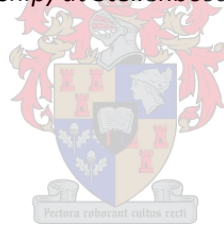


**DEMAND-DRIVEN PROGRAMME PROVISIONING AT A PUBLIC FET COLLEGE IN THE
WESTERN CAPE: CASE STUDY OF THE WEST COAST FET COLLEGE**

Osma Thandiwe Jooste-Mokgethi

*Thesis presented in partial fulfillment of the requirements for the degree Master of Public
Administration in the Faculty of Economic and Management Sciences (School of Public
Leadership) at Stellenbosch University*



Supervisor: Professor J.J. Muller

March 2013

DECLARATION

By submitting this thesis electronically, I declare that the entirety of the work contained therein is my own, original work, that I am the sole author thereof (save to the extent explicitly otherwise stated), that reproduction and publication thereof by Stellenbosch University will not infringe any third party rights and that I have not previously in its entirety or in part submitted it for obtaining any qualification.

Date: 18 October 2012

Copyright © 2013 Stellenbosch University

All rights reserved

ABSTRACT

The Democratic South African government inaugurated in 1994 identified the need for intermediate skills that are required to contribute to the growth of the economy and to reduce the high unemployment rate. Further Education and Training Colleges (FETC) were established after 1994 by merging the former 152 technical colleges into 50 FETCs. The function of these FETCs was to offer intermediate skills to the youth, women, and employed and unemployed South Africans. The South African government introduced a number of strategies, Acts and policies to support the colleges and to implement demand-driven intermediate skills programmes which would close the skills gap and improve the growth of the economy. These policies seek to ensure that skills offered at colleges are aligned to the needs of industry and to make sure that the college programmes will be in demand in the work place.

The study presented is aimed at investigating this alignment by evaluating how apprentices in the final stage of their vocational training perform and meet the demands at their work places. A number of strategies used by different countries to support and develop their education systems are discussed. The discussion is directed at considering how vocational education ensures a positive contribution to skills development and what its impact is on the growth of the economy. This study provides a comprehensive policy and legislative framework which governs and supports the higher education institutions and the FETCs.

The study was designed to determine whether welding apprentices from the College are, according to the work place staff and management and stakeholder bodies, appropriately equipped with vocational skills and knowledge to execute their duties at the work place. The evaluation and analysis of the data extracted from the responses of the interviews and questionnaires are presented and discussed. The results enabled the researcher to conclude that the evaluation of apprentice performance at the work place provides significant insight into the question of how vocational training and knowledge at the WCFETC meet the demands at the work place. Conclusions are drawn and recommendations are made.

OPSOMMING

Die demokratiese Suid-Afrikaanse Regering, wat in 1994 ingehuldig is, het die behoefte aan intermediêre vaardighede om die groei van die ekonomie en die van die hoë werkloosheidssyfer te verlig, geïdentifiseer. Verdere Onderwys en Opleiding Kolleges (VOOKS) is na 1994 totstand gebring deur die samesmelting van 152 voormalige Tegniese kolleges tot 50 VOOKS. Die funksie van die Verdere Onderwys en Opleiding Kolleges was om intermediêre vaardighede aan die jeug, vrouens en Suid-Afrikaners in diens of werkloos, te verskaf. Die Suid-Afrikaanse Regering het 'n aantal strategieë, wette en beleidsrigtings aangeneem om die kolleges te ondersteun en om die aanvraag-gedrewe intermediêre vaardighedsprogramme te implementeer wat dan die vaardigheidsgaping sou vernou en die groei van die ekonomie sou bevorder. Hierdie beleidsrigting beoog om te verseker dat vaardighede wat by die Kolleges aangebied word, belyn is met die industrie as ook om te verseker dat die kollege programme benodig word in die werksplek.

Die studie is gemik daarop om hierdie belyning te ondersoek en te evalueer hoe vakleerlinge in die laaste stadium van hulle ambagsopleiding vaar, en voldoen aan die eise van die werksplek. 'n Aantal strategieë wat deur verskillende lande gebruik word, om hulle eie opvoedingsstelsels te ontwikkel, word bespreek. Die bespreking verwys na hoe ambagsopvoeding 'n toevoeging tot vaardighedsontwikkeling kan verseker en wat die impak daarvan op die groei van die ekonomie het. 'n Alomvattende beleid en 'n wetsraamwerk, wat Hoër OpvoedingsInstansies en die Verdere Onderwys en Opleiding Kolleges beheer en ondersteun, word verskaf.

Die studie is ontwerp om te bepaal of die sweis vakleerlinge van die kollege, volgens die werksplek personeel en -bestuur en belanghebbende liggame, toepaslik toegerus en bevoeg is met ambagsvaardighede en kennis om die pligte van die werksplek uit te voer. Die evaluering en analise van die data, afgelei van die terugvoering van die onderhoude en vraelyste, word weergegee en volledig bespreek. Die resultate stel die navorser in staat om tot die gevolgtrekking te kom dat die evaluering van vakleerling-werksverrigting by die werksplek merkbare insig tot die vraag hoe ambagsopleiding en kennis by die Weskus VOOK aan die eise van die werksplek voldoen. Gevolgtrekkings en aanbevelings word aangebied.

LIST OF ACRONYMS AND ABBREVIATIONS

ABET	(Adult Basic Education And Training)
BTI	(Bahrain Training Institute)
AgriSETA	(Agricultural Sector Education Training Authority)
Asgisa	(Accelerated and Shared Growth Initiative For South Africa)
CEO	(Chief Executive Officer)
COGSI	(Cape Oil and Gas Supply initiative)
DoE	(Department of Education)
FET	(Further Education and Training)
GNVQs	(General National Vocational Qualifications)
HE	(Higher Education)
HET	(Higher Education and Training)
HND	(Higher National Diploma)
HPWO	(High Performance Work Organisation)
HRD	(Human Resource Development)
HRDS	(Human Resource Development Strategy)
HRM	(Human Resource Management)
HRDS-SA	(Human Resource Development Strategy South Africa)
HSRC	(Human Science Research Council)
IALS	(International Adult Literacy Survey)
ICDL	(International Computer Driving Licenses)
IIP	(Investor in People)
ITBs	(Industrial Training Boards)
JIPSA	(Joint Initiative on Priority Skills Acquisition)
MerSETA	(Manufacturing, Engineering and Related Services SETA)
MEDS	(Micro Economic Development Strategy)
MEC	(Member of Executive Council)
MIT	(Massachusetts Institute of Technology)
MoU	(Memorandum of Understanding)
MSC	(Manpower Services Commission)
NATED	(National Technical Diploma)
NC(V)	(National Certificate Vocational)
NSD	(National Skills Development)

NSDS	(National Skills Development Strategy)
NQF	(National Qualifications Framework)
NSF	(National Skills Fund)
NSFE	(National Committee on Further Education)
NTO	(National Training Organisation)
NVQ	(National Vocational Qualification)
NYDA	(National Youth Development Agency)
RSA	(Republic of South Africa)
SAIW	(South African Institute of Welding)
SAQA	(South African Qualifications Authority)
SETA	(Sectoral Education and Training Authority)
PIVOTAL	(Professional, Vocational, Technical and Academic Learning)
PSDF	(Provincial Skills Development Forum)
TIG	(Tungsten Inert Gas)
UNDP	(United Nations Development Programme)
UK	(United Kingdom)
US	(United States)
WCED	(Western Cape Education Department)
WCFETC	(West Coast Further Education and Training College)
WCFETC PR	(West Coast Further Education and Training College Progress Report)
WCFETC AR	(West Coast Further Education and Training College Assessment Report)

LIST OF FIGURES

Figure 1.1: Three pillars representing WC FET College offerings	3
---	---

LIST OF TABLES

Table 4.1: Enrolment for the National Certificate Vocational	46
Table 4.2: Enrolment for National Technical Education Diploma (Semester)	47
Table 4.3: Enrolment for National Technical Education Diploma (Trimester)	48
Table 4.4: Enrolment for Learnerships and Skills Programmes	48
Table 4.5: Staff Establishment	49
Table 4.6: Enrolment of Students	57
Table 5.1: Profile of the Apprentice as per assessment and logbook	60
Table 5.2: Response Categories	63
Table 5.3: Apprentices Results Categories	64
Table 5.4: Supervisor Response Categories	65
Table 5.5: Results Supervisors	66

TABLE OF CONTENT

Declaration	ii
Abstract	iii
Opsomming	iv
List of Abbreviations	v
List of Figures and Tables	vii
Chapter One: BACKGROUND TO THE STUDY	1
1.1 Introduction and background	1
1.2 Preliminary literature review	4
1.3 Research question	6
1.4 Research objectives	6
1.5 Research design	6
1.6 Research methodology	6
1.7 Chapter outline	7
1.8 Summary	7
Chapter Two: LITERATURE REVIEW: THE ROLE OF HUMAN CAPITAL DEVELOPMENT IN ECONOMIC DEVELOPMENT	8
2.1 Introduction	8
2.2 The economic case for human resource development	9
2.3 Human capital and productivity in the economy	10
2.4 Human resource development: training, education, development and learning	14
2.5 Significance of learning and development for individuals and organisations	22
2.6 Vocational education and training	23
2.7 Summary	26

Chapter Three: LEGISLATIVE AND POLICY FRAMEWORK FOR EDUCATION AND TRAINING INSTITUTIONS IN SOUTH AFRICA	28
3.1 Introduction	29
3.2 Policy and Legislative framework In support of the Skills Agenda 1997-2010	28
3.2.1 The Education White Paper 4 of 1998	28
3.2.2 The Higher Education Act 101 of 1997	30
3.2.3 The Skills Development Act 97 of 1998	30
3.2.4 The Further Education and Training Act 16 of 2006	31
3.3 The Further Education and Training Colleges prior to 1994	32
3.3.1 National Plan for Further Education and Training 2008	32
3.4 Transformation of vocational education	32
3.4.1 The National Plan for Further Education and Training Colleges 2008	33
3.5 Strategies to address the skills shortage in South Africa post-1994	35
3.5.1 Accelerated and Shared Growth Initiative for South Africa 2007	35
3.5.2 Joint Initiative on Priority Skills Acquisition 2008	36
3.5.3 The Human Resource Development Strategy for South Africa 2010-2030	36
3.5.4 The National Skills Development Strategy III 2011-2016	38
3.5.5 The New Growth Plan/Path	41
3.6 Summary	41
Chapter Four: THE CASE STUDY WEST COAST COLLEGE: THE WELDING CENTRE	43
4.1 Introduction	43
4.2 Background	44
4.3 Vision, mission and values	44
4.4 Quality policy statement	44
4.5 College programmes	45
4.5.1 National Certificate (Vocational) NC (V) NQF Level 2 – 4	45
4.5.2 National Technical Education Diploma (Nated)	45
4.5.3 Learnerships, skills and other short programmes	46
4.5.4 International Computer Driving Licenses (ICDL)	46

4.6 Student Enrolment 2011	46
4.6.1 Enrolment for the National Certificate Vocational	46
4.6.2 Enrolment for National Technical Education Diploma (Semester)	47
4.6.3 Enrolment for National Technical Education Diploma (Trimester)	48
4.6.4 Enrolment for learnerships and skills programmes	48
4.7 Staff establishment	49
4.8 The Welding Centre: The case study	49
4.8.1 Background	49
4.9 Management and staff	50
4.10 Infrastructure	50
4.11 The welding curriculum	50
4.12 Programmes	50
4.12.1 Apprenticeship	51
4.12.2 Entrance requirements: apprenticeship	52
4.12.3 Curriculum of an apprenticeship	52
4.12.4 Induction	52
4.12.5 Safety	52
4.12.6 Hand and workshop tools	53
4.12.7 Materials	53
4.12.8 Drawings and sketches	53
4.12.9 Principles and techniques of marking off	53
4.12.10 Thermal application	53
4.12.11 Basic lifting techniques	53
4.12.12 Trade-related skills	54
4.12.13 OXY-fuel gas welding and brazing	54
4.12.14 Oxygen-fuel gas cutting	54
4.12.15 Shielded metal ARC welding (manual metal ARC welding)	54
4.12.16 Gas metal ARC welding	54
4.12.17 Gas tungsten ARC welding	54
4.13 Placement of students / apprentices with host employers	55
4.13.1 Obligations of the College	55
4.13.2 Obligations of the host employer	56
4.14 Enrolment of students	56
4.15 The Private students	57

4.16	Section 13 apprentices	57
4.17	Section 28 apprentices	57
4.18	Summary	58
Chapter Five: EVALUATION AND ANALYSIS		59
5.1	Introduction	59
5.2	Assessment of the apprentices	59
5.3	Profile of the apprentice as per assessment and logbooks	60
5.4	Methodology and results	61
5.4.1	Participants	61
5.4.2	Results for apprentices	62
5.4.3	Results of supervisors at the work place	65
5.5	Responses from AgriSETA and MerSETA	67
5.6	Summary	68
Chapter Six: RECOMMENDATIONS AND CONCLUSIONS		70
6.1	Introduction	70
6.2	Summation of transfer of skills from WCFETCFC to the work place	71
6.3	Recommendations	72
6.3.1	Assessments and logbooks	73
6.3.2	Results of apprentices	73
6.3.3	Results of supervisors at work place	74
6.3.4	Summary of recommendations	75
6.4	Conclusion	75
References		77
Appendixes		
	Appendix A	82
	Appendix B	83
	Appendix C	84

CHAPTER ONE

BACKGROUND TO THE STUDY

1.1 INTRODUCTION AND BACKGROUND

The purpose of the study is to investigate how the West Coast Further Education and Training (FET) College is contributing substantially to skills development through offering programmes that are demand driven. The Human Resource Development Strategy (HRDS) review of 2008 states that there is continued growth in employment rates for intermediate skills. This emphasises the importance of the colleges strengthening their offering of demand-driven provisioning as lead providers of intermediate skills. The revised Human Resource Development Strategy South Africa (HRDS-SA) of 2008 seeks “to address a key set of strategic priorities that are addressing the most imperatives for HRD, especially skills shortages in the priority sectors of the economy that constrain growth and investment”. The Western Cape has a strategy that outlines the skills priority sectors and how they contribute to HRD and growth of the province’s economy; this is called the Micro Economic Development Strategy (MEDS) (WCG, 2006:63-91). The MEDS highlights priority skills for both formal and informal economic sectors (MEDS) (WCG, 2006:99-100). It is being argued that people resorted to the informal economy due to unemployment which is partly caused by the lack of necessary skills needed at the work place. The study will also seek to address the research question: How is West Coast FET College responding in developing intermediate skills which are needed in the employment sector?

