling methods that are used by researchers are, simple random sampling, systematic sampling, stratified sampling and cluster sampling (Sekaran & Bougie, 2011; Hair *et al.* 2007).

Non-probability sampling is where the elements of the sample do not have any probability attached to being chosen as a sample. The various non probability methods are, convenience sampling, judgement sampling, quota sampling and snowball sampling (Hair *et al.* 2000). In non-probability sampling, sample size formulas cannot be correctly used, the sample size is usually a subjective, intuitive judgement made by the researcher (McDaniel & Gates, 2010).

Simple random sampling ensures that every sampling element that makes up the population has a known equal chance of being selected. This study will include all members of the ECA SA in the survey. This will include all members from KwaZulu-Natal. The responses to the survey then would be considered as a simple random sampling method. Simple random sampling is used to give every member registered with the ECA SA an equal and known chance to participate in the process. Owners of all electrical contracting firms have enlightened opinions, they can provide invaluable information on the current trends and attitudes to skills development and simple random sampling is also known as unrestricted random sampling where every element in the population has a known and equal chance of being selected as a subject (Sekaran, 1992). The entire updated list of all contractors has been sourced from the ECA SA 2012 and the simple random sample method will provide the least bias and offers the most generalizability. The sample used in this study will be drawn from owners and senior decision makers of these electrical contractors who are registered with the ECA SA. The ECA SA KwaZulu-Natal had 500 members with e-mail addresses. The questionnaire was sent to all 500 members of the ECA SA based in Durban, Richards Bay and surrounding areas and in terms of sample size table (Krejcie & Morgan 1970) the ideal sample would comprise 217 subjects.

3.6 Data Collection

The manner in which data is collected greatly influences the effectiveness of the research that is conducted (Sekaran & Bougie, 2011). Data collection is necessary to test the hypotheses that are generated in a study (Sekaran, 1992). There are fundamentally two approaches to collecting raw data one is to ask questions about variables using trained interviewers or questionnaires and the other is to observe variables using professional recording devices (Hair *et al.* 2003). Data collection tools range from self-administered surveys, personal interviews, computer simulations, telephonic interviews and focus groups (Hair *et al.* 2003). Questioning techniques have a greater advantage than observation techniques and it allows the researcher to access a wider array of raw data (Hair *et al.* 2003).

According to Poynter (2010) online research methods are growing and are becoming a very reliable source to collect primary data. Internet surveys can take place in three forms, an email questionnaire where questions are sent as part of an email itself, a questionnaire sent as an attachment to an email, and a web-based questionnaire where the questions are designed in a logical and easy format that is located on an Internet site waiting for people to visit and complete (Denscombe, 2010). Internet surveys provide a fast and cheap alternative to other survey methods. The use of web-hosting questionnaires could cost quite a lot in terms of designing and hosting the questionnaire (Denscombe, 2010). The data supplied via web-based questionnaires are ready for analysis and can be downloaded automatically into spread sheets, databases and statistics packages (Denscombe, 2010). In this study an online questionnaire will be used to collect and analysis the data. Question-Pro will be used to host the questionnaire.

The quality of data obtained through Internet surveys are not significantly different from that obtained using other traditional methods (McDaniels & Gates, 2010). In this study the researcher will send an email to all members of the ECA SA KwaZulu-Natal inviting them to participate. A printed version of the questionnaire will also be created and sent to those members who are not inclined to using web based surveys so that all members of the population can respond to the survey.

3.7 Development and design of the questionnaire.

Questionnaires are instruments that do not allow the researcher to change or make amendments and corrections when they are distributed (Denscombe, 2010). The questionnaire in this study involved planning, timing and other factors that are directly linked to getting it right the first time. A questionnaire is a set of written questions which respondents record their answers, usually within a set of closely aligned alternatives (Sekaran 1992; Sekaran & Bougie, 2011) . A questionnaire is not an instrument to change people's attitudes or to provide them with information but to discover things (Denscombe 2010). The theory of developing a questionnaire still seems to be the greatest weakness among researchers, the creation of a questionnaire should be more scientific, integrates logic, address objectives, takes into consideration discriminatory powers, and has systematic procedures (Hair, 2000).

According to Beri (2008), the following must be considered while designing the questionnaire, understand the problem under study, the type of questionnaire and its method of administration, the type and content of each question, the phrasing and sequence of the questions, the type of response that is likely to be received, the number of questions, the layout of the questionnaire, the pretesting of the questionnaire, and the finalising of the questionnaire. These have been taken into consideration and applied in the study special focus was given to the sequence of the questions.

Development of a questionnaire involves three basic steps, step one, the wording of the questions, step two, how to analyse the data after the responses have been received in relation to the categorization, scaling and coding of variables and step three the general appearance of the questionnaire (Sekaran, 1992). The development of a questionnaire should result in the researcher obtaining specific information that answers the research question. The required information should start from general information to specific information known as the flower pot approach (Hair, 2000). The flowerpot approach is where the top is wide and it tapers down to a narrow bottom, symbolizing a natural flow of data from general to specific (Hair, 2000). Sekaran and Bougie (2011) discussed a similar approach to the flowerpot approach where broad questions are started with and they slowly

progress to more focused questions, this approach is known as the funnelling technique.

The questions were constructed at a level where the respondent could understand and the appropriate attitudes, perceptions and feelings could be easily gauged. Careful consideration was given to the wording of the questions and the appropriate content, at a level of sophistication that the intended respondent could answer easily, the layout was simple, the questions were sequenced so that it created interest keeping the respondents attention throughout the questionnaire and the level of personal data was extremely limited (Appendix - 3).

Itemized and graphic scales are non-comparative scales where the respondent makes a judgement without making reference to other concepts, issues or people, whereas rank-order scales are comparative scales where the respondent is asked to compare two or more items and rank each of them (McDaniel & Gates, 2010). Nominal data questions based on counting of things with no specific assigned order and allow limited room for statistical manipulation was used, and ordinal data questions that are assigned to specific categories with clear ordered ranked relationships were also used. The use of ordinal questions allows data in other categories to be compared as higher or lower than, more or less than other categories. The most common example of ordinal data comes from questions constructed with the use of Likert Scales (Denscombe, 2010). Likert Scales consists of a number of statements expressing either a favourable or unfavourable attitude towards the concept under study where the respondent would be required to consider only one statement at a time with a scale running from one extreme to the other (McDaniel & Gates, 2010). A Likert Scale is designed to measure a person's attitude towards concepts. Likert Scales asks the respondent to indicate to what extent they agree or disagree with a series of beliefs of the research object (Shiu, Hair, Bush & Ortinau, 2009). In Likert scale, rank order data can be only inferred and the cause or by how much they differ will not be known (Denscombe, 2010). The use of rank-order rating scales that enable respondents to compare their own responses by indicating their first preferences, second and third preferences and so on allow for easy comparisons among possible responses (Shiu *et al.* 2009). According to (Shiu *et al.* 2009), rank order has some limitations, where the preferred attributes are not part of the list of attributes being

measured and the researcher cannot learn anything about the reasoning used by the respondent for making their ranking choices.

Trust is an over-riding issue in business research the key deliverables from this project were clearly outlined to the respondents, research participants privacy and responses were to remain in strict confidence and anonymous. Ethical considerations were key in the construction of the questionnaire and the researcher ensured that the rights and obligations of individuals were not harmed Appendix - 2). The electrical sector has been noted for its lack of co-operation with sector based initiatives and the questionnaire had taken that into consideration and therefore the simple structure with direct focused questions.

3.8 Pretesting and validation

Pretesting is the trial run of the questionnaire and must be conducted with a sample of the target population (McDaniel & Gates, 2010). The research instrument should be reviewed before the questionnaire goes live (Poynter, 2010). The complexity and design of the questionnaire is directly linked to the intensity of testing required (Poynter, 2010). No questionnaire should be administered or go live before the researcher has evaluated the accuracy and consistency of the responses (Hair *et al.* 2007). No survey should be conducted without a pre-test (McDaniel & Gates, 2010).

3.8.1 Pretesting

Pretesting is done by administering the questionnaire to a small sample of respondents that have similar characteristics to the target population (Hair *et al.* 2007). In addition these respondents should be asked probing questions about the questionnaire design, use of instructions, scaling, format, wording, question relevancy and ambiguity (Hair *et al.* 2007). Pretesting is the administering of a questionnaire to a small number of respondents to prevent any ambiguity or bias that may be contained in the actual questionnaire (Beri, 2008). The researcher should be aware of null and single lists, where the respondent picks up a leading

question that is filled with other questions, errors in rotations and cell allocations, incompatible combinations, possible inconsistent responses from respondents and logic errors on the online version (Poynter, 2010).