The study will focus on how the West Coast FET College train (in both theory and practical), support and guide the youth, adults and current labour force by providing them with relevant skills, which are demand driven, and will close the skills gap of the economy and local business with specific reference to oil and gas (welding). However, this can be done more effectively if the colleges can get the necessary support. For example, in 2006- 2008 all colleges nationally were recapitalised through a conditional grant, but because of the imbalances of the past this was not sufficient to address the problem. The aim of the Recapitalisation Fund was to address the issue of unemployment of youth and introduce new programmes that are relevant to the labour market and had the support of industry according to the Recapitalisation of FET Colleges: Provinces Progress Reports of June 2006 (Department of Education (DoE), 2006b:1). The Western Cape colleges also received funding from the Western Cape Provincial Government

aimed at capacitating the colleges to deliver on the priority skills, for example oil and gas (welding) and boat-building. One college will be used as a case study in this thesis, namely the West Coast Further Education Training College (West Coast FET College).

The study also seeks to investigate how, and to what extent, the college is able to respond appropriately to the needs of business and the local economy through offering demand-driven programmes that contribute to economic growth, with specific reference to one priority sector of the Western Cape, which is oil and gas. However, the study does not suggest that the college delivers a complete product to the world of work, but a product that offers some basic skills and simulated work experience, which can be developed further at the work place. FET Colleges are former technical colleges which were amalgamated in 2000 and reduced from 152 institutions to 50. According to White Paper 4 (RSA, 1998a:8), the FET colleges will provide important intermediate to high-level skills and respond to the human resource needs of the country for economic development. Further education and training is designed to promote the integration of theory and practical work, and this is registered on the NQF from level 2-4. The National Skills Development Strategy 1 April 2005 – 31 March 2010 (RSA, 2005:4-11) has identified objectives that are crucial for economic development nationally, and seeks to promote accelerated quality training for all in the work place and to prioritise and communicate critical skills for sustainable growth, development and equity.

The programme offerings at the colleges are National Technical Diploma (NATED) N1-N6 and Vocational, National Certificate Vocational NC(V), which was introduced in 2007 and is funded by the Department of Higher Education and Training. The NC(V) consists of 14 programmes which are on Levels 2 - 4 on the National Qualifications Framework. Other college offerings are occupational programmes which are learnerships and skills programmes, accredited and funded by Sectoral Education Training Authority (SETA). The NATED programmes were being phased out and are now offered at certain colleges with approval and endorsement from industry. In other words these programmes could only be offered on demand from industry. The NATED engineering programmes are linked to apprenticeships, whereby employers send employees to colleges for a certain period for theory training, and the practical training is done at the work place.

The Provincial Skills Development Forum (PSDF) has recently been established by the Department of Economic Development and Tourism (DEDAT) and will focus on coordinating

social partners and stakeholders with the aim of realising its commitment to job creation, economic growth and skills development (DEDAT, 2010:3).

The PSDF (DEDAT, 2010: 22) states the need to develop large scale education and training interventions in the following areas namely oil and gas, agriculture and learnership 1000. In the Western Cape there are six colleges which are strategically and regionally placed to implement the education and training interventions that contribute to the local development of the economy. There are three in the Metropolitan area: College of Cape Town, False Bay College and Northlink College. The three rural colleges are: Boland College, South Cape College and West Coast FET College.

Figure 1 gives a framework that presents the three pillars fundamental to what FET colleges stand for. Each pillar represents aspects that can be evaluated in terms of how and to what extent the college contributes to knowledge and skills development and meets the socio-economic demands of the Western Cape.

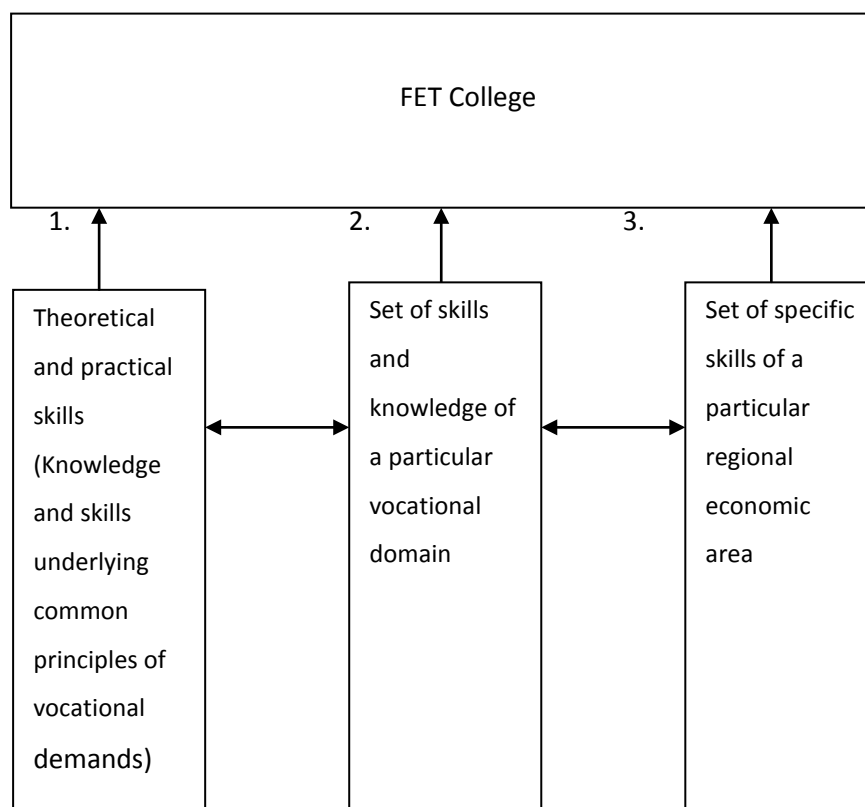


Figure 1.1: Three pillars representing WC FET College offerings

Source: Author, 2012

The Further Education and Training Colleges Act (16 of 2006) (RSA, 2006a:2) states that colleges will be responsive to the development of human resources and make an economic contribution to meaningful knowledge and skills development and associated demands.

The first pillar refers to curricula largely based on the HRDS-SA (RSA, 2006b) strategic priorities, National Skills Development Strategies and educational concepts. It refers to the universal principles of knowledge and practical applications. Thus a student will be exposed to learning material that a chef du cuisine as well as a fitter and turner or a welder requires, for example, communication and safety, as well as applying (and thus calculating) percentages of volumes and the dimensions of the metric system.

The second pillar is defined by the specific demands of a vocational domain. Although the chef or a welder requires an understanding of bookkeeping and logistics, their need for knowledge of the material they work with is different.

Compared to the previous pillar, the third pillar rather entails a selection than a further specification of skills. The Western Cape, for example, has 12 priority sectors distributed over various local colleges and related to fairly local demands.

Pillar 2 is determined by the interaction with the actual vocational domains. Its core is the practical part of the training and this investigation should reveal how appropriately students are prepared to be accurately profiled in a particular vocational domain. Again, two dimensions are distinguished: guidance and support, and knowledge of specific vocational materials. The problem is thus whether the college is contributing meaningfully to intermediate skills development with specific reference to oil and gas for the West Coast region. This study will focus on Pillar 2 in order to evaluate and investigate to what extent the students are appropriately trained or prepared for the world of work for a specific vocational domain, as mentioned previously.

1.2 PRELIMINARY LITERATURE REVIEW

Technological advances and the establishment of new fields require a skilled labour force. The insufficiency of any country's education system can hamper its economic growth. Universities and colleges have a vital role to play in contributing towards developing the economy of a

country. It is important for a state to have strong education and training institutions and to facilitate public-private collaboration to respond to the skills needs of business as well as the training and retraining needs of individuals. Human capital (workforce) development is vital for economic growth. A skilled workforce reduces unemployment and increases salary scales of individuals (Luke *et al.*, 1988:144).

The Micro Economic Development Strategy for the Western Cape (MEDS) (WCG, 2006:105) mentions the importance of regional innovation. It is stated that networking and working together of important role players in a region will have positive effects on the growth of the economy of the region. The report mentions that the role the colleges are playing in skills training in the province, but suggests that this could be more effective if the province can facilitate the relationship between the FET Colleges and the priority sectors identified in the MEDS (WCG, 2006:116). The above argument recognises the importance of co-ordination, collaboration and networking between government departments, businesses and important stakeholders. The report also seeks to encourage the FET colleges to form partnerships with stakeholders to discuss and jointly plan curricula which are relevant and responsive to the needs of industry and the region. It also suggests a need for an annual survey that will indicate gaps in the skills needed. The MEDS (WCG, 2006:103) also highlights the informal economy, which needs skills and training to be able to improve.

In her book *Curriculum Responsiveness in FET* Gamble (2003:21) argues that for any development of an education training policy, the state should be guided by labour and economic trends. Gamble (2003:21) therefore argues for a more labour market-driven approach and also emphasises the relationship between business and training institutions, which can assist in developing tailor-made programmes for local needs. In most instances training institutions have partnerships with important stakeholders like businesses, but there are still no coordinated attempts to work together. It is not legislated and not structured, but rather ad hoc co-operation. As stated in the MEDS Report (WCG, 2006:116), the provincial government needs to facilitate the partnerships and networking between different stakeholders. The Western Cape Education Department (WCED) tries to facilitate talks between colleges and industry; for example, on 16 March 2010 there was a breakfast meeting for the businesses' Sector Education and Training Authority (SETAS), colleges and the Education Department, hosted by the Minister of Education, Mr. D. Grant. Although this is a step in the right direction, it is unfortunate that there is no follow up. There was a similar meeting in 2008 and there was also no follow up.

It is argued that colleges need to be responsive and flexible and meet the demands of the employers. It is stated that in the United Kingdom (UK), as in South Africa, the government wants the FET Colleges to be responsive to the demands of a number of stakeholders: students, employers, the local community, and the provincial and national economy. Colleges in the UK are at this stage offering a range of programmes to different stakeholders. The South African colleges are also not focused on being centres of excellence and that might create a problem if they do not specialise, as compared to the UK colleges seek to be Centres of Vocational Excellence (Unwin, 2003:1).

1.3 RESEARCH QUESTION

How and to what extent does the West Coast College contribute to knowledge, skills development and socio-economic demands of the region?

In addressing the above question this study will focus on the West Coast FET College as a case study.

1.4 RESEARCH OBJECTIVES

1. To determine if programme provisioning at West Coast FET College is demand driven.
2. To investigate how and to what extent the students are appropriately trained or prepared for the socio-economic demands or field of work.

1.5 RESEARCH DESIGN

This research will be non-empirical (qualitative) research, meaning that existing data will be analysed, which is secondary data. The researcher will also conduct empirical research in analysing and interpreting statistics from the West Coast FET College, the case study. Questionnaires will be designed and structured interviews with apprentices, supervisors and the project manager will be conducted. Data will also be collected from the MerSETA and AgriSETA through means of questionnaires.

1.6 RESEARCH METHODOLOGY

The research will focus mostly on secondary data collection and on analysing the existing literature. Research will be conducted through structured interviews with managers as well as lecturers of the West Coast FET College and supervisors at the work place. In some instances a group of four to eight people will be interviewed by means of structured interviews.

1.7 CHAPTER OUTLINE

Chapter One: Introduction and background

This chapter covers the introduction and background of the study. The research proposal is also outlined in this chapter.

Chapter Two: Literature Review: The Role of Human Capital Development in Economic Development

An outline of different education systems of countries and the role they played in human resource and economic development will be provided. Furthermore, the chapter will explore, discuss and compare countries that prioritise vocational education and have systems in place to ensure people's development as an on-going endeavour to equip the nation with skills which are in demand within the work place.

Chapter Three: Legislative and Policy Framework for Education and Training Institutions in South Africa.

An outline of relevant policies and legislation which is fundamental to governing the higher education and vocational institutions will be provided and discussed.

Chapter Four: The Case Study: West Coast FET College: The Welding Centre

This chapter will provide the introduction to and background of the case study. The programme offered by the college as the case study will also be discussed.

Chapter Five: Evaluation and Analysis

The evaluation and analysis of the research will be discussed.

Chapter Six: Recommendations and Conclusion

This chapter will provide the recommendations and conclusion of the study.

1.8 SUMMARY

This chapter provided the background of the study and a brief outline of policies and legislation that support FET institutions. A brief overview of the strategies of the Western Cape Province that supports economic growth was provided. The programme provisioning of West Coast FET College (the case study) and other colleges in the Western Cape was outlined. The preliminary literature review was discussed.

CHAPTER TWO
LITERATURE REVIEW
THE ROLE OF HUMAN CAPITAL DEVELOPMENT IN ECONOMIC DEVELOPMENT

2.1 INTRODUCTION

This chapter discusses the relationship between human capital development or human resource development and economic growth. It will be shown that evidence to prove a link between education and economic growth is meagre. This is not because education fails, but because more dominant factors underline economic growth. This means education functions more in the perspective of contributing to collective economic knowledge and to the requirements to provide individuals with cognitive skills to organise themselves in a working environment and teach them technical skills to facilitate their adaptation to specific demands of the work place.

There is a common perception that investment in human capital, a term in the economic jargon that refers to the stock of education, raises an economy's productivity. Self-evident as this may seem at face value, there appears evidence that this relationship is much more complex at the least. This has partly to do with assumptions about indicators of educational capital. For example, high wages are associated with high levels of education and high wages suggest high outputs. Therefore, any increment of wages comes from better schooling and leads to economic growth. Models that attempt to capture educational capital in a more subtle and realistic manner, such as combinations of wage and enrolment, do not support such strong relationships. Cross-national data show that on average education contributed much less to growth than would have been expected (Pritchett, 2001: 367). The education systems of countries do vary as could their association with their economies.

Various education and training systems of different countries in Europe, Asia and America are compared. The importance of the development of the workforce through general learning and indoor and outdoor training are highlighted, in particular the role played by vocational education systems.