The testing of online surveys needs to focus on whether the questionnaire is working, and its stability when an unlikely response is entered. Does it look right? Are the correct values including working and hidden values being stored? These are important points to keep in mind as the respondent is on their own and there is nobody to encourage and keep the respondent engaged (Poynter, 2010). The researcher should be looking for misinterpretations by the respondent, the lack of continuity, poor skip patterns, additional alternatives and the general response to the survey (McDaniel & Gates, 2010). The pre-test should be conducted in the same mode as the final survey (McDaniel & Gates, 2010).

The questionnaire was administered using two methods, on-line via software Question-Pro, and a personally delivered printed copy. The pre-test included 10 members of the ECA SA who were actively involved in the organization, five of them completed the on line version and the other five completed the printed copy. The success of an online version survey depends on its design as it is a self-complete survey and the researcher has taken this into consideration. The process of testing a survey as illustrated in Table 3.8 would be considered to make the questionnaire simple, yet rewarding and engaging for both the researcher and respondents.

Table 3.1 Testing of Surveys

Step	Process tests
1	The respondent's ability to complete the survey and stay engaged this includes making the survey as short as possible, level of questions to be simple and friendly.
2	The design and layout from the screen view point.
3	The information on the first page and its volume of information that leads to a successful questionnaire.
4	Assess the respondent's comments on the questionnaire and subject.
5	Has the survey answered the research question and was enjoyable to the respondent.

Adapted from: Beri, G.C. 2008 Marketing Research, New Delhi Tata McGraw-Hill Publishing Company Limited.

The pretesting of a web based questionnaire will increase the response rate as its suitability would have been tested and the researcher would also have confidence in the respondents capability (Beri, 2008). The electronic questionnaire 'informed consent page' had to be modified to include the "I agree" tick box. The printed copy was found to be user friendly and good.

3.8.2 Validation.

Validity is the representation of the expected results of the study, would the questionnaire bring out the results that it set out to bring (Beri, 2008). There are four approaches that are commonly used for validation, firstly content validity that confirms that the researcher has clearly defined the problem and has created a suitable scale for the purpose (Hair *et al.* 2007). The researcher would use a sample of knowledgeable persons to confirm the content validity and not leave it to one person alone. Secondly construct validity, which is more difficult to measure

and it can be only measured indirectly depends on the ability of the researcher to support the evidence (Coldwell & Herbst, 2004). Thirdly predictive validity, is the ability of the researcher to guess the outcome of the study and when the results have been concluded to compare the prediction with the results and if the two scores are closely associated the scale is said to have a predictive validity (Beri, 2008). The last approach concurrent validity, is where one variable is used to measure the score on another variable (Sekaran & Bougie, 2011).

The pre-test should not find reliability and validity or wording issues at this point if one followed the broad to narrow funnel approach, but the pre-test should used determine how much time the respondents will need to complete the questionnaire, whether to add any instructions and what to say in the cover sheet (Hair *et al.* 2003). The results of the pre-test signified that the theory around the test was a good fit and that the business problem exists, this validated that the survey could be conducted (Sekaran & Bougie, 2010).

3.9 Analysis of the data

The purpose of data analysis is to draw meaning to raw data that is collected (Coldwell & Herbst, 2004). Data that has been collected from the representative sample has to be accurate, complete and suitable for further analysis (Sekaran & Bougie, 2011). Data that comes from surveys need to be categorized and analysed (Shiu *et al.* 2009). Sekaran (2003) also stated that data needs to be coded, categorized and keyed in and a decision has to be made as to how this data will be analyzed. This study is based on quantitative research which uses numbers as the unit of analysis as compared to qualitative research that uses words or visual images as the unit of analysis (Denscombe, 2010). The data from the completed questionnaire on Question-Pro will be exported to an excel spread sheet. The printed copies will be received and the information will be transferred to Question Pro and thereafter to the excel spread sheet. Recently a number of programs were developed to simplify the tabulation process of data and one of the most versatile statistical analysis packages is Statistical Package for the Social Science (SPSS) (Coldwell & Herbst, 2004). SPSS has been proven to be the most popular statistical package (Denscombe, 2010). SPSS is one of the new

automated coding system that has features which speed up the coding process, reduce cost and increases objectivity with the power of finding patterns in open-ended responses based on keywords and phrases (Denscombe, 2010).

The data that has been validated, edited, coded and stored on an Excel spreadsheet will be transferred into SPSS and the internal logic would control the quality of the entry (McDaniel & Gates, 2010). This data will be processed and a marginal report will be computer created that will display various tables of frequencies, responses to questions and monitor codes and correct use of skip patterns (McDaniel & Gates, 2010). The final step in the data tabulation indicates the number of responses and who gave possible answers to each question, this will be followed by cross tabulation where it examines responses to one question in relation to one other or more than one other question (McDaniel & Gates, 2010).

Data will be presented in various graphical formats and tables to allow for maximum visual presentation and understanding. The visual power of these representations will be supported by narrative explanations of the findings.

3.10 Summary

Business research is an organized, systematic, data-based, critical, objective, scientific investigation into a specific business problem undertaken to provide solutions to a business problem. Business research methods can provide the researcher with reliable information if the data collection is done in a scientific and effective manner. In this chapter the stages of the research methodology was explained which included the participants and location of the study, the research approach, the sampling, data collection, the questionnaire development and administration, the pretesting and validation of the questionnaire, and the data analysis. The sampling process was established where a census approach will be initiated and then the total responses will be handled in the simple random sampling method. Data collection would employ the use of both the online and printed copy format as it is most suitable for the study. The data will be analysed at the various stages and entered into SPSS for computerised analysis. The analysis and presentation of the data will be discussed in the next chapter.

Chapter Four

Presentation of Results and Discussion

4.1 Introduction

This chapter is the presentation and discussion of results that was obtained from the survey. For data to be used it must be communicated in an effective method that provides usable information that can be used to make important decisions. The primary goal of this study was to indentify the key challenges to skills development of electricians in the electrical contracting sector, and to investigate the challenges that electrical contractors face in skills development. This chapter presents the results in the form of figures, tables and narratives. Where possible, the findings of this study will be compared with other studies.

4.2 Survey instrument and data collection

An electronic questionnaire was sent to 500 electrical contractors who had e-mail addresses and were registered with the Electrical Contractors Association SA (ECA SA) KwaZulu-Natal. Their e-mail addresses were acquired from the ECA SA, Durban branch. The survey recipients forwarded the survey questionnaire to an additional 40 senior managers who were not on the ECA SA e-mail list. The final report from the survey software Question Pro indicated that a total of 540 respondents viewed the survey, 323 respondents attempted the survey and 269 respondents completed it. This translates to a 50% completion rate. The average time taken to complete the questionnaire was 4 minutes. The Krejcie and Morgan (1970) sample size table shows that from a population of 500 the acceptable sample size is 217 at the 95% confidence level for the results to be generalisable to the population. In this study the sample of 269 exceeded the 217 which means that the results can be generalised to all the electrical contractors registered with the ECA SA KwaZulu-Natal.

4.3 Demographics of the sample

The “demographics” of the respondents organisations such as type of business, the registration level, the age of the business and the number of staff employed has been included, as such features could have an influence on some of the responses. The demographic information that was sought provides a deeper understanding of the results that are presented. The age of a business and the number of staff employed will provide information on how respondents address training (Table 4.1).

Table 4.1 Presentation of demographic information

Characteristics	Percentage
Type of Business	
Sole Proprietor	19%
Close Corporation	65%
Company (PTY) Ltd	16%
Total (n=260)	100%
Registration	
Single Phase Electrician	9%
Installation Electrician	44%
Master Electrician	28%
Electrical Engineer	6%
Other	13%
Total (n=260)	100%
Age of business	
0 to 5 years	30%
6 to 10 years	22%
Older than 10 years	48%
Total (n=260)	100%
No of staff employed	
1 to 5 staff	35%
6 to 10 staff	24%
More than 10 staff	41%
Total (n=260)	100%

It is evident from Table 4.1 that 65 % of electrical contractors have registered their businesses as Close Corporations. Sole Proprietor represented 19% while Pty Ltd represented 16%. Majority (44%) of these businesses were registered as installation electrician, followed by master installation electrician 28%, other as

13%, single phase electrician 9%, and electrical engineer at 6%. The age distribution of the businesses indicates that 48% of electrical contracting businesses were more than ten years old, with 0 to 5 years and 6 to 10 years making up 30% and 22 % respectively. It is also evident that 41 % of businesses employed more than ten staff, 24 % employed 6 to 10 staff and 35 % employed 1 to 5 staff.

Table 4.2 Number of qualified electricians employed

Number of qualified electricians employed		Percentage
0	Qualified electricians	9%
1	Qualified electrician	28%
2	Qualified Electricians	23%
3	Qualified Electricians	27%
4	Qualified Electricians	9%
5	or more	4%
Total (n=260)		100%

It is evident from Table 4.2 that the majority 28% of electrical contractors employed at least one qualified electrician, 23% employed two qualified electricians, 27% employed three qualified electricians, 9% employed 4 qualified electricians and, 4% employed five or more qualified electricians. Nine percent (9%) of the respondents did not employ any qualified electricians. In order to comply with the requirements of registration an electrical contracting company has to have a registered electrician permanently employed (ECA SA, 2012) therefore it is assumed that the 9% of businesses that did not employ qualified electricians, the owner served as the only qualified electrician.