2.2 THE ECONOMIC CASE FOR HUMAN RESOURCE DEVELOPMENT

It became a necessity for companies globally to develop their human capital through training by providing their workers with relevant skills which assist in improving their performance. The state is responsible for developing its human capital through training and education. The development of the workforce was considered as an important contributor to the success of the economy and productivity (Megginson *et al.*, 1999: 6).

It is argued that Britain was not investing sufficiently in people development; it was far behind countries like Germany and France. In a comparison of policies of the three countries it was discovered that the training programmes of Britain were not as intense and produced fewer graduates compared to Germany and France. The quality of the output was not as good as in France and Germany. In 1913 there was an imbalance of student numbers in British universities in comparison to Germany at 9 000 compared to 60 000 (Megginson *et al.*, 1999:6).

In different countries there are strengths and weaknesses in human resource development (HRD); however, economic success is assumed to benefit from the extent that the labour force is trained and according to its flexibility and commitment (Joy-Matthews *et al.*, 2004:22).

Britain has a history of an insufficient vocationally trained workforce, which directly affects the growth of the economy compared to Germany, which is known for its excellent training programmes in educational institutions from vocational training centres to universities, and produces a highly skilled workforce, which is a positive contributor to the economy. The government of Britain has tried to address the education and training deficiencies of the past, but it has not succeeded in producing school leavers with the necessary skills that are needed in the work place. The system apparently has serious gaps in craft and vocational training. Britain is also criticised for the low standards of vocational qualifications in comparison to Germany and the Netherlands. It is vital that there is proper and adequate HRD in organisations. Adequate training, flexibility and commitment contribute to economic success (Megginson *et al.*, 1999:7-8). Many youth do not go beyond the basic level of vocational training, although the numbers who stay on at school beyond the age of 16, which is the compulsory school-going age, has increased.

It is argued that the low pay and low economic productivity are due to the inadequate training, which resulted in low skills levels. Many, including President Obama of the United States, criticised excessive pay and questioned whether the level of productivity justifies an average CEO compensation in the US of 300 to 400 times higher than the average worker's remuneration (Chang, 2010:149). Furthermore, the increase of the average hourly wages of United States workers between 1973 and 2006 increased by only 13 percent in contrast to economic growth and to increases among those with higher incomes. This relates to one of Pritchett's (2001: 368) explanations that in some countries schooling created skills that were in demand; however, this yielded inappropriate results as these skills were applied to privately remunerative but socially wasteful activities. These insights indicate that the relationship between low income and low productivity should be questioned and that it does not necessarily confirm a causal relationship with inadequate training and low skills. These authors do emphasise that the main value of education is not to raise productivity, but to increase our potential, our ability to apply and transfer knowledge and skills to different situations, to learn to acquire skills and knowledge, and to organise our abilities. That does not imply, of course, that a driver should not be trained to specifically operate a truck, or a welder be specifically trained in the use of various types of welding tools.

The European Commission's range of social and economic public policies is motivated by the rationale of improving capacity in the global market. Life-long learning is presented by the European Commissions' policy on Vocational Education as the solution to economic development, social cohesion and the fulfillment of individual potential. According to the Vocational Education and Training policy across Europe, global competition requires greater labour market flexibility and life-long learning is a key to address that (Harrison & Kessels, 2004:62).

2.3 HUMAN CAPITAL AND PRODUCTIVITY IN THE ECONOMY

According to De la Fuente and Ciccone (2003:7), human capital refers to the knowledge and skills entrenched in people by means of schooling, training and experiences which are relevant to the production of goods, services and additional knowledge. Human capital consists of three components: general skills, secondly specific skills, and technical and scientific knowledge. General skills refer to basic language and numeracy skills; they have to do with the ability to be able to read and interpret and understand information, and to formulate problems with the intention of solving them. Specific skills have to do with application or operation of certain

technologies, for instance, an ability to fix a motorcar engine or to make wines, or the ability to develop or work with computer programmes or software. Lastly, technical and scientific knowledge implies the ability to master specific knowledge and analyse advanced technology in a specialised way.

For economic growth a country needs people with good education and modern ideas. Education institutions, i.e. community colleges, four-year colleges and universities, have vital roles to play in the development of a state or country's economy. Education and training institutions have in many countries become the foundation and major contributor to local economic development. The future and the sustainability of the economy in USA is very much aligned to universities, colleges and community colleges (Luke *et al.*, 1988:144).

The educational achievement of the population of a state is a significant assessor of its capacity to sustain a crucial economy (Luke *et al.*, 1988:145). This argument, however, is countered by examples such as Switzerland, one of the richest and most industrialised countries, but with by far the lowest university enrolment in the rich world until early 1990 (Chang, 2010:185). But as Chang (2010: 185) points out, the East Asian miracle economies also illustrate that, without high educational achievement and relatively low literacy rates, a country such as South Korea could increase its per capita income significantly compared to countries like Argentina, with a literacy rate of 91 per cent. Moreover, although literacy rates in Sub-Saharan African countries have increased, the per capita income has fallen. This forces us to nuance the view that human capital is the primary resource of economic development and wealth establishment, and to understand better the significance of general knowledge.

Intellectual capital – in other words knowledge – is regarded as a vehicle for competitive advantage for companies which are selling ideas and relationships, and it is also an indirect competitive advantage for all companies who distinguish themselves by how they serve customers. It is argued that successful companies will be those that are the most skilful at attracting, developing and retaining individuals who are capable of driving a global organisation that is responsive to both its customers and the rapidly increasing opportunities of technology. Hence the challenge is for companies to make sure that they have the capabilities to discover, assimilate, develop, compensate and retain such talented individuals (Ulrich, 1998:126-127).

It is, furthermore, suggested that human capital is linked to productivity for an individual as well as a collective. It is argued that a labour force with basic language and numeracy skills will always be in an advantageous position when it comes to performance compared to their counterparts with no general skills. Better performance of workers with general skills would result in an advantage of earning better salaries compared to those who do not have the general skills. The skilled workers also have abilities to work on more advanced machinery or technology and are easily trainable and learn quicker (De la Fuente & Ciccone, 2003:7-8). However, whether this means that education translates directly into higher productivity and economic growth at macro-economic level is debatable. Surely when Germany became as poor as many Third World countries after World War Two, its technological, organisational and institutional knowledge represented 'economic knowledge' that allowed Germany to recover to the point where it is now.

Moreover, when it comes to education and knowledge of workers, economic development resulted in higher knowledge embodied in machines; 'the link between what a production line worker in a car factory learned in school physics and his productivity is rather tenuous'(Chang, 2010:184). Even the need to critically think and use common sense seems to be unimportant to shop assistants and buyers of rich countries because of the use of barcode machines; how often do you see people leaving goods in their trolley at the tiller when they become aware that they have bought more than their budget allows? The significant point Chang (2010:184) makes is that an increase of economy-wide productivity relates to economic knowledge, but it does not necessarily imply an increase of the knowledge of workers compared to that of their counterparts during years where they had to strongly rely on cognitive thinking and common sense.

The operation of new technology does require skills, knowledge or training. Formal schooling is done at ordinary schools, the basic skills training and specific skills at the vocational institutions and work places, and the technical and scientific skills are developed at universities. The fast growth of information technology communication and its extensive usage has added to the establishment of the knowledge economy, but the impact is due to collective rather than just human capital development (De la Fuente & Ciccone, 2003:7-9).

The notion that educational achievement has positive results on the salaries of individuals and productivity (De la Fuente & Ciccone, 2003:7-9) is less evident than it appears. It is argued that

educational achievement would therefore be a major driver of investing in human capital. Undoubtedly schooling has an impact on knowledge, as Pritchett (2001: 367 – 368) so strongly illustrates with the results from a demographic and health survey in sub-Saharan African countries done by Hobcraft in 1993 (as cited by Prawiro, 1998:203) showing that women exposed to primary education, as opposed to those without an education, had a 20 percent lower child mortality rate.

Higher education impacts indirectly on the knowledge economy. But the assumption that educational achievement results in better salaries suggests that poor people are poor because of no or inadequate education, or because they fail to use their education to be productive. Either way it suggests that people are always paid what they deserve. Such assumptions lose force against insights that 'people from poor countries are, individually, often more productive and entrepreneurial than their counterparts in rich countries' (Chang, 2010:157). Likewise, the fact that US managers are paid at least double as much as Dutch and four times as much as their Japanese counterparts without superior productivity shows that other factors and mechanisms are in operation more than just education and educational achievement.

The strong belief that there is link between human capital, micro-economic and macro-economic productivity (De la Fuente & Ciccone, 2003:7-9) requires some reconsideration. As Pritchett (2001: 368-369) indicates, this link is not evident especially when micro-economic returns are reliably demonstrated that the return on investment in the school system is low. Chang (2010:157) goes further and states that the years spent at school and high levels of education to determine productivity and wage gap is a myth. The effect of formal education on wages is in most instances over-rated and in any event the results of formal education are not always reliable (De la Fuente & Ciccone, 2003:9-10). Moreover, the levels of skills in different countries vary depending on the quality of their educational systems and the extent to which additional skills are acquired through post-school training or work place training and learning (De la Fuente & Ciccone, 2003:10-11).

The role of education in economic productivity is, as shown above, not as transparent and evident as has been suggested. It is stated that too much focus on universities can be managed to avoid unhealthy degree inflation in countries with high university enrolment. Therefore countries where education must be expanded should focus on organising and establishing institutions that allow potential to grow, and to create better and second chances for workers

through training, welfare, research and development. Education is valuable, but its effect on economic growth is much more constrained by economic models and government ability and the willingness to implement. The studies that indicate that the link between education and economic growth is tenuous at the least do emphasise that the importance of education lies in the development of potential, in organising one's life in a more fulfilling and independent manner, and in the contribution that economic knowledge can make (Chang, 2010:189). Such education is not limited to formal education, as illustrated by apprenticeships and on-the-job training.

2.4 HUMAN RESOURCE DEVELOPMENT: TRAINING, EDUCATION, DEVELOPMENT AND LEARNING

Davenport (1999:30-31) approaches the return on human capital investment in a more qualitative way. An employee who acts like a human capital investor will put his or her investable capital where it can get the maximum return. Investment and return are mutually beneficial. Managers know that, when they augment worker knowledge, the productivity will improve by more or less 16 per cent. Training is therefore regarded as an outstanding investment in worker assets. It is argued that training adds to better returns on people's investment in employment. In knowledge-intense places of work, individuals think that learning new skills will assist them in finding and retaining a fulfilling job which gives a high return on their human capital investment. Satisfaction that comes from learning is regarded as a return on the human capital an employee invests into the work. The binding factor between people and organisations is the ability and willingness of each to offer benefits to the other (Davenport, 1999:8).

The rise of professional managers and the alliance between these managers and the shareholders affected the relationship between the charismatic entrepreneur with his/her workers and other stakeholders. It evolved into 'value maximisation' of shareholders, in limited liabilities, and it invited maximising profit by reducing expenditure through wage and job cuts rather than investments in research and development and in human resources (Chang, 2010:195). These developments made shareholders, despite their ownership, less committed to long-term viability of the company than workers and suppliers. Although the merits of investment in human capital as described by Davenport (1999:30-31) may be true, they are affected by management strategies. These strategies should be changed, as Chang (2010:195) proposes. This would allow the accumulation of specific skills and capital equipment.

Investing in human capital through education has more return or value on productivity compared to increasing capital stock or working hours. In other words, if companies or organisations want to increase their productivity, it means they should invest in people through offering education and training which will enhance their skills and enable them to perform better. It is suggested that if you increase education of employees by 10 percent, your productivity will be increased by 8.6 percent, but when you increase your capital stock by 10 percent, your productivity will be increased by 3.4 percent (Davenport, 1999:143).

According to Davenport (1999:144), 80 percent of employers are committed to building human capital through offering employees structured on-the-job training at schools or at technical institutions. Big companies provide both formal and informal training. Building human capital in the United States has proven to be successful in producing more returns for employees and for employers or companies; the benefits for employees are financial and for companies they are productivity and a competitive edge. Building human capital through training programmes encourages your workers to be more committed and loyal, hence less turnover in staff.

The informal training done at the work place by companies is sometimes not seen by workers as training. A survey done in the United States indicated that less than 20 percent of workers admitted to receiving any formal training, whereas the majority of companies said they offer training. This could be attributed to the definition of terms. When a manager watches an employee and assists him to learn a new task, he may regard that as training. The employee may see this not as training, but rather as being watched over the shoulder (Davenport, 1999:144).

The development of training has contributed towards the present understanding of training. In earlier crafts and guilds the objective of training was to help the contracted apprentices to work for a number of years where they will be supervised by a crafts person. This enabled the apprentices to learn the skills needed for that specific occupation and produce a complex piece of work called a 'masterpiece'. This allowed them to become members of the specific guild (Wilson, 2005:4). The Manpower Services Commission (1981:62 as cited by Wilson, 2005:4) refers to training as "a planned process to modify attitude, knowledge or skill behavior through learning experience to achieve effective performance in an activity or range of activities. Its purpose in the work situation is to develop the abilities of the individual and to satisfy the current and future needs of the organisation".

The Centre for the Development of Vocational Training (CEDEFOP, 1996:52 as cited by Wilson, 2005:5) refers to vocational training as an “Activity or programme of activities designed to teach the skills and knowledge required for particular kinds of skills”. Education is broader in capacity compared to training. It is regarded as having less immediate and less specific application in comparison to training and is often perceived as being offered at educational institutions. It is argued that education can be defined as inclusive knowledge skills and attitudes. There are on-going disagreements on the immediate specific skills required by industry and commerce and educational needs of an individual and of society, which require people who can add meaningful to the quality of life in a comprehensive way (Wilson, 2005:6).

There is a fine but distinguishing difference between learning and training; education and training provisioning in public FET and HE institutions in the Western Cape. Learning happens in formal institutions such as universities or organisational training centres, but it also takes place in environments which are less formal (Wilson, 2005:7). “Learning and possessing knowledge of something is one thing but applying the learning is another; thus learning has limited value unless it is put into practice” (Wilson, 2005:7). Learning has not contributed much of value, if the knowledge gained through learning is not put into practice. According to Nadler and Nadler (1989:15), learning is not certain; it is only the possibility of learning which may occur.