4.4 Electricians Qualifications.

Respondents were asked if the electricians they employed were suitably qualified to meet the business needs, their responses are illustrated in Figure 4.1.

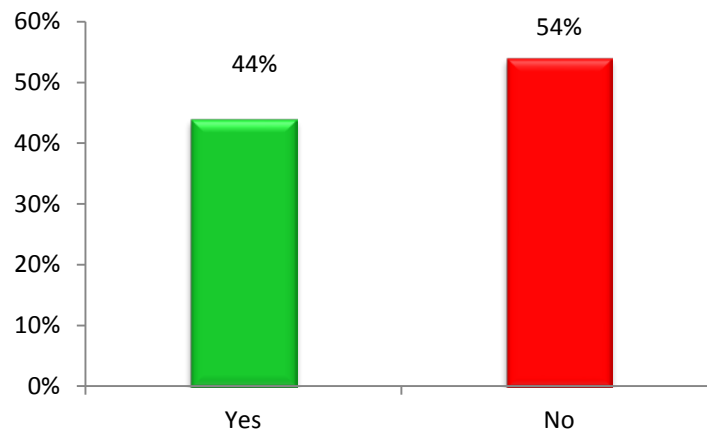


Figure 4.1 Sufficiency of qualified and suitably skilled electricians to meet company requirements

The results indicate that 44% of electrical contractors employed electricians that were suitably qualified for their business requirements and 56% indicated that the electricians that they employed were are not suitably qualified for their business requirements. The gap between suitably qualified and not suitably qualified is small. A similar study that was conducted in Zambia showed that the gap between skilled and unskilled electricians was narrow but further analysis showed that the quality of the skills were poor due to the low technical requirements and high unemployment rate of the country (Muya, Price & Edum-Fotwe, 2006).

There is significant evidence of skills shortages which created stagnation of growth in firms and skills scarcity remains the most critical labour problem for Small, Medium, and Micro Enterprises (SMME) (Bhorat & Lundall, 2002). One of the most serious short to medium term problems that the electrical industry in South Africa faces is the acute shortage of skills (ECA SA, 2012). Measurement of skills intensity by sector has revealed that only 12.87 % of employees in the electrical machinery sector were suitably skilled for their tasks and similar findings were noted in most developing African countries (Bhorat & Lundall, 2002).

It is evident that the shortage of suitably skilled electricians is not unique to KwaZulu-Natal and South Africa, but that it is a bigger African problem as well. According the Human Science Research Council (2003) one can draw a conclusion that small firms are competing in the lower skills spectrum of the economy and therefore lower skills levels are adequate for their business requirements.

4.5 Support for skills improvement

Respondents who indicated that their electricians were not suitably qualified for their business needs were asked to indicate if they were doing anything to improve the skills of the electricians. It is evident from Figure 4.2 that 91% indicated that they were doing something to improve the skills of their electricians and 9% were doing nothing to improve the skills of their electricians.

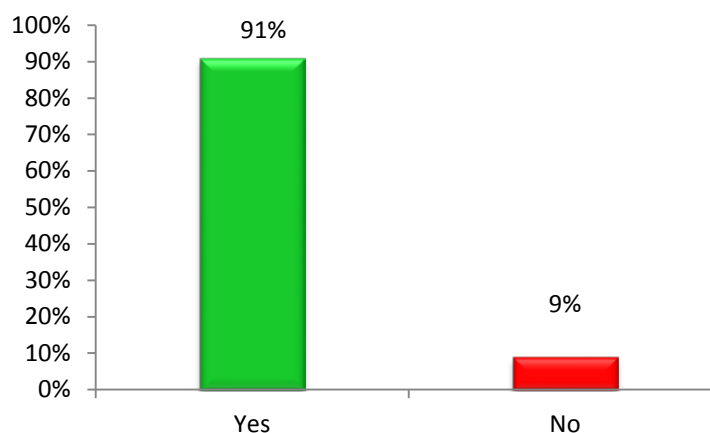


Figure 4.2 Distribution of responses in support of improving skills.

According to the ECA SA (2012), it is absolutely essential that electrical contractors continue with training so that the industry can operate at an efficient level. The 9% that were not training could fall into the businesses that were not inclined to training as studies have shown that these are the “tough nuts of training” and are not led by demand for training (Holden, Nabi, Gold & Robertson, 2006). There is a variety of reasons why companies are not focusing on optimum levels of skills. Some companies were focusing on less complicated processes

and products that required a low skill level and other companies were competing on price rather than quality (Skinner, Saunders & Beresford, 2004). In a highly deregulated labour market where there are more acute business pressures on SMME's, than training and also where there are no statutory regulations imposed on employers to train, this also results in the lack of support for training in the workplace (Holden *et al.* 2006). Due to the lack of training in Zambia the recruitment of skilled electricians is rated as the most difficult among five other trades (Muya *et al.* 2006). It is evident that in KwaZulu-Natal training is taking place and the reasons a small percent that were not training could be due to self employment or that they engaged in labour contracting only. Self employment and labour only contracts had a corresponding decline in the rate of formal training effort in the United Kingdom (UK) construction industry which relied heavily on informal skills acquisition which hinders training and innovation (Winch 1998 cited in Muya *et al.* 2006).

4.6 Acquisition of skills

The respondents who were participating in skills development were asked to select all that applied regarding what they were doing to improve the skills of their electricians. Table 4.3 shows the skills development taking place.

Table 4.3 Skills development initiatives

Description of skills improvement	Percentage
Sending electricians for further outside training	21%
Training electricians in-house	30%
Allowing electricians to gain practical experience by providing them with employment	24%
Teaming electricians up in pairs so that they could find their way by learning from peers (Two electricians to do one task)	25%
Total (n=252)	100%

It is evident from Table 4.3 there is an even spread in the use of the available skills development initiatives with a preference for in-house training (30%). The least selected (21%) was sending the electricians for further outside training. According to Muya *et al.* (2006) most skills are acquired through in-house training rather than formal training at institutes. It can be argued that employers are seeing to their own interests by teaming electricians and allowing them to learn from their peers, this creates exploitation of low skill, low wage work force (Skinner *et al.* 2004). This preference for teaming electricians and peer learning can be related to companies moving to more temporary employment structures resulted in the increase of in-house training to meet project skill requirements (Muya *et al.* 2006).

4.7 Where is the training taking place

The respondents who indicated that they were training their electricians, used a number of service providers as illustrated in table 4.4

Table 4.4 Training Providers used by respondents

Training Provider	Percentage
In-House training.	58%
SETA Courses.	1%
Private Service providers.	6%
FET Colleges	35%
University / Technikon	0%
Total (n=219)	100%

It is evident that 58% of the respondents were training their electricians in-house, 35% were sending their electricians to FET colleges, 6% were using private service providers and 1% used the services of the SETA to train their electricians. No respondents used Universities or Technikon's for provision of their training.

The high reliance on in-house training could be related to the growth of self-employment and the use of labour for project work, which reduces commitment

and investment in training within an industry (Lill, 2008). Self-employed skilled artisans are unable to further their qualifications and there is a direct correlation between the drop in numbers of trainees and self employed individuals which results in low investment in outside training and hence low quality skills (Lill, 2008). Satisfaction with skills training obtained from trade schools and Further Education and Training colleges (FET) are inadequate as they are struggling to address quality issues, and learner support systems among other issues (Akoojee, Gewer & Mcgrath, 2005). This low satisfaction with FET colleges has led to a big drive by government to revitalise the FET colleges (Akoojee *et al.* 2005). There is a clear indication that the study done by Akoojee *et al* in 2005 is relevant as the results of this study that 35% of respondents utilized FET colleges as a medium for training.

Private service providers made up 6% of the training institutions used by electrical contractors to improve the skills of their electricians. International evidence suggests that as the economies of countries grow, companies with larger staff will invest more to bridge the gap in skills development (Akoojee *et al.* 2005). The accreditation of private providers by the SETA's is a problem which results in the lack of delivery against skills development in South Africa (Akoojee *et al.* 2005). It is evident that problems with the SETA's have not been solved as only 1% of respondents were using SETA's as a medium to engage training. The Department of Labour identified that the poor delivery of registrations of learnerships was due to the SETA's failing to enter into agreements with private services providers (Bhorat & Lundall, 2002).

It is a concern that Universities and Technikons are not used in the training of electricians which could be attributed to the de-linking of the higher educational system and the merger processes which have not improved the delivery of technical programs (Kraak, 2003). Furthermore, there are continuing challenges in the higher education sector which have made the sector very fragile and quality and relevance has not been established (Akoojee *et al.* 2005). According to Skinner *et al.* (2004) technical staff that are recruited from universities may be under-utilised, but they could make a significant contribution if their value was recognised by employers.