It is argued that education has been beneficial to individuals; it enhances personal advancement and growth. The development and personal growth of individuals contributed positively to the intellectual capital of a nation. Education was seen as a vehicle to enable people to be more productive. There is a contrary view that education might decrease the chances of freedom of thinking and subject people to control; people will take less initiative and this will lead to inefficiency. This was largely a belief in the 19th century in the United Kingdom; it was believed that interference of the state in education will have more of a negative than a positive impact. For example, one popular view was if people do not pay for education, they will be less efficient and not appreciate the positive outcome from an educated population (Wilson, 2005:59).

The common conception of strategic training and development is regarded as critical and is meant to measure and deal with skills shortages in an organisation. One of the rationales of training and development is to try and give the organisation a competitive edge (Mabey *et al.*, 1998:168-9). Employees’ knowledge and skill sets assist organisations to establish important

technologies and services, which are not easy to be replicated by other companies. Strategic training and development are mainly regarded as appropriate in assisting organisations to attain a competitive advantage by developing competencies not readily accessible in the labour market. They also enhance firm specific skill sets and are responsible for promoting innovation and creating new knowledge (Noe & Tews, 2009:262).

From the 1980s there has been interest in HRD globally and the role it can play in economic development and in improving the living standards of individuals. During the 19th century people placed more emphasis on increasing the number of educated children, while parents realised the importance of educating children; this helped to decrease child labour in most parts of society. Most countries also understood the importance of education and the role it plays in economic development. It was believed that for a country to remain competitive, education is necessary. For Britain to remain competitive it also had to change its negative stance on education and introduce a national elementary education system (Wilson, 2005:60).

More countries increased the number of educated people and invested more in higher education because of the economic success of Japan after World War II. Most European countries introduced compulsory education and regarded further and higher education as investment in the intellectual capital of a nation (Wilson, 2005:60). Countries like Greece, Ireland, Luxembourg, Austria and Portugal have compulsory education until the age of 15, but in a number of European countries education is compulsory until 16 years. Bahrain developed a model for improving training and human resources. As part of the Arabian Gulf cooperation council states, Bahrain relied on selling oil as its main source of income. In 1978 oil prices rose and this resulted in a flourishing economy. As a result of the economic boom many new companies were created; the workforce of Bahrain could not cope with the increased number of companies and therefore the government permitted the employment of foreign workers (Wilson, 2005:61).

It was argued that local unemployed people lacked skills and the necessary expertise. Local companies in Bahrain were reluctant to employ and train locals; they preferred foreigners because it was cheaper and this suited their needs. This resulted in the government introducing a policy which would seek to ensure that both employees and job hunters are trained by companies. In 1975 the government established the Council for Vocational Training; the duty of this body was to ensure the implementation of the training policy. Companies had to pay levies

for the usage of workers – for foreign employees it was 4 percent and for Bahrainis it was 2 percent; these percentages were taken from the total of the wages. Companies who trained workers were not expected to pay the levies; this was a way of encouraging all employees to train their employees and those who seek to be employees (Wilson, 2005:62).

Bahrain intensified and modified the training by spending more money on training and introducing new training methods; the objective was to compel employers to take in more local people than foreigners. Companies did not buy into this and the majority of the workforce remained outsiders. The government monitored this closely and in 1995 introduced a system whereby companies were instructed to take on additional 50 percent local workers annually with the aim of increasing the local workforce to 50 percent. The government monitored this closely and introduced a penalty by not issuing permits for foreign workers if companies did not comply with the 50 percent local workforce system (Wilson, 2005:62). The ministry encouraged the companies to adhere to the 50 per cent local quota by giving them incentives; for instance, the wages of new recruits were covered by the government for certain work fields for a specific time frame – in some cases the full salaries and in other cases part of it. As part of the effort to increase training the Bahrain Training Institute was established and it was the responsibility of the Ministry of Labour and Social Affairs. The Bahrain Training Institute (BTI) offered vocational and technical training and operated in and outside Bahrain. The programmes ranged from a National Vocational Qualification (NVQ) to a Higher National Diploma (HND).

The on-going and intensive efforts of the Bahrain government in establishing training activities have substantially improved the level of services offered for the majority of aspects of life. As a result of its intense human development programmes Bahrain was named by the 1998 United Nations Development Programme (UNDP) as the first Arab state to specialize in and concentrate on developing human resources (Wilson, 2005:62).

The growth of international trade increased competition between nations. There was on-going competition between countries, because they wanted to be economically strong and superpowers; this resulted in different nations wanting to increase training systems and improve the quality of training. The belief was that they will have a competitive advantage if they grow their economy through effective and efficient training programmes (Wilson, 2005:63).

The concerns many countries currently have about their standards of education are not new. In Britain there were frequent periods when there seemed to be serious crises about the standards of education and training. It was discovered that technical education was necessary to retain superiority over foreign competitors. It was also discovered that Britain had a shortage of scientists and engineers, which would impact negatively on the development of the country. Germany, on the other hand, has developed her human capital extensively with quality training and with programmes designed for the work place (Wilson, 2005:63).

In the 1980s the United States of America's outstanding economic production was overtaken by Japan. During those years Japan had an economic edge over other countries and became the world's number one industrial power. As a consequence the Massachusetts Institute of Technology (MIT) came up with five factors which helped the United States to regain its competitiveness. A key step was to invest in HRD through education and training (Wilson, 2005:64).

Because of globalisation it is believed that human capital will produce better results compared to physical capital and will enhance competitive advantage. Globalisation can no longer be avoided as the new technologies change the factors of competition, resulting in the materialisation of a knowledge-based economy. In the politician's view, when knowledge is the major source of competitive advantage, it therefore becomes vital to increase the skills of the workforce. Because of the widespread belief that a skilled workforce will increase productivity through meaningful training, governments have introduced policies which promote life-long learning (Ashton & Felstead, 2001:165).

A few organisations have placed an emphasis on allocating resources to develop and train their workers. Most companies have now changed from referring to the training of workers as human resource management (HRM) to rather referring to training and development of employees as human resource development (HRD). Training combined with development is now referred to as HRD and organisations that are involved in training are referred to as high-performing work organisations (HPWO). Training has become an integral of part of organisations; it must be integrated with development and forms part of the organisation's formal planning and training should be offered as formal courses offered at designated training centres (Ashton & Felstead, 2001:165).

The UK did not want to be left behind and desired to compete economically. The British government did not leave the training and development of the employees to the discretion of the employers. The government tried to ensure that the quality of training is improved and forced employers to share the cost of training equitably. In 1964 Britain promulgated the Training Act, which was meant to intervene in training and to improve the process. This led to the introduction of Industrial Training Boards (ITBs), which were responsible to ensure that training occurred and to assess whether it was of good quality. They also had to monitor if the cost was shared between employers through asking them to pay a levy. The ITBs also intended to ensure that the skills of employees are transferred between companies or different businesses. They also aimed at closing the low skills gap (Ashton & Felstead, 2001:167-168).

The training policy encouraged through industries was changed and this led to the introduction of a more centrally coordinated strategy by the Manpower Services Commission (MSC), established in 1970. Through the MSC a National Coordinated Vocational Education and Training system was introduced. The means to make the programmes a national system was ineffective, because the government preferred the old strategy which favoured the unemployed and it was a less cost-effective way to solve the unemployment problem. Companies had to decide on their own level of training activity and the government wanted the market to provide the solution to Britain's training problem. The MSC was disbanded in preparation for the introduction of new government policy (Ashton & Felstead, 2001:168).

It is argued that the apprenticeship system, which was encouraged by the Thatcher government, disappeared because there was less unskilled work and young people had no option but to stay at school or at the educational institutions longer. The objective of staying longer at school was to obtain more competencies which would make pupils more employable at the jobs which required high-level skills (Ashton *et al.*, 1990 as cited by Ashton & Felstead, 2001:168).

The scarcity of unskilled jobs, as mentioned above, increased the percentage of youngsters from 16-18 attending formal and full-time education in the UK in 1987-88 from 33-55 per cent. The number of graduates with degrees also increased from 5 per cent in the 1960s to 15 per cent in the early 1990s and later increased to 30 per cent (Ashton & Felstead, 2001: 169).

The UK is still at the bottom when it comes to the participation of 16-18 year olds in full-time, post-compulsory education compared to the other developed countries such as Germany,

Belgium, Australia, France and the Netherlands. The United Kingdom can only be compared with the Czech Republic, Hungary and Mexico. These are the only Organisations for Economic Development and Co-operation countries with lower percentages of 16-18-year-old students participating in post-compulsory full-time education than in Britain. However, Britain has a very strong higher education system; quality and participation are of high standards and rated higher than most of the European countries. It is argued that the UK has the highest first-degree graduation rate in Europe. It has also been proven that the UK has a high rate of participation in the Master's degree programmes compared to other European countries (Ashton & Felstead, 2001:169).

Britain has in recent years tried to improve on her strength in higher education, but this did not help in improving the status of the work-based intermediate skills, which were much lower and weaker compared to other European countries. Only one third of Britain's population active in the job market has intermediate qualifications. In comparison to Britain, two thirds of Germany's population has intermediate qualifications and in France 50 per cent have more or less the same intermediate qualifications. It is argued that America and Singapore are on the same level as Britain, with one third of the population possessing intermediate qualifications (Ashton & Felstead, 2001:169).

Most governments failed to respond to the need for demand-driven skills, qualifications and training; they have opted simply to supply skills, in other words to provide training in skills that are not needed at the work place. Qualifications that were developed in the UK include National Vocational Qualifications (NVQs) and General National Vocational Qualifications (GNVQs). These qualifications were not necessarily developed to respond to the needs of businesses or employers, or demanded or requested by the companies, but were rather initiated by government (Ashton & Felstead, 2001:173).

Gamble (2003:21) argues that for any development of education and training policy, the state should be guided by labour and economic trends both local and global. She therefore argues for a more labour market-driven approach which can assist in developing tailor-made programmes for local needs. It is argued that consumer needs will play a more vital role compared to national planning to determine the structure of supply (Gamble, 2003:21).

Singapore has an exceptionally integrated NVET system. As in most European countries, learning at employment is a partnership approach; however, Singapore is different from the other countries because it has a national policy framework with a long-term developmental position that is strategic. An exceptional feature of Singapore is the regular improvement and refocusing of the training programmes in line with the transformed needs of economic development. The training strategy was improved and re-organised by the government in 2001 to address life-time learning to prepare for the next phase of growth, which is the emergence of a knowledge-based economy (Harrison & Kessels, 2004:78-79). It is stated that many components within the training framework should be integrated so that the different elements of learning at work are co-operating towards one goal, which is life-long employability.

2.5 SIGNIFICANCE OF LEARNING AND DEVELOPMENT FOR INDIVIDUALS AND ORGANISATIONS

As indicated in the previous sections, individual and organisational learning and development are regarded as critical and are of strategic significance for economic growth. This is not only referring to extensive training in job skills, but to entirely novel ways of thinking about employment and work relations. Individuals need to be independent thinkers and be creative and work independently. Companies and managers must create a learning environment, with suitable resources, to train and develop all current employees and those who enter the job market. Training and developing of new and current employees should not end at the company, but lead to the development of a learning society.

It is argued that employability is an indirect consequence of learning and development. Employability is an outcome from investment in human capital. For individuals to acquire skills for current and future employment, they have to continuously engage in learning and development. Good employers will make certain that their workers remain employable by ensuring that they are up to date with new employment demands by providing them with training and development (Holden, 2001:326).

The global competition and success of countries like Germany, Sweden and Japan in economic growth are the consequence of extensive HRD. The development of technology and organisational change has made employers understand that success depends on the skills and the capabilities of their workers. This suggests that investment in training and development of the workforce should be substantial and constant. The rise of HRM has emphasised the importance of people and their skills, which enhance the efficiency in organisations.

Commitments to the organisation and the growth in the quality movement have made senior management understand the improved significance of training, employee development and continuing education. Notions such as commitment and quality need vigilant planning and increased emphasis on workforce development. In HRM businesses such as Hewlett-Packard, Xerox, IBM, Caterpillar and The Body Shop, which claim HRD as the reason for their success, have introduced training and development at all levels (Holden, 2001:326).

2.6 VOCATIONAL EDUCATION AND TRAINING

Learning and development are not only the responsibilities of organisations and employees; the government also needs to play a role in HRD because a skilled and educated labour force is crucial for the successful performance of the economy. A developed and educated labour force creates a healthy, wealthy and competitive nation. The extensive use of new technology and the constant demand for new and advanced skills require a properly and highly trained labour force which will adapt to the changing environment in the work place. The known and familiar skills, especially in engineering and construction industries, are changing very fast. The economy in which youths may be trained for apprenticeship that leads into a recognised, successful career is also declining. These uncertain and changing environments are a challenge internationally and cause problems for countries such as the United States of America, Japan, Germany, Sweden and France (Holden, 2001:341).

When other international countries were compared to the UK, the results showed that the latter has a severe skills shortage. This was confirmed by the results of the national audit of jobs and skills in Britain published in 1996. The audit compared Britain with France, Germany, Singapore and the USA, and once again it was confirmed that Britain had a big shortage in skills (Holden, 2001:341-342). It is known that Germany has a history of investing in vocational training and has policies in place to back up the vocational education.

Holden (2001:343) set out to compare and contrast Vocational Education and Training (VET) in the following countries: Britain, Germany, France, Sweden, Japan and United States of America. It is stated that these six countries have compulsory education for almost similar age groups between 5 and 16 years, varying from country to country. Holden argues that all six nations recognised the importance of basic education. In the 1990s it was discovered that all six countries faced challenges in the number of children leaving school at an age which was not acceptable. Germany was most affected by this challenge.

The 16-18 year grouping obtained some form of education or training, and most children at this age continued with education and training either part time or fulltime. However, Britain was identified as the country with fewer 16-18-year-olds involved in education or training compared to the other countries and was in fact 10 per cent below France. These countries also vary in the financial investment made in training by its companies. The VET system in Germany has a suitable infrastructure and Sweden has a developed VET system that starts when children are 14 years old (Holden, 2001:344).