4.8 Man hours invested in training

Figure 4.3 illustrates the man hours invested in training electricians.

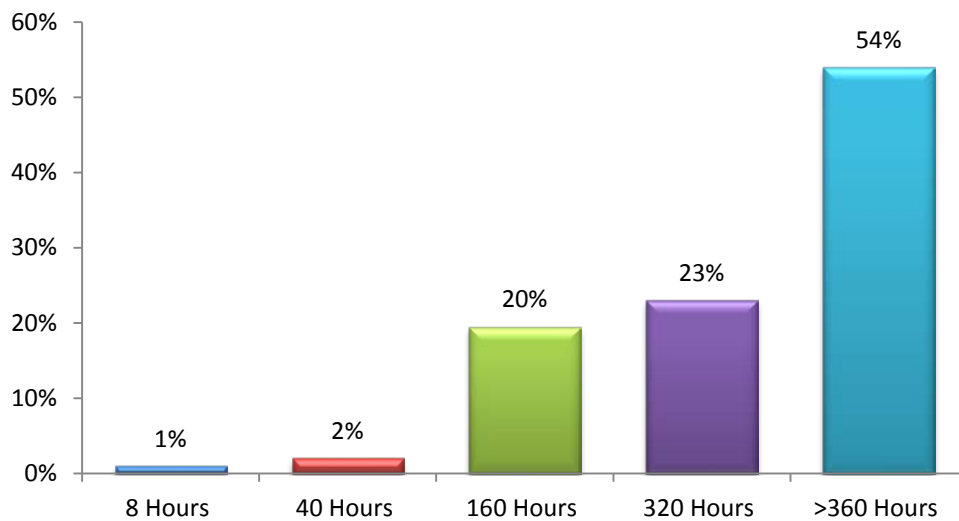


Figure 4.3 Man hours invested in training.

The data reveals that 54% of respondents invested more than 360 man hours in training per year. Twenty three percent (23%) of the respondents invested 320 man hours per year, 20% of respondents invested 160 man hours per year, a small percentage of respondents 3% invested 40 or less man hours. A total of 77% of respondents invested 320 or more man hours in training per year.

It has been proven that there is a great preference for in-house training and the factors that could be influencing training has been identified as quality standards, consumer service objectives, productivity targets and increased competition (Akoojee *et al.* 2005). The gap between the formal training perception and what is actually expected in industry is too large this results in an increase in on-the-job training conducted by firms (Skinner *et al.* 2004).

4.9 Not improving skills for business needs

The reasons 27 electrical contractors did nothing to up-skill their staff, are listed in Table 4.5

Table 4.5 Reasons for not up-skilling electricians

Reason for not Up-skilling Electricians	Percentage
There is no need to up-skill them	11%
There is no shortage of skilled electricians	4%
Up-Skilling of electricians results in other poaching them	34%
It is too costly	22%
There are insufficient incentives from government	29%
Total (n=27)	100%

It is evident from Table 4.5 that the highest concern (34%) for not participating in up-skilling of electricians is that others would poach them, 29% stated that there are insufficient incentives from government, 22% stated that it was too costly, 11% stated that they believed that there was no need to up-skill their electricians and a small percentage (4%) stated that there was no shortage of skilled electricians.

Poaching is a common trend that has been cited in many studies where companies do not invest in training as poaching fuels inflationary wage rates and ultimately the cost to company (Ziderman, 2002).

The number of respondents who indicated that they did nothing to improve the skills level of their electricians is low (27). It is evident that the size of the firm is an important variable that can be used to determine whether the firm will invest in training as the level of training in small companies is lower than large firms (Bhorat & Lundall, 2002).

The lack of incentives from government featured second highest (29%) on the reasons for not doing anything to up-skill electricians. The Skills Development Levy (SDL) was implemented to encourage employers to provide skills

development programs through the company's payroll, but the system is burdened with bureaucracy which could be a reason for not accessing SDL funds (James, 2009). All respondents who were not doing anything to up-skills their staff supported workplace based skills development.

4.10 SETA incentives

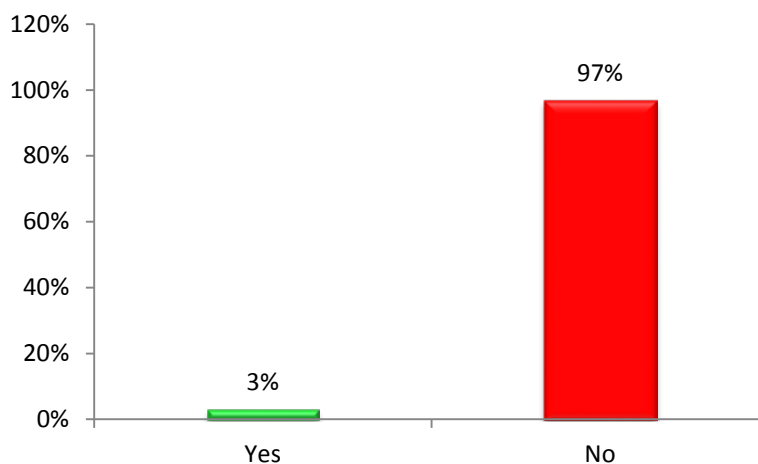


Figure 4.4 Respondents that access SETA incentives.

Figure 4.4 shows that ninety seven percent of respondents did not access SETA incentives, only 3% of respondents accessed the incentives. The main challenge to small and medium sized enterprises is that they did not have the administration resources to comply with the requirements of the Skill Development Funds (James, 2009). Akoojee et al (2005) suggest that SETA initiatives ranked lowest in the form of pressures that influenced the increase in enterprise training. It has been proven in this study that 29% of the respondents have indicated that there are insufficient incentives from government and this could also confirm the lack of participation of firms with the SETA's. The SETA's are government driven and have the mandate to improve skills (Kraak, Paterson, Visser & Tustin, 2008). The impact of SETA structures in increasing training in companies is relatively low (James, 2009). This was supported by Kraak *et al.* (2008) who found that the

ranking of service delivery on SETA's conducted in 2006 showed that there were small improvements.

4.11 SETA reimbursement

The 3% of respondents who accessed reimbursement from the SETA indicated that they received the financial contribution from the SETA as per Table 4.6. Most of the respondents received less than R2000 in the past financial year.

Table 4.6 Reimbursement by the SETA's for the financial year ending March 2012.

Rand value of reimbursement	Count (n)	Percentage
Less than R2000	2	40%
R2001 to R 5000	1	20%
R5001 to R 10001	1	20%
More than R10001	1	20%
Total (n=5)	5	100%

It is evident that a very small number (5) of the respondents received reimbursements in the past financial year. Of the five respondents two received less than R2000, one received between R2001 to R5000, another between R5001 and R10001 and one respondent received more than R10000.

4.12 Reasons for not accessing SETA incentives

The reasons why some respondents did not access SETA funds are listed in Table 4.7

Table 4.7 Reasons for not accessing SETA incentives.

Reason	Percentage
The application process is cumbersome.	42%
The rebate is too small.	11%
Submitted applications are not being paid.	2%
The procedure involved in claiming reimbursements is simply not worth the time and effort.	45%
Total (n=258)	100%

Table 4.7 indicates that 45% of respondents indicated that the procedure involved in claiming reimbursements was simply not worth the time and effort, 42% of respondents found the application process to be cumbersome, 11% indicated that the rebate was too small and 2% submitted applications which had not been paid.

It is compulsory for companies with an annual payroll of R250 000 or more to pay a 1% skills development levy of their total payroll to the South African Revenue Services (SARS) of which 20% is retained for National Skills Funds (NSF) and a minimum of 50% can be claimed back in grants for training, but in order to be eligible to claim back a company must appoint a Skills Development Facilitator (James 2009). Larger companies with larger payrolls are better placed to meet the criteria of reimbursements, where the 1% levy amounts to a significant sum of money (James, 2009).

4.13 Government focus on Skills development

The respondents who were up-skilling their electricians indicated their view on whether strong government focus of skills development would increase the skills output of electrical contractors. Figure 4.5 illustrates these results.