Holden (2001:345) noted a few differences of the VET systems in the six countries as mentioned above in relation to their policies and practices. For instance, in Britain there was the New Deal which was about training for the age group 18-24 years out of employment for more than six months, and training for the age group over 24 years and not employed for more than 2 years. The National Training Organisation (NTO) is a sectoral body tasked with analysing the skills gaps using international benchmarking. A National Skills Taskforce consisting of government, employees and union representatives was tasked with investigating the lack of skills nationally and reporting on recommendations. The VET system had National Vocational Qualifications (NVQs) ranging from levels 1 to 5. The government introduced the Investor in People (IIP) scheme, which was designed to motivate employers to achieve a certain level of recognised strategic training. New apprenticeships were established in the 1990s to introduce quality skilled training. Colleges of higher and further education and universities were established.

Germany has a dual system, company training, consisting of practical and vocational schools, where the theory is taught. There are 319,000 organisations for apprenticeships. There are technical colleges and universities established to educate and train people. The culture of training is focused and industry orientated, especially when it comes to engineering. In France there are about 300,000 apprenticeship places. There are university of technologies and universities. There is legislation which requires employers to spend 1.2 per cent of total gross salaries on training workers. Training is also directed towards mathematics and engineering, and it centralised. Sweden has upper secondary schools which have a big vocational content. There are also technical and specialist universities and general universities. Vocational education and training are very strong in a number of companies. There is strong emphasis on human resource development; the unemployed are retrained and adult education is to a large extent free. Japan's VET policy is specific; vocational training is for two years at a college. There are also four-year university courses and five-year college of technology courses. Training done at

companies is extensive and on-going. In the USA there are community colleges, technical institutes, vocational, trade and business schools, private schools, colleges and universities. An apprenticeship system is not popular and has a low status (Holden, 2001:345).

Britain's and the US's systems are voluntary; Germany, France and Sweden have directed systems and Japan's VET is not compulsory but also directed. In each country there are a substantial number of different routes through vocational education and training (Holden, 2001:346). One of the most crucial areas of human resource development is technical training. Technical training refers to specialised knowledge of technology and subject matter. It has to do with teaching under-educated people how to fix computers and telephones, or how to be typists (Brinkerhoff, 1994:221).

Training is designed to help an individual with knowledge, skills and attitude to execute tasks at the work place. Development assists in empowering people with skills that will help in the improvement of current skills and contributes to improvement of performance of an employee. The employee should take full responsibility for his/her training and development needs. However, the management of an organisation should see to it that all training and development needs of all employees are met. Training needs can be identified by assessment or staff audits. In some cases training opportunities for employees may not be the solution of problems, which might have surfaced during the assessments. Training and development should be continuous and used as tools to empower people to improve in productivity. The workforce should be regarded as critical resources for the achievement of the goals of the organisation (Aldrich, 1994:185-186).

Development and training programmes are implemented at companies to equip workers with competencies that are needed for the development of strategies of the organisations which will contribute to the economic growth. Technical knowledge and job skills are used by employees to execute their work responsibilities. Skills are acquired in a formal learning environment. Technical knowledge and skills needed at the work place are meant to support the organisation's core competencies and capabilities (Green, 1999:27). The training requirements of any company should be developed based on learning objectives, which will be formulated in a strategy which reflects not only the individual and departmental learning needs or objectives, but those of the organisation as a whole (Green, 1999:126).

The changing technology and additional fields that have been developed, for instance, in biotechnology, require new skills. In the late 1980s there was a shift in the demand for new skilled labour force by industry; more computer engineers were needed and fewer mechanical engineers. There was a concern that the institutions of higher education are an obstacle to economic development and not a generator. According to top corporate executives of America, the nation's companies were not competing effectively in world markets as a result of the insufficiency of the countries' educational system (Luke *et al.*, 1988:145).

According to Stewart (1998:86), there is more return on investment in a new employee, if he/she is required to think and is taught to be creative rather than in buying new equipment or money generated from products. Human capital develops in two ways: firstly, when the company makes additional use of what people know; secondly, when additional people know more things that are helpful to the company (Steward, 1998:87). Through employing or teaching, leaders must focus on and build up talent where it is required. It is crucial that intellectual capital is always linked to strategy (Steward, 1998:88).

If a company is to reduce worker turnover, significant investment in training or development of the workforce makes business sense and is greatly encouraged (Roos *et al.*, 1997:35). Structural capital is a component of intellectual capital. Structural capital refers to data bases, organisational charts, process manuals and intellectual capital and everything that has a value to the company which is more than its material value. Structural capital is all intellectual capital which stays in the company when the workers go home for the night (Roos *et al.*, 1997: 45).

2.7 SUMMARY

In this chapter the importance and contribution of education to collective economic knowledge and individual cognitive and technical learning and training were discussed. The first part shows that the assumed relationship between education and economic growth is open to question, firstly, because there is little evidence to support the link between economic prosperity and learning as such, and secondly, because it is more important to consider education as a significant and contributing factor to collective economic knowledge and the need for individual growth through learning and training of cognitive and technical skills. An outline of the different education systems of some countries and the role they played in human resource development was provided. Countries that prioritise vocational education and have systems in place to ensure people's development as an on-going endeavour to equip the nation with skills which are in

demand at the work place were discussed and compared. The issues raised and discussed in this chapter are fundamental to the study, which focuses on the general question of what is required and how effective vocational institutions are in delivering students that adapt easily to the demands of the work-floor and still are broadly enough equipped to cover a range of market demands in a particular sector.

CHAPTER THREE

LEGISLATIVE AND POLICY FRAMEWORK FOR EDUCATION AND TRAINING INSTITUTIONS IN SOUTH AFRICA

3.1 INTRODUCTION

This chapter explores the overhaul of the post-apartheid legislative, policy and regulatory framework, which gave effect to the establishment, governance and management of Further Education and Training (FET) institutions in South Africa. The chapter gives an overview of relevant strategies introduced by the state after 1994 in pursuit of closing the skills gap that is hampering the delivery of the government's mandate pertaining to growing the economy and reducing unemployment. This chapter also provides a brief description of attempts by the government to transform vocational education.

3.2 POLICY AND LEGISLATIVE FRAMEWORK IN SUPPORT OF THE SKILLS AGENDA 1997 2010

The section gives a brief outline of the following legislative context: Education White Paper 4 (RSA, 1998a); Higher Education Act (101 of 1997) (RSA, 1997); Skills Development Act (97 of 1998b) (RSA, 1998) and the FET Act (16 of 2006) (RSA, 2006a).

3.2.1 The Education White Paper 4 of 1998

The Education White Paper 4 (RSA, 1998a:5) states that Further Education and Training (FET) refers to learning programmes to be registered on the NQF from Levels 2 to 4, which will match the current Grades 10 to 12 in the school system and N1 to N3 in the Technical College system. The FET system is intended to respond to the human resource needs of the country. These institutions will provide a range of programmes which will promote knowledge, skills, attitudes and values required by South African citizens and will have the means to play an active role in the growth of the economy. It was also envisaged that these colleges will also train and develop the essential intermediate to higher-level skills and competencies required by the country to compete globally in the economy of the 21st century. The government identified the FET system as one of the vehicles responsible for the personal, social, civic and economic development of the citizens as stated in the White Paper 4 (RSA, 1998a:6).

The White Paper 4 (RSA, 1998a:8) is responsible for providing a framework for identifying the training needs in the labour market. The FET policy outlines a framework which provides a

strategy for education and training institutions which permit them to respond to the labour market demands that are identified by private and public employers. The responsiveness of the FET institutions will be determined by the rate at which their graduates are appropriately entering the job market, or absorbed into and succeed in higher education. Moreover, it was envisaged that the effectiveness of further education and training suppliers in placing their graduates in suitable employment will be improved by the constant flow of information from the labour market and the institutional relationships between education and training institutions and employers.

According to the Education White Paper 4 (RSA, 1998a:38), the South African government will promote the improvement of school, college and employer relationships, and of other new curricula and plans. In future, more meaningful education and training opportunities and improved access to higher education and employment will be offered to students in senior secondary schools. The DoE will assign designated funding for the development of college and business relationships and partnerships to enable the development of new courses and curricula, and the restructuring and modernisation of existing programmes in order to meet the requirements of the labour market. The National Education Department will place special emphasis on encouraging linkages that merge theory with practice that offers students practical and work experience whilst in training.

The introduction of the National Certificate Vocational NC(V) programmes in 2007 was intended to address the integration of theory and practice and promote the linkages between the institutions and relevant employers as envisaged in the Education White Paper 4 (RSA, 1998a). In the NC (V) theory and practice are integrated; however, there is not sufficient articulation with the world of work or the relevant industries, and there is no coordination from the Education Department. Further Education and Training Colleges are still offering outdated programmes, for example, the National Technical Diploma (NATED), which was offered prior to the introduction of the Education White Paper 4 (RSA, 1998a) and the graduates of the colleges are still struggling to access higher education and employment, contrary to the promises in the Education White Paper 4 (RSA, 1998a) and the FET Act (16 of 2006).

3.2.2 The Higher Education Act 101 of 1997

The Higher Education Act (101 of 1997) (RSA, 1997:2) indicates in the preamble that it seeks to “restructure and transform programmes and institutions to respond better to the human resource, economic and development needs of the Republic; redress past discrimination and ensure representivity and equal access; to provide optimal opportunities for learning the creation of knowledge and respond to the needs of the Republic and of the communities served by the institutions”.

3.2.3 The Skills Development Act 97 of 1998

The South African government launched the Skills Development Act (97 of 1998) (RSA, 1998b:8) and the purpose was to supply an organisational structure to formulate and execute national, sector and work place strategies to build up and advance the skills of the South African employees, and to incorporate those strategies within the National Qualifications Framework as reflected in the South African Qualifications Authority Act of 1995(85 of 1995) (RSA, 1995). Furthermore the aim was to cater for learnerships, which would acknowledge occupational qualifications. The aim included making funding available for skills development through a levy-grant scheme and a National Skills Fund. Other objectives included offering and regulating of work services as well as providing for issues related to that.

The Skills Development Act (97 of 1998) (RSA, 1998b:8) was established to address the imbalances of the skills gap created in the apartheid era and to be used as a vehicle to ensure that the South African labour force will be empowered with the necessary skills needed by industry to be able to grow the economy of the country and compete positively globally. According to the Skills Development Act (RSA, 1998b:10), the functions of the National Skills Authority are to give advice to the Minister of Labour on a National Skills Development Policy, National Skills Development Plan guidelines, and on the execution of the national skills development plan including the distribution of subsidies from the National Skills Fund and any directives to be made. The Skills Development Act (RSA, 1998b:14) states that the Minister of Labour has to establish a Sector Education and Training Authority (SETA) with a constitution for any national economic sector. It is also the Minister’s task to determine a discrete sector by reference to categories of employers, and for that purpose will take into consideration the education and training needs of employers and employees; the potential of the proposed sector for coherent occupational structures and career paths; the scope of any national plans for

economic growth and development; and the organisational structures of the trade unions, employer organisations and government in the directly connected sectors.

The SETA has a number of functions which range from developing a sector skills plan within the structure of the country wide abilities development plans, and executing its part of the skills plan through creating learnerships. Other functions include authorisation of the work place skills plans; allocation of grants as per approved method to companies, education and training suppliers and employees, inclusive of monitoring education and training in the sector; advertising of learnerships through identifying place of work for practical employment skills; assisting in the establishment of materials for learning; improvement of the facilitation of learning; and assisting in the completion of learnership contracts.

The Sector Education and Training Authority is one of the vehicles introduced by the South African government after 1994 to improve the skills capacity of the employees, youths in education and training institutions, and out-of-school and unemployed youths. Other responsibilities of SETAS are collection and disbursement of the skills development levies in its sector; and to coordinate with the National Skills Authority on the following: the national skills development policy, the national skills development strategy and the sector skills plan as indicated in the Skills Development Act (97 of 1998) (RSA,1998b:14).

3.2.4 The Further Education and Training Colleges Act 16 of 2006

The FET Act (16 of 2006) (RSA, 2006a:10-11) states that offering further education and training implies registering students for all learning and training programmes which will lead to qualifications on Levels 2 to 4 of the National Qualifications Framework as determined by the South African Qualifications Authority (SAQA) as reflected in the SAQA (58 of 1995) (RSA, 1995) and to ensure that students are registered, and the curriculum offerings and assessment are delivered.

The FET Act (16 of 2006) (RSA, 2006a:2) seeks to create a national coordinated further education and training structure that aims at promoting co-operative authority and offers vocational and occupational tuition. The purpose includes reorganising and converting curricula and technical institutions to improve the response to the needs of people, the economy and the growth of the Republic of South Africa. Furthermore, the aim is to ensure that there is accessibility to further education and training and to the place of work. The creation of opportunities for persons who

have been disadvantaged in the past, such as women, the disabled and students from poor backgrounds were at the forefront. The need for internationally recognised intermediate to high-level skills is also high on the agenda and is a priority.

The functions of the FET Colleges Act (16 of 2006) (RSA, 2006a:12) are to “enable students to acquire: the necessary knowledge; practical skills; and applied vocational and occupational competence and provide students with the necessary attributes required for employment; entry to a particular vocation, occupation or trade; or into a higher education institution.” Furthermore, the rationale of the FET Colleges Act (RSA, 2006a:4) is to be responsive to the requirements of the Republic, the labour market and the communities which are served by the colleges.

3.3 THE FURTHER EDUCATION AND TRAINING COLLEGES PRIOR TO 1994

The purpose of this section is to give an outline and an overview of the Further Education and Training Colleges during the apartheid era or prior to 1994.

3.3.1 National Plan for Further Education and Training Colleges 2008

During the apartheid era, prior to 1994, the vocational and technical component of the system consisted of 152 technical colleges located in various education departments. The 152 technical colleges were governed, managed and funded in different ways. These colleges served different population groups and their location was determined by apartheid planning. The majority of the colleges’ provisioning was seen and categorized as being of inadequate quality and as unresponsive to the requirements of the economy. However, some of the programme offerings of the colleges were of good quality and the curricula were relevant to the needs of the employers; for instance, the engineering programmes were regarded as being sufficient by industry and were used for artisan development. The South African government was faced with the challenge of transforming “the existing racially-divided technical colleges into a coherent system that would address the vocational needs of the 21st century”, according to the National Plan For Further Education and Training Colleges in South Africa (RSA, 2008a:9).