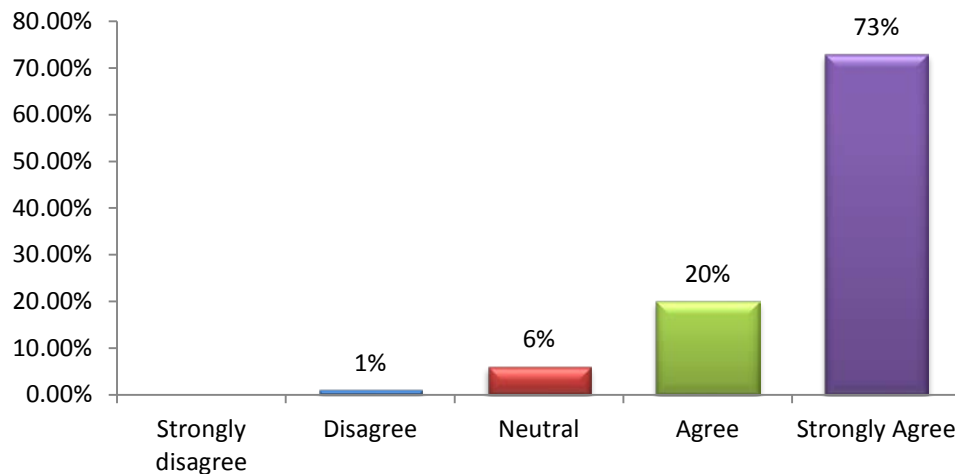


Figure 4.5 Government intervention can increase skills output

It is evident that the majority (73%) of the respondents were in strong agreement that a strong focused skills development plan from government would increase the skills output of electrical contractors. Twenty percent (20%) were in agreement, six percent (6%) were neutral and only 1% disagreed. Comparing the level of training done in South Africa to other countries such as Brazil, China, India, and Poland, South Africa achieved 44.6%, Brazil 77.3%, China 69.1%, India 55%, Poland 79.9% (Daniels, 2007). This suggests that despite the government's National Skills Development Strategy companies are not responding to the incentives provided by government for training (Daniels, 2007). Learnerships and government support initiatives have an important role to play in skills development as such skills development strategies must be directly linked to the education system to alleviate skills shortages in the medium to long term (Daniels, 2007).

Off the respondents who were doing nothing to up-skill their electricians 47% were in strong agreement and 46% were in agreement, that a strong focused skills development plan from government would increase the skills output of electrical contractors (Figure 4.6).

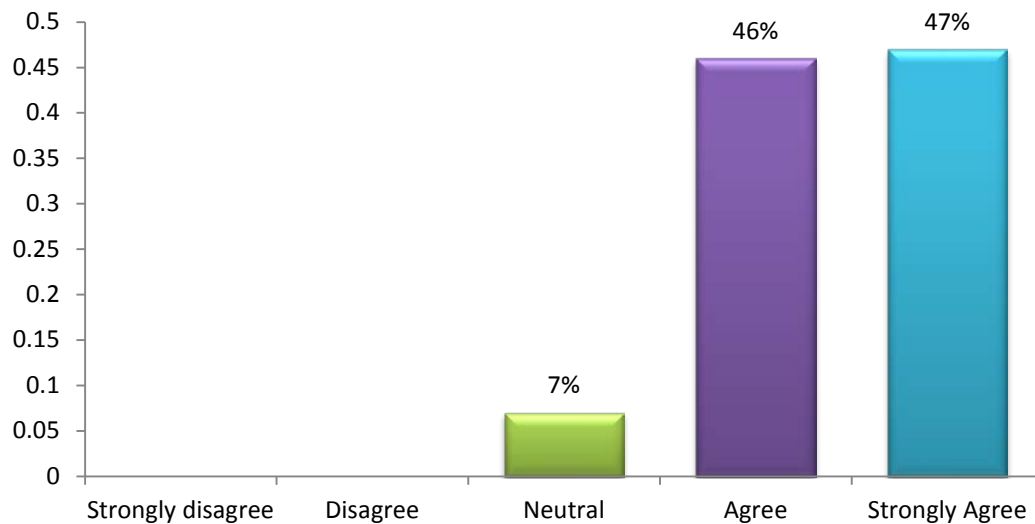


Figure 4.6 Respondents view on Government intervention

Those who were doing nothing to improve the skills of their electricians seemed to have a slightly different view to government development plans as they had a lower strongly agree percentage than those who are involved in up-skilling. The difference in results could also be linked to the low levels of satisfaction with skills obtained from outside training providers (Muya *et al.* 2006).

4.14 Awareness of government Skills Development Plans

Off the 13 respondents who indicated that they were doing nothing to up-skill their electricians 85% were aware of the government skills development plan whilst 15% did not (Figure 4.7).

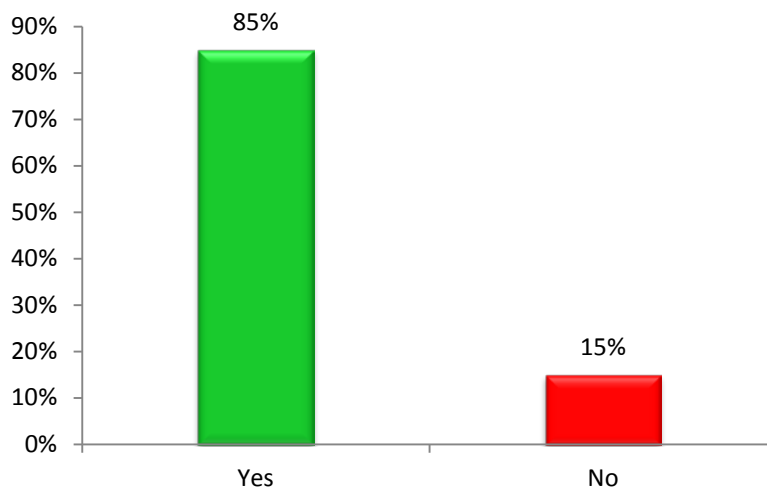


Figure 4.7 Awareness of government Skill Development Plan.

4.15 Awareness of Government incentives

Table 4.8 illustrates what government incentives electrical contractors were aware of.

Table 4.8 Government incentives

Government incentives	Percentage
R7500 rebate on registering of a learner.	50%
R7500 rebate on qualification of learner.	30%
There is a rebate of up to 80% of the Skills Development levy for training.	10%
ESETA funding support from the SMME support project.	10%
Total	100%

The results show that the majority (50%) of the respondents were aware of the R7500 rebate on the registering of a learner, 30% were aware of the R7500 rebate on qualification of the learner, while 10% of respondents were aware there is a rebate of up to 80% of the Skills Development levy for training, and a further 10% indicated that they were aware of ESETA funding support from the SMME support project.

Of the two respondents who indicated that they were not aware of the government Skills Development Plan one indicated that information was not available and the other stated that the process did not affect his or her business.

4. 16 Benefits of workplace based skills development

Table 4.9 illustrates the benefits of conducting workplace based skills development.

Table 4.9 Benefits of workplace based skills development.

Benefits of workplace Skills Development Plans	Percentage
I can develop skills that are specific to my company needs.	26%
Workplace skills development is more practical.	16%
It provides a quick solution to the skills shortage.	21%
Most employees learn better informally at the workplace rather than in formal training centres.	24%
It is cheaper.	13%
Total (n=38)	100%

It is evident that the majority of contractors want to develop company specific skills (26%). Twenty four percent (24%) were of the opinion that employees learnt better at the workplace rather than at a training centre. A further 21% felt that it provided a quick solution to the skills shortage.

4.17 Shortage of electricians

Ninety eight percent (98%) of respondents believe that there is a shortage of electricians as illustrated in Figure 4.8.

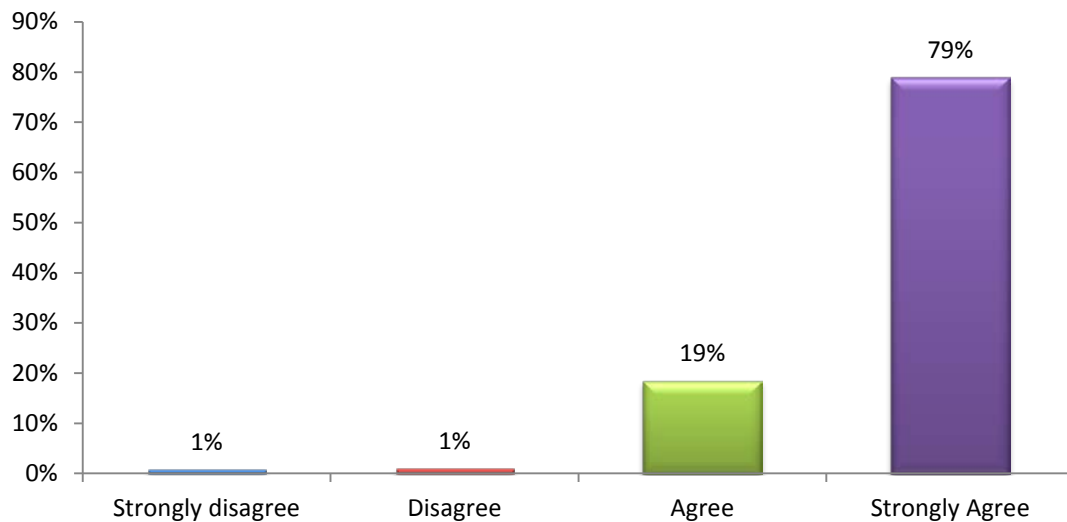


Figure 4.8 Shortage of skilled qualified electricians in the sector

It is evident from the results that 79% of the respondents strongly agreed that there is a shortage of skilled qualified electricians in the sector, 19% agreed and 1% disagreed and a further 1% strongly disagreed.