3.4 TRANSFORMATION OF VOCATIONAL EDUCATION

This section illustrates the attempts of the South African government to transform the Technical Colleges into Further Education and Training Colleges after 1994 in order to address the skills shortage.

3.4.1 The National Plan for Further Education and Training Colleges 2008

After 1994 the democratically elected South African government introduced a number of Acts and White Papers to ensure the development of human resources. The relevant White Papers and Acts included, amongst others: Education White Paper 4 (RSA, 1998); Further Education and Training Colleges Act (16 of 2006) (RSA, 2006a); Higher Education Act (RSA, 1997); Skills Development Act (97 of 1998) (RSA, 1998); and the South African Qualifications Authority Act (85 of 1995) (RSA, 1995). The vision of the government was to alleviate poverty and to promote economic growth. The education and training system inherited from the apartheid government was restructured by the newly elected government in 1995. The South African government had to immediately put in place plans to start revamping the fragmented technical education system as per the National Plan for Further Education and Training Colleges in South Africa (RSA, 2008a:9).

In order to address the vocational education transformation the government in 1995 established a single National Qualifications Framework (NQF). The rationale of the NQF was to promote the integration of the education and training systems under the auspices of the South African Qualifications Authority (SAQA). A number of interventions followed the introduction of the NQF, which included the appointment of a National Committee on Further Education (NSFE) in September 1996. The NSFE was tasked with investigating the challenges which hampered the responsiveness of the colleges and to come up with recommendations. The recommendations which were published in 1997 led to the drafting of a Green Paper on FET, a White Paper and the Further Education and Training Act. From 1998-2006 the development of the colleges was administered and directed by the FET Act of 1998 (98 of 1998) (RSA, 1998c) as stated in the National Plan For Further Education And Training Colleges in South Africa (RSA, 2008:9a).

According to the National Plan for Further Education and Training Colleges in South Africa, in 2001 a document was published with the recommendations of the Task Team that had been established in 2000. The document outlined the new Institutional Landscape for Public Further Education and Training Colleges. The establishment of 50 public FET colleges from 152 Technical Colleges was one of the vital recommendations in this document. Other recommendations included that the Colleges should be declared public colleges under new names and fully established councils. The Education MECs of various provinces were given the responsibility of

transforming the 152 former Technical Colleges into 50 Further Education and Training Public Colleges.

Between 2002 to 2006 the merger process of the public colleges was consolidated, which resulted in College Council appointments. Fifty college principals were appointed and universal administration and management structures were established at all colleges. The government made an evaluation of the state of the FET colleges to establish the extent to which the colleges could play a role in contributing meaningfully towards the agenda of skills development and to assist the government to meet its targets of reduction of unemployment; increasing GDP growth and reducing poverty, as stated in The National Plan for Further Education and Training Colleges in South Africa (RSA, 2008a: 9).

In 2005 the South African government allocated R1,9 billion to the FET colleges for recapitalisation. The funds were for the addressing the challenges of colleges which were revealed by the assessment results. The purpose was to prepare for the delivery of priority skills programmes as from 2007. New qualifications, the National Certificate (Vocational) level 2 to level 4 for the Education Department, were gazetted in 2006. This process of recapitalisation included infrastructure development, upgrading and buying of equipment and lecturer development in preparation for the new qualification that was to be offered in 2007, as indicated in the National Plan for Further Education and Training Colleges in South Africa (RSA, 2008a: 9-10).

The interventions of the upgrading of the colleges were to enable the colleges to respond to the skills needs of the country, as stated in the National Plan for Further Education and Training, 2008 (RSA, 2008:10). It could be argued that the backlog in education at lower levels – especially the poor performance in mathematics and literacy in Grade 3 and 6 – affects the performance of further education; it demands a set of resources from these institutions that is beyond their scope and not available. This backlog invites questionable mechanisms of selection and adjustments of the whole education system. Either way, the performance and success of further education are not simply the outputs they are supposed to deliver; there are also systemic issues which play a role in the output delivery of training institutions. The inability to deliver the required skills by further education and training institutions unambiguously reveals system failure and does certainly not reflect the intellectual abilities of our students. Furthermore, the system failure refers to the lack of skills and inadequate financial resources of the educational structures as well as the lack to improved living conditions of previously

disadvantage groups, which would have allowed families in particular to expose children to educational input outside of a school environment.

Because of developments in the college sector the government had to draft “The new Further Education and Training Act (16 of 2006) (RSA, 2006a) to support the vision of a modern, vibrant FET College System that builds a foundation for life-long learning and is responsive to the needs of the 21st century”, as stipulated in the National Plan for Further Education and Training Colleges in South Africa (RSA, 2008a:11). The role of the Human Resource Development Strategy of South Africa (HRDS-SA) of 2001, which was entitled *A Nation at Work for a Better Life for All* (RSA, 2001), was to advance the management of skills provision. The HRDS-SA was revised in 2008 and replaced the one developed in 2001. Furthermore, in 2001 the Minister of Labour introduced the National Skills Development Strategy (2001-2005) (RSA, 2005), which was aimed at focusing on the demand side of the skills offerings.

3.5 STRATEGIES TO ADDRESS THE SKILLS SHORTAGE IN SOUTH AFRICA AFTER 1994

This section will deal with the following strategies: Accelerated and Shared Growth Initiative for South Africa (Asgisa) (RSA, 2007); Joint Initiative on Priority Skills Acquisition (JIPSA) (2008b); Human Resource Development Strategy for South Africa 2010-2030 (RSA, 2009); the National Skills Development Strategy (NSDS III) (RSA, 2011) and the New Growth Plan (RSA, 2010).

3.5.1 Accelerated and Shared Growth Initiative for South Africa 2007

According to the Accelerated and Shared Growth Initiative for South Africa (Asgisa) (RSA, 2007:5), the major challenge for South Africa is shortage of skills ranging from engineers, scientists, financial and project managers, artisans and information technology. The shortage of skills has been attributed to the policies of the apartheid period and the delay of the education and training and skills development institutions in grasping the present need to promote economic growth. Asgisa (RSA, 2007:5) identified a number of interventions to address the skills needed to aid economic growth. The education interventions included a programme which aimed at achieving high levels of literacy and numeracy in the lowest grades; the mathematics and science programme for 529 high schools, which aimed at increasing the number of mathematics and science graduates to 50,000 at the end of 2008; upgraded career guidance programmes; upgrading of the FET colleges and the revamping of the Adult Basic Education and Training (ABET) programmes.

Other measures included by Asgisa (RSA, 2007:5) were to develop an Employment Services System to address the gap between potential employers and employees and the second phase of the National Skills Development Strategy. Furthermore, the need to assist in reducing the inequalities of the past was also identified to ensure sustainable growth and to address the goal of Asgisa, which is to halve unemployment and poverty by 2014. With the planned interventions the government also aimed at closing the gap with the second economy and eventually eliminating the second economy.

3.5.2 Joint Initiative on Priority Skills Acquisition 2008

The Joint Initiative on Priority Skills Acquisition (JIPSA) was established in 2006 to address the weakness in the education and training system which had failed to address the needs of industry, with a specific focus on:

- leading the implementation of a joint initiative of government, business and organized labour to accelerate the provision of priority skills to meet the Asgisa objectives; and
- prioritisation of core skills and establishment of appropriate human resource development strategies and promoting a more appropriate and responsive education and training system to increase the chances of employment of graduates (RSA, JIPSA, 2008 b:8).

Furthermore JIPSA (RSA, 2008b:8) has three main focus areas:

- Five priority skills were identified to be addressed immediately;
- Core people responsible for the project were identified with relevant role players to engage regarding the skills needed to increase labour absorption;
- Addressing the constraints and effectiveness in the recent outlines and organisational arrangements for skills delivery.

3.5.3 The Human Resource Development Strategy for South Africa 2010-2030

The Human Resource Development Strategy for South Africa (HRDS-SA) 2010-2030 (RSA, 2009:31-45) has been established to identify a key set of strategic priorities with a purpose of dealing with the extreme imperatives for HRD, in particular skills shortage in the priority sectors of the economy that impact on growth and investment. The strategy has the main function of assisting the government in achieving its goals, that is reduction of poverty and unemployment; promotion of justice and social cohesion; and improvement of national economic growth. The

HRDS-SA 2010-2030 (RSA, 2009) has a strategic framework which addresses a number of strategic priority areas such as:

- to make certain there is worldwide entrance to quality Early Childhood Development which will assist in the elimination of adult illiteracy in society;
- to make sure that all citizens remain in education and training until the age of 18 years;
- to ensure that all fresh contenders for employment have exposure to employment-centred education and training prospects;
- to make sure that levels of investment are higher than the international average for sectors of the education and training system and to make certain that all adults in industry, regardless of employment status, have admission to education and training prospects that will permit them to obtain at least a qualification at level 4 of the National Qualifications Framework (NQF);
- to ensure that there is developmental progress in the external effectiveness of higher education, further education and training, and the occupational learning structures; and
- to ensure that South Africa is categorised in the top ten percent of similar countries pertaining to its economic competitiveness and to make certain that South Africa is ranked in the top ten percent of equivalent countries in its human development indicators.

According to the HRDS-SA 2010-2030 (RSA, 2009:20-22), eight commitments are identified with a number of strategic priorities to address the skills shortage of the country. Only three commitments will be discussed here, namely Commitments One, Four and Five. Commitment one states that the state shall urgently address the lack in providing people with the priority skills required for the successful implementation of current strategies to achieve accelerated economic development. The Strategic Priorities of Commitment One are as follows:

Strategic Priority 1.1: To accelerate training output in the priority areas of design, engineering and artisanship that is critical to the manufacturing, construction and cultural industries;

Strategic Priority 1.2: To ensure that skills development planning is credible, integrated, coordinated and responsive to social and economic demands;

Strategic Priority 1.3: To ensure that skills development programmes are demand-led through substantive and systematic input from employers in the determination of skills demands of the country;

Strategic Priority 1.4: To improve the employment outcomes of post-school education and training programmes;

Strategic Priority 1.5: To ensure that FET and HET are responsive to the skills demands arising from South Africa's social and economic imperatives.

Commitment Four of HRD SA-SA 2010-2030 (RSA, 2009:20-22) is about ensuring and undertaking that there will be urgent implementation of skills development programmes with the intention of aiming at preparing citizens with required skills to overcome associated plagues of poverty and unemployment gap. Commitment Four has the following priorities:

Priority 4.1: To ensure that unemployed citizens with the emphasis on women have access to skills development programmes unambiguously designed to promote employment which is income based;

Priority 4.2: To make sure that all adults who are out of employment will have admission to training opportunities, which includes literacy programmes and ABET;

Priority 4.3: To increase and speed up the participation and graduation rates in FET and HET of learners coming from poor backgrounds. Furthermore, Commitment four states that the government will make sure that youths have entrance to education and training that improve opportunities and boost their chances of success in further vocational training and retainable employment.

The following are the strategic priorities of Commitment Five:

Priority 5.1: To accelerate the implementation of training programmes for young people that are focused on creating employment;

Priority 5.2: To influence public and private sector programmes to generate employment opportunities and work experience for new entrants into the labour market;

Priority 5.3: To improve the exposure and efficiency of vocational guidance and industry information in a way that supports the optimal uptake of training and employment.

The three commitments and strategic priority areas were an attempt by the state to ensure implementation of the strategy which addresses the priority skills demand and shortage as outlined in the HRD-SA 2010-2030 (RSA, 2009:16-18).

3.5.4 The National Skills Development Strategy III 2011-2016

The National Skills Development Strategy III 2011-2016 (NSDS III) (RSA, 2011:6) seeks to improve the effectiveness and efficiency of skills growth. One of the roles of the strategy is to promote the connection of skills development to career paths and career development as well as to promote sustainable work and on-the-job training. The strategy's emphasis is on training that will enable trainees to access formal employment, or assist them to generate sources of revenue for themselves. People who do not have the relevant technical skills, or adequate reading, writing and numeracy skills are prioritised to enable them to enter formal work.

According to the NSDSIII 2011-2016 (RSA, 2011:10), the strategy is part of the Human Resource Development Strategy for South Africa of 2009. It will function simultaneously with the first five years of the country's second Human Resource Development Strategy for South Africa. The SETAs, NSF, Colleges and Higher Education will be the vehicles to drive the agenda of the HRD-SA 2010-2030 (RSA, 2009:9) and all eight commitments of the latter will be addressed. SETAs will use training providers to realize the commitments of the government as articulated in the HRDS-SA, for instance, Commitment Two of the HRDS-SA 2010-2030 (RSA, 2009), which refers to growing numbers of suitably trained citizens to address the demands of the present, but promising economic growth will be vital to cater for this need.

The NSDS III 2011-2016 (RSA, 2011:7) is designed to assist in promoting a skills development system that will successfully respond to the requirements of the labour market and social justice. The strategy will be a vehicle used for creating and promoting closer links between employers and training institutions, and between training providers and SETAs. The strategy's purpose includes responding to serious challenges which are having a negative impact on the ability of the economy to grow and offer more employment opportunities. The following are some of the challenges to be addressed by NSDS III 2011-2016:

- Insufficient skills levels and inadequate work preparedness of youths leaving the secondary and tertiary education and entering employment for the first time;
- The on-going skills shortages especially in artisan development and in technical and professional fields that are crucial to the growth of the economy;
- The desperation of people who have been unemployed for a long time because they do not have basic numeracy and literacy skills, nor training or work experience to enable them to hunt for work and successfully enter the labour market;

- The absence of synergy between the various post-school sub-systems namely: universities, FET Colleges, SETAs and NSDS III 2011-2016 (RSA, 2011:7).

According to NSDS III 2011-2016 (RSA, 2011:9-10), the strategy is meant to be the overarching lead for skills development and give direction to sector skills planning and implementation in the SETAs. Other functions of the strategy include presenting a structure for the skills development levy resource operation. One of the pillars of the NSDS III 2011-2016 (RSA, 2011:9-10) is appropriate sector-based programmes addressing the requirements of people who are not employed and who are accessing employment for the first time will be developed and piloted by SETAs.

The skills development requirements of employers and employees will be funded by the SETA funds. Professional, vocational, technical and academic learning (PIVOTAL) programmes refer to programmes aimed at providing a full occupationally-directed qualification. These courses are offered at a college or university and include managed practical learning in employment, which forms part of a requirement. The PIVOTAL programmes are intended to be offered by an agreement between a SETA, an education institution, an employer and a learner. The arrangement between the stakeholders to offer the programmes will assist in ensuring that the curricula and courses are responsive to the needs of the business and industry. Programmes are designed to add to the revitalisation of vocational education and training, including the competence of lecturers and trainers to supply work-related education and training and encourage occupationally directed research and innovation, according to NSDSIII 2011-2016 (RSA, 2011:9-10).

The strategy focuses on a number of goals but only a few will be highlighted here, including creating a reliable institutional machinery for skills forecast; growing admission to career-directed programmes; supporting the growth of a public FET college system that will respond to sector, local, regional and national skills requirements and main focuses; addressing the shortcomings of youths and adults pertaining to language and numeracy skills; and promoting enhanced use of work place-based skills development as stated in NSDS III2011-2016(RSA, 2011:12-19).

One of the functions of the National Skills Fund is to support the establishment of priority skills in high-level occupationally focused courses in the whole skills establishment, including

universities, colleges and work places, as stipulated in NSDS III 2011-2016 (RSA, 2011:13). Furthermore, the university sector has to establish a system of logically engaging in the detection of national and economic requirements. According to NSDS III 2011-2016 (RSA, 2011:20), one of its objectives will be to promote and appropriate education and training institutions by supplying the required training equipment and knowledgeable personnel to attend to the specific needs.

3.5.5 The New Growth Plan/Path

The main focus of the New Growth Plan/Path (RSA, 2010) is to enhance economic growth, employment creation and equity. The priority of the New Growth Plan/Path is to create five million jobs over a period of ten years. The framework of the New Growth Path will focus on infrastructure and skills development. The New Growth Plan/Path sets targets for addressing scarce and priority skills, and recognises the role of all the government departments and various agencies in working in a coordinated and collective manner to achieve these goals. The targets for scarce and critical skills include the following: 30,000 additional engineers by 2014 and 50,000 additional artisans by 2015. The improvement of work place training is one of the focus areas of the New Growth Plan/Path framework as stated in the New Growth Plan/Path: The Framework (RSA, 2010: 1-5).

Fundamental to the achievement of the targets of the Growth Plan/Path (RSA, 2010) is the improvement in education and in skills development. According to the growth path, the training system needs to be radically reviewed to address the shortage of artisans and technical skills as indicated in The New Growth Path: The Framework (RSA, 2010:19).

The policies, strategies and the legislative framework introduced by the South African government in the immediate post-apartheid era did not help much in poverty alleviation and in producing the much needed skills for economic growth and improvement of the lives of the people. The government has failed to achieve the desired outcome as set out in the policies and legislative framework as a result of lack of proper implementation and of monitoring and evaluation.

3.6 SUMMARY

This chapter provided an outline and overview of relevant legislation, these include the Higher Education Act (101 of 1997) (RSA, 1997); the Skills Development Act (97 of 1998) (RSA, 1998b);

the Education White Paper 4 of 1998 (RSA, 1998a); the Further Education and Training Act (16 of 2006) (RSA, 2006a) and the National Plan for Further Education Colleges (RSA, 2008a). A number of strategies which are guiding the conduct of FET colleges in pursuit of their mandate of skills development as required for the growth of the economy were discussed in this chapter; these are the following: JIPSA (2008b); Asgisa (2007); HRDSA-SA 2010-2030 (RSA, 2009); NSDS III 2011-2016 (RSA, 2011) and the New Growth Plan (RSA, 2010). Furthermore, this chapter provided an outline of the further education and training system during the apartheid era prior to 1994 and after 1994. The next chapter will discuss the case study.

CHAPTER FOUR

THE CASE STUDY

WEST COAST FET COLLEGE: THE WELDING CENTRE

4.1 INTRODUCTION

This chapter will provide an overview of the West Coast Further Education and Training College (West Coast FET College). A brief description of the case study, the Welding Centre of West Coast FET College is provided in this chapter with details of the training programmes as well as enrolment statistics, staff profile and the apprenticeship programmes.

4.2 BACKGROUND

West Coast FET College consisted of several small satellites of other colleges, many of which were merged in 1999 to form West Coast FET College, which was officially declared a public FET college in 2002 as stipulated in the Provincial Gazette, No. 5829 of 20 February (RSA, 2002:2). West Coast FET College was the smallest and youngest FET College in the Western Cape, formed from five discrete entities. Unlike other colleges that were formed around the hub of existing technical colleges with existing systems and capacity to manage, govern and administer their institutions, all the systems of the West Coast FET College had to be established from scratch. The Atlantis Campus was originally established in the 1980s as the Atlantis Technical Institute. In 1993 the Atlantis campus became part of Protea College, which is now a campus of Northlink College.

The Atlantis campus finally merged with the West Coast FET College in 2002. The Citrusdal Campus opened for the first time in January 1999 as the Citrusdal Centre for Further Education and Training and was established by the WCED as one of the first further education and training centres. It was a satellite of Tygerberg College, which is now a campus of Northlink College, and became a campus of West Coast FET College in 2002. The Malmesbury Campus was established in January 2005. The Vredenburg Campus, formerly known as a satellite campus of Westlake College (which is now a campus of False Bay College for Further Education and Training), became part of West Coast FET College in August 1999. The Vredendal Campus was established in 1997 as a satellite of West Lake College and became a campus of West Coast FET College in 1999 (see website: www.westcoastcollege.co.za).

West Coast FET College is a public FET college which is aimed at assisting students to obtain a meaningful qualification; to gain access to the world of work; become an entrepreneur; or access university, depending on subject choices. The college offers integrated theoretical and practical learning, and exposure to work place experience. West Coast Colleges serves areas from Atlantis up to Bitterfontein in the upper North. It has five campuses: Atlantis Campus, Citrusdal Campus, Malmesbury Campus, Vredenburg Campus and Vredendal Campus, and a central office situated in Malmesbury (see website: www.westcoastcollege.co.za).

4.3 VISION, MISSION AND VALUES

The college is guided and supported by a vision, mission and values in pursuit of its mandate, which is skills development. The vision stipulates that the college will strive to be a world-class further education and training institution in the West Coast region that encourages life-long learning and contributes to socio-economic development.

The vision is supported by the college mission which states that the college will achieve its vision through providing further education and training services of high quality to students by training them to be employable, or to be able to enter higher education institutions and exploit entrepreneurship opportunities.

The following are the values of West Coast FET College: Respect; Motivation; Fairness; Honesty and Quality, as stipulated in the College Strategic Plan (2011-2013) (see website: www.westcoastcollege.co.za). The values of the college are in support of its vision and mission and programme delivery.

4.4 QUALITY POLICY STATEMENT

West Coast FET College is ISO 9001:2008 certified and it has a quality statement which supports its operational delivery to its clients to ensure quality delivery; this is stipulated as follows: "West Coast FET College is committed to continuously improving the services, training and environment that it provides for internal as well as external stakeholders and continually strive to exceed the expectations of these stakeholders, aiming for high standards and excellence in all aspects of services rendered. This will be achieved through the setting of quality objectives to be met and to be reviewed on a regular basis, and through our commitment to comply with the requirements of ISO 9001:2008" (see website: www.westcoastcollege.co.za).

4.5 COLLEGE PROGRAMMES

The following are programmes offered at West Coast FET College (see website: www.westcoastcollege.co.za).

- National Certificate (Vocational) NC(V)
- Learnership Programmes
- Short Skills Programmes
- National Technical Education Diploma (NATED)

4.5.1 National Certificate (Vocational) NC (V) NQF Level 2-4

The National Certificate (Vocational) NC(V) qualification gives Grades 9, 10 and 11 learners an alternative qualification by offering industry-focused training. The NC(V) runs over three full years. However, according to the National Policy regarding Further Education and Training Programmes (RSA, 2006b:14) the entrance requirements for NC(V) 2 is a Grade 9 certificate, or alternatively an Adult Education and Training (ABET) NQF level 1 Certificate, or any recognised equivalent qualification obtained at NQF Level 1. This is a full year programme, offering levels 2, 3 and 4 on the National Qualifications Framework (NQF); the student is issued with a certificate on successful completion of each level of study. The programmes offer integrated theoretical and practical experience; and students are given exposure to work experience.

The following are NC (V) programmes offered at West Coast FET College:

- Hospitality Studies
- Office Administration
- Management
- Education and Development
- Engineering and Related Design: Fitting and Turning; Automotive; Fabrication and Welding
- Electrical Infrastructure Construction

4.5.2 National Technical Education Diploma (Nated)

West Coast FET College offers national diploma studies (N4-N6) in the following programmes:

- Human Resource Management
- Business Management
- Management Assistant

This is an option for students who want to pursue post-Grade 12 studies. The intake of classes is twice a year – in January and July. In addition, the college offers engineering studies, from N1- N3 in Welding, Fitting and Turning, Fabrication and Electrical studies. These are trimester subjects, and intake is three times per year during January, April and August (see website: www.westcoastcollege.co.za).

4.5.3 Learnerships, skills and other short programmes

The college's occupational programmes include Welding, Fabrication, Fitting and Machining, Electrical, New Venture Creation, Construction and Early Childhood Development.

4.5.4 Internal Computer Driving Licenses (ICDL)

West Coast FET College is accredited to provide ICDL as a Core qualification. The qualification is platform and product independent. A candidate can obtain the qualification in any product he or she wishes to enroll in. The ICDL is internationally recognised as the worldwide standard for end-user computer skills and is extensively used by governments, international organisations and corporations (WCFETC Newsletter, 2011:3). The ICDL is offered part-time and full-time and is offered at all five campuses.

4.6 STUDENT ENROLMENT 2011

4.6.1 Enrolment for the National Certificate Vocational

Table 4.1 presents enrolment statistics of all the different programme offerings at West Coast FET College during 2011 as per WCFETC Student Administration Management Information Report (WCFETC, 2011).

Table 4.1: Enrolment for the National Certificate Vocational

Levels	Atlantis	Citrusdal	Malmesbury	Vredenburg	Vredendal	Total
NQF Level 1	622	281	288	387	331	1909
NQF Level 2	244	98	102	189	126	759
NQF Level 3	183	27	81	72	161	524
Total College	1049	406	471	648	618	3192

Source: Author, 2012

Table 4.1 depicts the student numbers who enrolled in National Certificate Vocational programmes offered at all five campuses of West Coast FET College, namely Atlantis; Citrusdal; Malmesbury; Vredenburg and Vredendal.

4.6.2 Enrolment for National Technical Education Diploma (Semester)

Table 4.2 presents the numbers of all students enrolled for the National Technical Education Diploma per semester at all five campuses: Atlantis; Citrusdal; Malmesbury; Vredenburg and Vredendal.

Table 4.2: Enrolment for National Technical Education Diploma (Semester)

Levels	Atlantis		Citrusdal		Malmesbury		Vredenburg		Vredendal		Total
	<i>1stSem</i>	<i>2ndSem</i>	<i>1stSem</i>	<i>2ndSem</i>	<i>1stSem</i>	<i>2ndSem</i>	<i>1stSem</i>	<i>2ndSem</i>	<i>1stSem</i>	<i>2ndSem</i>	
N4	101	14	28	0	24	17	126	0	28	0	338
N5	6	21	1	0	1	2	3	33	2	21	90
N6	6	0	0	0	0	0	12	0	0	0	18
Totals	113	35	29	0	25	19	141	33	30	21	446

Source: Author, 2012

4.6.3 Enrolment for National Technical Education Diploma (Trimester)

Table 4.3 presents the statistics of students registered in NATED trimester programmes in 2011 in four campuses, namely Atlantis; Citrusdal; Vredenburg and Vredendal.

Table 4.3: Enrolment for National Technical Education Diploma (Trimester)

Levels	Atlantis			Citrusdal			Vredenburg			Vredendal			Total
	Tri 1	Tri 2	Tri 3	Tri 1	Tri 2	Tri 3	Tri 1	Tri 2	Tri 3	Tri 1	Tri 2	Tri 3	
N1	0	1	0	0	0	0	60	41	0	16	9	0	127
N2	16	8	0	0	0	0	39	39	0	14	35	0	151
N3	7	5	0	0	0	0	26	16	0	4	6	0	64
N4	5	6	0	0	0	0	15	1	0	7	2	0	36
N5	3	2	0	0	0	0	8	0	0	4	2	0	19
N6	1	1	0	1	1	0	6	2	0	2	3	0	17
Non-formal	0	1	0	0	0	0	7	7	0	1	0	0	16
Totals	32	24	0	1	1	0	161	106	0	48	57	0	430

Source: Author, 2012

4.6.4 Enrolment for Learnerships and Skills programmes

Table 4.4 shows numbers of all students registered in learnerships and skills programmes.

Table 4.4: Enrolment for Learnerships and Skills programmes

Levels	Atlantis		Citrusdal		Malmesbury		Vredenburg		Vredendal		Total
	1 st Sem	2 nd Sem	1 st Sem	2 nd Sem	1 st Sem	2 nd Sem	1 st Sem	2 nd Sem	1 st Sem	2 nd Sem	
N4	101	14	28	0	24	17	126	0	28	0	338
N5	6	21	1	0	1	2	3	33	2	21	90
N6	6	0	0	0	0	0	12	0	0	0	18
Totals	113	35	29	0	25	19	141	33	30	21	446

Source: Author, 2012

4.7 STAFF ESTABLISHMENT

The college has 271 staff positions and 258 positions are filled, with 13 vacancies currently as per WCFETC Human Resource Staff Establishment Report (WCFETC, 2011).

Table 4.5: Staff establishment

African	Coloured	White	Indian
63	140	52	0

Source: Author, 2012

Table 4.5 provided above has categorised the college staff according to race.

4.8 THE WELDING CENTRE: THE CASE STUDY

4.8.1 Background

The West Coast Welding Centre was established in 2006 in Vredenburg through a joint partnership between the West Coast FET College, the Manufacturing, Engineering and Related Services SETA (MerSETA) and the South African Institute of Welding (SAIW) with an investment of R2.85 million made by MerSETA. The school is accredited as a Decentralised Trade Test Centre in welding and the approval was granted in 2008 by MerSETA.