4.18 Initiatives to address shortage of skills in the electrical sector

Respondents indicated the initiatives that they would prefer to address the skills shortage in the sector. Based on a rating scale of 1 being the most important to 3 being the least important, the mean rating is listed in Table 4.9

Table 4.10 Initiatives that should be introduced

Initiatives that should be introduced to address skills shortage	Mode	Mean (x)	Std deviation
SMME can claim for full training costs incurred.	2	1.64	0.96
Financial rebate on qualification of learner.	3	1.94	0.85
Tax incentives on the number of trainees that you have employed.	3	2.00	0.96

It is evident from Table 4.10 that respondents ranked that SMME's must be able to claim full costs incurred for training as the most important (mean=1.64) followed by financial rebates on qualification of learner (mean =1.94) and a tax incentive on the number of trainees employed (mean= 2.00). Based on the mode it is evident that SMME can claim for full training cost was mainly ranked second whilst the other two variables were mainly ranked third.

It has been proven in this study that the high cost of training is of concern to respondents, the rebate that is too small and that in-house skills development is cheaper shows that the respondents have a preference for financial reimbursements.

Enterprise participation in the National Skills Development programs are extremely high among the large enterprises (95%) as the reimbursement are large in rand value compared to small enterprises where the reimbursement could be less than the cost preventing small business from claiming reimbursements (Paterson, Visser & Du Toit, 2008).

4.19 Results obtained to satisfy the research objectives of the study.

The aim of the study was to identify the key challenges to skills development of electricians in KwaZulu-Natal. The lack of participation by electrical contractors with the SETA's and cumbersome reimbursement process has discouraged the electrical contractors from investing in training. Section 4.20 has been broken down into sub-sections to address each objective of the study.

4.19.1 Objective one: To determine whether electrical contractors develop electricians.

It has been proven in sections 4.7, skill development initiatives, section 4.8, where is the training taking place and in section 4.9, the man hours invested in training that 58% of electrical contractors are training electricians. Further analysis has been conducted to determine if there is a relationship between the age of a business and the man hours spent on training as illustrated in Table 4.10. The following hypothesis was tested for this objective:

H_0 : There is a relationship between the number of man hours invested in training per year and the age of the business.

H_a : There is no relationship between the number of man hours invested in training per year and the age of the business.

Table 4.11 Man hours invested in training per year cross tabulated with the age of the business

How old is your business	What are the man hours you invest in training per year?						Total
		8 hours	40 hours	160 hours	320 hours	>320 hours	
	0 to 5 yrs		2%	14%	11%	4%	
	6 to10 yrs			3%	10%	16%	
	>10 years	1%	1%	3%	3%	30%	
Totals		1%	3%	20%	24%	52%	100%
n = 130			p = 0.00		$\chi^2 = 53.352$		

It is evident from Table 4.11 that there is a relationship ($p=0.00$) between the age of a business and the man hours invested in training therefore the alternate hypothesis must be rejected. Table 4.11 shows that older businesses (> 10 years) invested more man hours in training than newer businesses (0 – 5 years).

4.19.2 Objective two: What should electrical contractors do to increase the pool of skilled labour in the sector.

In order to increase the pool of skilled labour, it has been established in section 4.5, that 56% of respondents stated that their electricians were not suitably qualified for their business needs, in section 4.6 majority (91%) were in favour of skills development, in section 4.7 and 4.8 it is evident that respondents used almost all options to up-skill their electricians. The amount of man hours invested in training finalises the fact that electrical contractors are faced with a skills shortage in the sector.

The following needs to be done to improve the reimbursement rate from the SETA's, evident in Table 4.6 that 87% of the respondents stated that they were not getting reimbursed. Table 4.4 shows the lack of support for SETA training programs. There is a common thread in the study conducted by Paterson *et al.* (2008) that concluded processes for reimbursement from SETA's are far too complicated and this results in the low reimbursement rate. The SETA's have the power to simplify these processes that will encourage and bridge the gap in training but this is not happening (Kraak *et al.* 2008). The following hypothesis was tested for this objective:

H_0 : There is a relationship between the number of man hours invested in training per year and the number of qualified electricians employed.

H_a : There is no relationship between the number of man hours invested in training per year and the number of qualified electricians employed.

Further analysis (Table 4.12) shows that there is a relationship ($p=0.00$) between the man hours invested in training and the number of qualified electricians employed by a contractor therefore the alternate hypothesis must be rejected. The contractors who invested more than 320 man hours in training employed the largest number (46%) of qualified electricians while those contractors who invested the least amount of man hours on training (< 40 hours) employed the smallest number (3%) of qualified electricians.

Table 4.12 Cross tabulation between the number of man hours invested in training and number of staff employed.

		Number of man hours you invest in training per year					Total
		8 hours	40 hours	160 hours	320 hours	>320 hours	
Number of qualified electricians employed.	0		1%	2%		2%	5%
	1	1%	1%	4%	4%	5%	15%
	2			13%	7%	3%	23%
	3				10%	31%	41%
	4				1%	13%	14%
	5					2%	2%
Total		1%	2%	19%	22%	56%	100%
n = 134			p = 0.00		$\chi^2 = 91.28$		

It is evident from the above Table 4.12 that the more man hours invested in training the greater the number of qualified electricians employed. This is supported by Kraak *et al.* (2008) who found that there was a wide disparity in training between large enterprises and small enterprises which almost doubled from 2005 to 2007.

4.19.3 Objective three: SETA incentives and man hours invested in training

From Figure 4.4, it is evident that the majority of respondents did not access SETA incentives. A cross tabulation between accessing SETA incentives and the number of man hours invested per year is illustrated in Table 4.13

Table 4.13 Cross tabulation between accessing SETA incentives and the number of man hours invested in training

Man hours you invest in training per year.	Do you access SETA incentives for training and development of electricians?		
	Yes	No	Row Total
	8 Hours	1%	1%
	40 Hours	2%	2%
	160Hours	1%	21%
	320Hours	1%	22%
	>320 Hours	53%	54%
Total		3%	96%
n = 132		p =0.00	$\chi^2 = 1.952$

Whilst there is no relationship between man hours invested in training and accessing of SETA funds it is evident from Table 4.13 that those businesses that conducted less than 40 hours of training did not access SETA funding. Of these businesses that invested more than 40 man hours on training only 3% accessed SETA funding.

4.20 Additional findings

Table 4.14 shows that older businesses (>10 years) have more staff than newer businesses (0 – 5 years). The following additional hypothesis was tested:

H_0 : There is a relationship between the number of staff employed and the age of the business.

H_a : There is no relationship between the number of staff employed and the age of the business.

Table 4.14 Cross tabulation between age of business and number of staff employed.

	How many staff do you employ?				Total rows
		1 to 5 staff	6 to 10 staff	More than 10 at staff	
How old is your business?	0 to 5 years	26%	3%	1%	30%
	6 to 10 years	5%	13%	4%	22%
	>10 years	5%	7%	36%	48%
Totals		36%	23%	41%	100%
n = 270			p = 0.000		$\chi^2 = 189.53$

It is evident from Table 4.14 that a relationship ($p = 0.00$) exists between the age of a business and the number of staff employed, therefore the alternate hypothesis must be rejected.

The size of the firm is directly linked to the training investment that a firm makes, and that smaller firms are not investing in training programs whether it be in-house or outside training (Haroon & Lundall, 2002).

4.22 Summary

In this chapter the data that was obtained from the survey was analysed and presented in easy to read tables and figures. The survey questions were crafted to answer the relevant objectives and research questions. The salient findings of this study were that as electrical companies age they employ more staff and they invest more man hours in training their staff, there is a clear indication that there is a shortage of skilled qualified electricians in the sector and that the man hours invested in training increases the number of qualified electricians. The findings have proved that there is no relation between the access of SETA incentives with the increased man hours of training.

Chapter Five

Recommendation and Conclusions

5.1 Introduction

Transformation in South Africa is well into its eighteenth year with vast development in the country's infrastructure and government flexing its resources to achieve economic stability. With the ever changing dynamics of technology the country has found itself in a similar position like other countries in the world where there is a skills shortage. In developed countries like New Zealand, the United Kingdom, and even in Africa, research studies have shown that the scarce skills situation is prevalent. South Africa is no different, but the strategy that is currently being applied to improve and stimulate a culture of skills development has been proved in this study as non effective in the electrical sector (Haroon & Lundall, 2002).

This chapter focuses on the findings from this study, limitations that were identified, and proposes recommendations on the findings and discusses further research studies that can be undertaken in the future.

5.2 Key Findings

The research question was crafted to identify whether electrical contractors are experiencing a skills shortage, are they participating in up-skilling their electricians, are there any other initiatives that are being implemented that will increase the pool of skilled electricians in the sector and are electrical contractors being reimbursed by the SETA's for their up-skilling and training efforts.

It is evident in this study that electrical contractors are investing time and resources in training and they are not being reimbursed for this process. The study has proven that there is a shortage of skilled electricians in the sector. It has been further proven that the lack of participation in training is largely due to the financial implications and the cost of training.

The insufficiency of qualified and skilled electricians, the large support for skills development of electricians, the uneven use of available skills development initiatives, the preference for in-house training, the poor support of SETA initiatives and the lack of reimbursements, the large amount of man hours invested in training by the majority of the respondents and the overwhelming agreement that there is a shortage of skilled electricians in the sector provides a strong base to conclude that the research question has been answered.

The electrical contracting sector consists of businesses that are mostly owner operated and are successful due to the valuable technical skill that the owners have. The success of these businesses is also related to the severe skills shortage that forces consumers to pay more for technical skills and support (Paterson *et al.* 2008). The final results of the National Skills Survey conducted in 2007 concluded that the survey could not find a single skill to be lacking or underdeveloped or even extremely lacking (Paterson *et al.* 2008). The ESETA engaged proactively with electrical contractors in 2010 to verify the current reality in the sector and it was concluded that, data from the electrical contracting sector was not taken into consideration in the National Skill Survey 2007.

In this study it is evident that the pertinent assumptions that were engaged with the ESETA in 2010 which were, the need for skills development and training, the role that the ESETA played in skills development, the lack of confidence in government intervention for skills development, the willingness of electrical contractors to participate in training and the lack of incentives for training. These pertinent issues were tested in this study and the results have been verified in support of the finding of the ESETA, SMME Skills Development Strategy 2009.

The results of this study can be used to develop a strategy to address the current reality in the electrical contracting sector. The strong focus on operational challenges such as funding, the high cost of training and most important is the current willingness to up-skill and train electricians should be used as a positive indication to stakeholders so that the up-skilling and training of electricians could be fast tracked.

5.3 Recommendations to improve the current situation

The electrical contracting sector is burdened by a severe skills shortage and escalation of this will result in increased costs to business and consumers. The following are recommendations that will support a revitalised skills strategy in the electrical sector.

5.3.1 Sufficiency of qualified electricians

It is evident from the results of the study that the supply of electricians are insufficient and that the majority (91%) of the employers are engaging in some sort of up-skilling of these electricians. Electrical contractors registered with the ECA SA make up almost half of the electrical sector, and training in these companies is principally delivered by the owner of the company. One of the reasons for not up-skilling staff was the issue of poaching. Electricians are normally poached when they have skills that are scarce in an industry, an employment condition to retain these electricians based on advanced training that will be adopted into the actual running processes of the company will improve the retention rate of electricians and good employer employee communication will result in the fast tracking of skills development and the retention of these members. Employers need to align their focus on employee development for long term business success and growth. Employers should develop incentives schemes to retain skilled electricians without having to see the negative approaches such as restraints of trade.

5.3.2 Skills development initiatives

It is evident from the results of the study that outside service providers, SETA courses, FET colleges, Universities and Technikons are not being utilized fully by electrical contractors to improve the skills levels of their electricians. It was also found that the main reason for the low utilization rate was the high cost that is associated with these educational institutions. The vigorous attempts of skills development by government in 2003 resulted in an increase of qualified electricians in 2006 and the ensuing failure to control the SETAs showed a decline

in qualifications from 2007 onwards (Paterson *et al.* 2008). Businesses in the electrical sector are involved with the wave of changing technology and skills are not only based on current technology but on future development. Electrical contractors should pave the way to educate their staff with the relevant theory and skills that can be drawn from improved interaction with the colleges and universities. There is no better place than the natural workplace to up-skill electricians, but the relevant theory is crucial for long term development. Government and private enterprise partnerships should identify what are the issues that are preventing electrical contractors accessing to these educational institutions. Factors such as quality of course work that is relevant and applicable to industry, needs to be the focal point of change in educational institutions. The redirection of funds from the SETA's directly to businesses that are sending staff to these institutions will encourage business to build an educated workforce. The electrical sector has organized itself via the ECA SA and this formation should move forward in a combined force to engage government with skills development that is sector and demographically based.

5.3.3 SETA processes

It is evident from the results that the SETA processes are simply far too complex for the average electrical contracting business. The application processes are cumbersome, the rebates are too small, the processing of applications are inconsistent, and the procedures for claiming reimbursements are simply not worth the time and effort. The SETA's must maintain a strong focus on their directive from government to create a medium to develop the work force in an organized manner. The access to SETA funding is extremely complex and the process supports big business with a large workforce and strong administrators. Small electrical contractors are not positioned to access these incentives.

With technology and one of the most efficient revenue services in the world the South African Revenue Services (SARS) the design of an online application form linked to the companies tax account with all the applicants details prefilled and prompts that are simple could encourage companies to invest in training via the government initiatives (Kraak,2003). At present funds are allocated for skills

development and these funds are in the hands of the SETA's and it is not reaching the whole spectrum of businesses who are registered tax payers. The Skills Development Levy (1%) of an organizations total payroll and the 80% maximum reimbursement based on a company's contribution is only an advantage to big business, while most businesses in South Africa are SMME's. It is evident from this study that small businesses are not benefiting from this incentive.

5.3.4 Government focus on Skills development

The results have shown that those companies that are currently engaging in up-skilling of electricians were more in support of government intervention. While those companies who were not engaged in training, were less in support of government intervention. Government should consider the following:

- New innovative simpler processes than the current process to reimburse SMME for training costs.
- Government should develop a concept of high quality teaching and learning that will foster skills development. A collaborative approach between government, industry, and education is vital for the success of skills development.
- Government should stimulate and support skills development in SMME and assist new entrants into permanent jobs.
- Governments approach on skills development needs must to be known and understood by enterprise at ground level so that all participants can work together towards a common skills development plan and not in silos.
- Measures should be implemented to measure the quality of service delivered by skills development institutions and the SETA's. Where government funding is being used, accountability instruments must be introduced.

5.3.5 Incentives that should be introduced

From an electrical contractors perspective it is evident that the respondents would like to claim full training costs incurred. The results have also proven that the majority of the electrical contractors are training and the full reimbursement of training based on successful qualification of the learner will increase the pool of skilled electricians in the sector.

A direct on line application form with the South African Revenue Services for training reimbursement cost will strengthen the support for training. This will allow SMME to claim back directly for the cost of training. The more investment that the company applies to train the more they can claim.

SETA communications channels should be reviewed as skills development was entrusted in the hands of the SETA's. The current closed door policy of the SETA's must be changed.

5.4 Limitations of this study

The electrical contractors that are registered with the ECA SA are made up of large, medium, small and micro enterprises. They have different operational structures and this study focused on skills development of electricians in all these enterprises irrespective of the size of the operation.

5.4.1 Accessing the right person in the company.

The data bank of email addresses obtained from the ECA SA, Durban was not updated with the latest information. This resulted in delays as some email addresses were unreachable. The new addresses had to be sourced again via the ECA SA and the questionnaire resent. During the first week there was a trend of unfinished responses. It was found that the e-mails were opened by administration clerks who viewed the questionnaire but did not participate and this resulted in spoilt survey responses. The researcher made telephone contact with each electrical contractor and discussed the survey and resent the survey to the original

addresses and in a few cases to new addresses. The ECA SA Durban branch regional director was contacted and an email from his office to each contractor was sent making the respondents aware of the survey and the ECA SA's support for the study. Responses were slow in most cases, the researcher opted to personally visit respondents in the Durban and Richards Bay areas and encourage the respondents to complete the survey.

5.4.2 The comparable literature

Scarce skills are a worldwide phenomenon, but with the low education level in South Africa it would take many years to raise the level to compare it with the likes of the developed technical countries where most of the studies have been done. The literature in this study is limited to studies in the construction sector of various countries including Africa.

5.4.3 The design of the questionnaire

- The question related to the man hours invested in training, did not specify what training is being done, although it was followed with a question that probed where the training was taking place, it did not conclude what aspect of the skill was lacking that training had to be done.
- The questions were not made compulsory and this generated a small number of incomplete surveys and the total number of participants in certain questions could not be reconciled with the original number of respondents.

5.5 Recommendations for future studies

Due to the narrow focus of this study some aspects could have been overlooked. The following are possible studies that could be conducted.

- A provincial comparison of skills development in the electrical industry.

- A comparison between SMME's and large corporation skills development practices.
- A national audit of electricians skills.
- The role of public private, partnerships in closing the skills gap in the electrical sector.

These studies can be either quantitative or qualitative depending on the resources and skills of the researchers.

5.6 Research questions and brief answers.

- Are electrical contractors involving themselves in training and up skilling of electricians? The research has shown that electrical contractors are training electricians with preference for in-house training.
- Will the initiative by electrical contractors improve the development of electricians in the sector? Although electrical contractors are engaged in training of electricians, development of electricians needs the combination of practical and theory and the study has shown a lack of theoretical training at universities.
- What are the challenges that electrical contractors face in the development of electricians? Funding has been identified as the core challenge.
- What incentives would electrical contractors prefer for training and up skilling of electricians? They have indicated a preference for full reimbursement of training costs.
- What initiative can be implemented to increase the skilled labour pool in the electrical sector? In-house training has been identified as the current initiative, although the combination of in-house training, strong peer learner training and college graduates will increase the labour pool.

- Is the Skills Development Levy (SDL) catering for the electrical contractors training needs? The SDL is beneficial to large enterprises and does not cater for the SMME electrical contractors needs.

5.7 Summary

The economic growth of South Africa has resulted in the demand for technical skills. This demand has led to the electrical sector not being able to supply skilled electricians. The aim of this study was to identify the key challenges to skills development of electricians in the province of KwaZulu-Natal. The data collected answered the objectives of the study and confirmed that electrical contractors lacked knowledge of SETA's and they did not participate in the training initiatives of the SETA. It was proven that they did not participate in formal training as there was a lack of incentives. It was further proven that electrical contractors invested a lot of man hours in training of staff, which is mainly conducted in-house. Electrical contractors were aware of the government skills development plans and it was proven that the majority did not access reimbursements from the SETA. Although it was proven that formal training is too costly and not preferred, the willingness to participate in informal training to support the current demand in the sector is encouraging and prepares the foundations for addressing the skills shortage within the electrical sector.

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Appendix - 1



Research Office, Govan Mbeki Centre
Westville Campus
Private Bag x54001
DURBAN, 4000
Tel No: +27 31 260 3587
Fax No: +27 31 260 4609
ximbap@ukzn.ac.za

28 March 2012

Mr Kogilan Reddy (210512551)
Graduate School of Business and Leadership

Dear Mr Reddy

PROTOCOL REFERENCE NUMBER: HSS/0088/012M
PROJECT TITLE: Barriers to effective work place skills development in the electrical sector

In response to your application dated 23 March 2012, the Humanities & Social Sciences Research Ethics Committee has considered the abovementioned application and the protocol has been granted **FULL APPROVAL**.

Any alteration/s to the approved research protocol i.e. Questionnaire/Interview Schedule, Informed Consent Form, Title of the Project, Location of the Study, Research Approach and Methods must be reviewed and approved through the amendment /modification prior to its implementation. In case you have further queries, please quote the above reference number. Please note: Research data should be securely stored in the school/department for a period of 5 years.

I take this opportunity of wishing you everything of the best with your study.

Yours faithfully

Professor Steven Collings (Chair)
Humanities & Social Science Research Ethics Committee

cc Supervisor Professor Anesh Maniraj Singh
cc Mrs Wendy Clarke

Appendix - 2



UNIVERSITY OF
KWAZULU-NATAL

INYUVESI
YAKWAZULU-NATALI

UNIVERSITY OF KWAZULU-NATAL
GRADUATE SCHOOL OF BUSINESS AND LEADERSHIP

Dear Respondent,

MBA Research Project

Researcher: Kogilan Reddy (0836258518)

Supervisor: Professor Anesh Singh (031- 2607564)

Research Office: Ms P Ximba 031-2603587

I, **Kogilan Reddy** an MBA student, at the Graduate School of Business and Leadership, of the University of KwaZulu Natal. You are invited to participate in a research project entitled **Barriers to effective workplace skills development in the electrical sector**. The aim of this study is to: **To identify the key challenges to skills development of electricians**.

Through your participation I hope to understand **more about the challenges electrical contractors face in skills development**. The results of the research are intended to contribute to growing the pool of skilled electricians in the sector.

Your participation in this project is voluntary. You may refuse to participate or withdraw from the project at any time with no negative consequence. There will be no monetary gain from participating in this survey. Confidentiality and anonymity of records identifying you as a participant will be maintained by the Graduate School of Business and Leadership, UKZN.

If you have any questions or concerns about completing the questionnaire or about participating in this study, you may contact me or my supervisor at the numbers listed above.

The survey should take you about **10** minutes to complete. I hope you will take the time to complete this survey. Please start with the survey now by clicking on the "I Agree" button below.

<input type="checkbox"/>	I Agree
--------------------------	---------

Appendix - 3



UNIVERSITY OF
KWAZULU-NATAL

INYUVESI
YAKWAZULU-NATALI

Barriers to effective workplace skills development in the electrical sector

Questionnaire

1. Type of business

Sole Proprietor	
Close Corporation	
Pty Ltd	

2. What is the level of your registration?

Single phase electrician	
Installation electrician	
Master electrician	
Electrical Engineer	
Other.	

3. How old is your business?

0 to 5 years	
6 to 10 years	
Older than 10 years	

4. How many staff do you employ?

1 to 5 staff	
6 to 10 staff	
More than 10 staff	

5. How many of your staff are qualified electricians?

1	2	3	4	5	6	7	8	9	10	>10
---	---	---	---	---	---	---	---	---	----	-----

6. Are the electricians you employ suitably qualified and skilled for your business requirements?

Yes	No
-----	----

7. Since you have answered NO to question 6 are you doing anything to improve their skills.

Yes	No
-----	----

8. Since you have answered YES to Question 7 what are you doing to improve their skills?

• Sending them for further outside training.	
• Training them in house.	
• Allowing them to gain experience through practically working for me.	
• Teaming them up in pairs so that they could find their way by themselves. (Two electricians to do one task).	

9. You indicated that you are DOING NOTHING to up-skill your electricians. What are reasons for doing this?

• I believe that there is no need to up skill my electricians.	
• There is no shortage of skilled electricians.	
• Up-skilling of electricians results in others poaching them.	
• It is too costly.	
• There are insufficient incentives from government.	

10. Since you have indicated that you are Up-skilling your electricians, where is this taking place?

• In-house training	
• SETA Courses	
• Private service providers	
• FET colleges	
• University / technikon	

11. What are the man hours you invest in training per year?

8 hours	40 hours	160 hours	320 hours	>320 hours

12. Do you access SETA incentives for training and development of electricians?

Yes	No
-----	----

13. If you answered YES to Question 12, how much have you been reimbursed in the past financial year?

Less than R2000	
R2001 to R5000	
R 5001 to R10001	
More than R 10001	

14. Since you answered NO to Question 12, why do you not access SETA incentives? (Select all that apply).

The application process is cumbersome.	
The rebate is too small.	
I have submitted applications for incentives and have not been paid.	
The procedure involved in claiming reimbursements is simply not worth the time and effort.	

15. Are you aware of the government skills development plan?

Yes	No
-----	----

16. You selected YES to Question 15, which of the following incentives are you aware of? (Select all that apply).

R7500 rebate on the registering of a learner.	
R7500 rebate on qualification of the learner.	
There is a rebate of up to 80% of the Skills Development levy for training.	
ESETA funding support from the SMME support project.	

17. Since you answered NO to question 15 why are you not aware of the Skills Development Plan (SDP)?

Information is not available.	
This process does not affect my business.	
I do not want to associate myself with government initiatives.	
My business is successful without using the SDP.	

18. Would you support workplace based skills development?

Yes	No
-----	----

19. Since you answered Yes to Question 18, what are the benefits of workplace skills development? (Select all that apply).

I can develop skills that are specific to my company needs.	
Workplace development is more practical.	
It provides a quick solution to the skills shortage.	
Most employees learn better informally at the workplace rather than in a formal training centre.	
It is cheaper.	

20. Since you answered NO to question 18, what do you see as the challenges to workplace skills development? (Select all that apply).

Productivity is of greater importance.	
It results in costly rework.	
Insufficient incentives to engage workplace skills development.	
It is counter-productive for those staff already working at peak levels.	
I am not willing to pay more for the higher skilled workers.	

21. With proper and more focused support from government, electrical contractors would buy into government skills development plans.

Strongly disagree	Disagree	Neutral	Agree	Strongly agree
-------------------	----------	---------	-------	----------------

22. I believe that there is a shortage of skilled qualified electricians in the sector.

Strongly disagree	Disagree	Neutral	Agree	Strongly agree
-------------------	----------	---------	-------	----------------

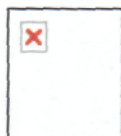
23. Rank what initiatives you believe should be introduced to address the skills shortage within the sector (1 being the most important and 3 being the least important).

1	Tax incentive on the number of trainees that you have employed.	
2	Financial rebate on qualification of learner.	
3	SMME can claim for full training costs incurred.	

End of questionnaire

Thank you for taking the time to complete the questionnaire.

Appendix - 4
Turnitin Report



Turnitin Originality Report

Appendix - 4

Turnitin Report

Barriers to effective work place skills development in the electrical sector by kogilan reddy

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