The decision to place the project at the West Coast was a response to the emerging engineering-related services hub that was designed to provide for world-class oil and gas-related port-side infrastructure. The Welding Centre is accredited with MerSETA, Services SETA, AgriSETA and the South African Institute of Welding (SAIW) to be able to train to an international standard.

According to the Western Cape Micro-Economic Development Strategy (MEDS) Synthesis Report (WCG, 2006: 68-69), two of the main challenges that faced the Cape Oil and Gas Supply Initiative (COGSI) was to generate growth and employment and the need for an optimally located fabrication hub supported by a dedicated SA Oil and Gas.

To this end the West Coast FET College offered a Fabrication Learnership in partnership with the MerSETA and the Umsobomvu Youth Fund, but has since been absorbed into the National Youth Development Agency (NYDA). The WCED had a big focus on the expansion of the Welding

Centre to ensure that skills development is aligned to the MEDS and the national human resource development needs (WCED, 2007/2008:8).

4.9 MANAGEMENT AND STAFF

The Welding Centre is part of the Vredenburg Campus managed by a Manager with the support of an Administrator. Additional support staff includes an Accreditation and Administrative Support Officer, with supervision from the Campus Manager and the Engineering Head of Department. The centre employs three instructors.

4.10 INFRASTRUCTURE

The Welding Centre has one big workshop with 46 welding bays which are categorised as follows: 6 designated trade test bays; 2 gas welding and brazing; 4 shielded metal arc welding, including gas metal arc welding and gas arc tungsten; and 34 general welding bays. The centre also has 5 separate grinding bays which are not included in the 42 bays. There are two offices and one storeroom. The welding students have access to the Open Learning Centre, which is fully equipped.

4.11 THE WELDING CURRICULUM

The Welding apprenticeship curriculum will be discussed in more detail compared to other programmes of the Welding Centre, as the focus of the training of the school has been on offering welding apprenticeship programmes from the inception of the centre. The first cohort of 20 was on an apprenticeship programme of Grinacker LTA. However, the college does offer short skills for companies to improve the skills of their employees as well as to private candidates who are not sent by companies.

4.12 PROGRAMMES

The Welding Centre trains students in a variety of programmes ranging from skills programmes to apprentice programmes as well as offering assessment of the Welding Trade Test to qualify as an artisan.

The main Welding programmes include:

- Welding Apprenticeship
- Pre-trade testing for Section 28 candidates
- Trade testing for Sections 13 and 28 candidates

- Recognition of Prior Learning Assessments
- International Plate Welding
- International Fillet Welding
- International Pipe Welding

Other Welding short skills programmes include:

- Oxy Fuel Gas Welding
- Operate Metal Arc Welding Business
- Cutting and Welding Process
- Shielded Metal Arc Welding Process
- Gas Welding and Cutting Skills
- Operate an Advanced Carbon and Steel Pipe Welding Business
- Pipe Welding
- Safety
- Welding Process in Fabrication
- Gas Cutting and Welding
- Oxy Fuel gas Welding and Brazing
- Shielded Metal Arc Welding (Manual Metal Arc Welding)
- Gas Metal Arc Welding

4.12.1 Apprenticeship

Apprenticeship is a registered qualification which does not carry any unit standards. An apprenticeship is a combination of work place and institutional learning which consists of practical and theory, and culminates in a qualification. An apprenticeship is a contract involving an individual who wants to learn a skill and an employer who requires a skilful worker. The duration of an apprenticeship is from two to four years and is determined by the programme. As an apprentice almost 90 percent of the student's time is devoted to learning practical skills while under the supervision of a qualified tradesperson. The apprenticeship training system is regarded as among the world's most successful forms of learning (see website: www.merseta.org.za).

4.12.2 Entrance requirements: apprenticeship

There are certain requirements that an apprentice has to meet before access to the school is granted; for instance, a learner who applies for Section 13 Apprenticeship must adhere to the following requirements: the applicant should be at least 16 years of age, two copies of a valid N2 certificate are required, and the student must have Mathematics, Welding Trade theory and Science and Technical drawing, or a pass in Grade 9 with either Maths or Science and at least two other subjects on N1 level (MerSETA, 2009:6). When an employer registers a Section 28 trade assessment at the college, the following requirements are applicable: a minimum of six years relevant work placement if the candidate has a qualification that is inferior to N2 Welding or a minimum of five years practical experience at the work place with trade theory, alternatively a minimum of four years relevant practical work experience with a full N2 welding qualification. The applicant must also produce evidence that the he or she has been evaluated to ascertain the skills level and further training required to be able to qualify for assessment in the Welding Trade Test to be an artisan.

4.12.3 Curriculum of apprenticeship

The training schedule of a trainee welder consists of different modules divided into four phases, including induction, safety hand and workshop tools, materials, principles and techniques of marking off, trade-related skills, oxy-fuel gas welding and brazing, shielded arc welding, gas metal arc welding, and gas tungsten arc welding (MerSETA, 2009:6).

4.12.4 Induction

The induction programme is inclusive of the following: a study of Sections of the Manpower Training Act (No 56, 1981) (RSA, 1981), especially discipline and legal responsibilities; terms and conditions of apprenticeship as per Government Gazette of 26 July 1991; grievance procedures; disciplinary procedures; rules and procedures of the company and applicable quality assurance procedures (MerSETA Training Schedule Welder, 1995: 8).

4.12.5 Safety

Safety aspects include exposure to a standard industrial safety course; safety in welding and oxygen fuel gas cutting as well as attending a first aid course (MerSETA Training Schedule Welder, 1995: 8).

4.12.6 Hand and workshop tools

This module requires the apprentice to be able to recognize and use measure, cut, mark and fasten tools. The exposure to hand tools includes:

- Using of fixed and portable drilling machines;
- Dressing a grinding wheel;
- Sharpening drills (MerSETA Training Schedule Welder, 1995: 9).

4.12.7 Materials

In this module the apprentice has to understand the terms, definitions and use of materials that are applicable to welding regarding the properties of metals; explain the purpose of using specified metals; and be able to identify ferrous and non-ferrous metals (MerSETA Training Schedule Welder, 1995: 10).

4.12.8 Drawings and sketches

This module ranges from learning the terms and definitions appropriate to engineering drawings to reading and interpreting relevant symbols, abbreviations, tolerances and welding symbols. It also covers the use of drawing instruments to produce basic engineering drawings and sketches appropriate to the use of welding symbols (MerSETA Training Schedule Welder, 1995: 11).

4.12.9 Principles and techniques of marking off

This has to do with learning the layout and mark off of work pieces and positions from drawings to template work on plate. This is not only limited to outline and mark off work pieces and positions from drawings on rolled sections, but includes design and mark off work pieces and positions from drawings on pipes, tubes and hollow sections. (MerSETA Training Schedule Welder, 1995: 12).

4.12.10 Thermal application

Thermal application refers to understanding the effects of heat input while welding and gas cutting (MerSETA Training Schedule Welder, 1995: 12).

4.12.11 Basic lifting techniques

This module includes understanding the overhead crane hand signals and demonstrating overhead crane hand signals (MerSETA Training Schedule Welder, 1995: 12).

4.12.12 Trade-related skills

A student is expected to operate a power saw (MerSETA Training Schedule Welder, 1995: 13).

4.12.13 Oxy-fuel gas welding and brazing

The apprentice or student must understand the equipment used in oxygen-fuel gas welding and brazing, and be able to give an explanation of their use pertaining to:

- Identifying and setting up oxygen gas welding and brazing equipment, consisting of the starting up and closing down procedures in relation to selection and examining relevant gas welding filler rods, for correct application.
- Preparing relevant material and equipment for gas welding pertaining to:
- Identifying oxygen-fuel gas welding defects and explaining the causes, including how to rectify defects, as well as welding steel sheets and plates in the positions using oxygen-fuel gas and welding techniques (MerSETA Training Schedule Welder, 1995: 13-14).

4.12.14 Oxygen-fuel gas cutting

The apprentice to know and understand the equipment used in oxygen-fuel gas and explain all their different functions (MerSETA Training Schedule Welder, 1995: 15).

4.12.15 Shielded metal arc welding (manual metal arc welding)

The apprentice, among other things, has to recall the equipment operated in shielded metal arc welding and know how to explain all the different functions (MerSETA Training Schedule Welder, 1995: 17).

4.12.16 Gas metal arc welding

Gas metal arc welding refers to thoroughly knowing and understanding the equipment used in gas metal arc welding and explaining their use with regards to:

Recognising and putting up gas metal arc welding machines, including starting up and shutting down procedures (MerSETA Training Schedule Welder, 1995: 19).

4.12.17 Gas tungsten arc welding

This module includes knowing and understanding the equipment used in gas tungsten arc welding and describing all their different functions (MerSETA Training Schedule Welder, 1995: 20).

4.13 PLACEMENT OF STUDENTS / APPRENTICES WITH HOST EMPLOYERS

When the apprentice has completed the relevant training at the college he or she must be placed with a host employer. The college will enter into a memorandum of understanding with the employer; the student will also sign an agreement with the employer. The relevant SETA that granted the college the apprenticeship will inspect the work place of the host employer before the students may be placed. Whilst the students are placed at the work place, the college visits the students monthly and compiles reports that are forwarded to the relevant SETA. The SETA does unannounced visits and executes audits. The supervisor at the work place signs off a log book to indicate work done and the students also sign the log book. The supervisor assesses the student after every module.

Once the student has completed phase 1 and is found to be competent, a copy of pages 1 and 2 of the training record are forwarded to the Local Regional Apprenticeship Committee. After the apprentice has successfully completed phase 2 a copy of page 3 of this training record is forwarded to the Local Regional Apprenticeship Committee. The company is required to test the apprentice once phase 3 has been finished. After the assessment of phase 4, if a student is successful, a copy of page 5 of the training record is forwarded to the Local Regional Apprenticeship Committee with an application for a Trade Test (MerSETA Training Schedule Welder, 1995: 2).

If the student has completed all the phases successfully, the student/apprentice is sent back to the college to prepare for the Trade Test. The duration of the test is two weeks. Once the preparation is completed the student has to do the Trade Test and if he/she has been found competent, he/she is certified by the SETA as a welder artisan. You cannot become an artisan if you have not done the Trade Test (MerSETA, 2009:16). The apprentice is deemed a qualified artisan 14 days after the last day of the Trade Test (MerSETA, 2009:29).

4.13.1 Obligations of the College

The obligations of all parties participating in a training programme of an apprenticeship are set out in a memorandum of understanding, which is signed by all. Only a few obligations of each party will be mentioned.

West Coast FET College (Lead Employer's) obligations include, amongst others:

- Taking responsibility for training that is scheduled to take place at institution;

- Ensuring performance and coordination of all training activities, excluding the activities that are embarked on by the Host Employer and provided they are within the scope of the logbook;
- Disbursing of learner stipends;
- Taking disciplinary actions against students as per requirement of the Host Employer while students are placed at the relevant work place;
- Visiting of the site where the learners are placed to gain work experience to conduct regular inspections with the purpose of monitoring progress, performance and attitude as well as obtaining feedback from learners as per requirement;
- Compiling reports and submitting to the SETA (Funder) (Memorandum of Agreement between WCFETC and Oranjevis, 2011:4-5).

4.13.2 Obligations of the host employer

The obligations of the employer include:

- Ensuring that the learners are exposed to practical experience in the designated trade and that all work completed is signed off and recorded by the designated coach;
- Contacting the college should the learner not arrive at work or take ill and/or abscond from work;
- To make sure that all jobs completed by the learners are checked and the learner's log book is signed off;
- Ensuring that the learners work is in a safe environment (Memorandum of Agreement between WCFETC and Oranjevis, 2011:5).

4.14 ENROLMENT OF STUDENTS

Table 4.6 provide enrolment statistics of the Welding Centre from 2006-2011. Since the establishment of the Welding Centre the following students have been trained:

Table 4.6: Enrolment of students

Year	Private Students	Section 13	Section 28	Pre-trade Test	Trade test
2006		20			
2007	7	20			
2008	21		20	1	
2009	19	14		1	
2010	31	14	22		Sect 28 = 22 Sect 13 = 5
2011	10	10	48		Sect 28 = 1

Source: Author, 2012

4.15 PRIVATE STUDENTS

The private students are either employed or self-employed. A private student is normally a skilled worker who wants to upgrade his or her skills. The students make use of training at the Welding Centre to fill gaps that they experience in welding. The student will either enroll in the specialised training for an international certificate which is issued by South African Institute of Welding (SAIW), or in a skills programme that is accredited by MerSETA. The duration of the training can be from one day to six months.

4.16 SECTION 13 APPRENTICES

A Section 13 apprenticeship refers to students who are either recruited by the college on an apprenticeship programme in partnership with a SETA and an employer. Training at college consists of theory and practical, and the students are sent to obtain work place experience for 80 weeks and if they are found to be competent after assessments, they come back to the college and are taken through a Trade Test. If they pass the test the student becomes an artisan (MerSETA, 2009:16).

4.17 SECTION 28 APPRENTICES

Section 28 apprentices are employees or individuals who have worked for a minimum of six years and do not have the necessary qualification, but they do have the practical knowledge gained through work experience or by being an entrepreneur (MerSETA Section 28 Application Form) The employer will send them to the college, or self-employed individuals will come to do a Trade Test in order to become a qualified artisan or a welding tradesman. The college first assesses them and then takes them through a recognition of prior learning programme; pending

the outcome, they are given theoretical training and top-up training, and are assessed and given a Trade Test (see website: www.mersetta.org.za).

4.18 SUMMARY

Chapter four provides an outline and an overview of West Coast FET College including, amongst other things: the background of West Coast FET College; vision, mission, values; quality statement; student enrolment; staff profile and college programmes. The profile of the Welding Centre or centre, which is the case study of the thesis, is also provided which includes the background; staff complement; infrastructure; student enrolment statistics; welding programmes; apprenticeship programme; placement of students or apprentices; entrance requirements for apprenticeship; and obligations of the three parties involved in the apprenticeship.

CHAPTER FIVE

EVALUATION AND ANALYSIS

5.1 INTRODUCTION

The research question as presented in Chapter One (How and to what extent does the college contribute to knowledge, skills development and socio-economic demands of the West Coast region) is addressed by evaluating the transfer of skills and knowledge of an apprentice from the further education and training college to the work place. This is done by evaluating data collected from the two main sources, namely the student or the apprentice, and the supervisor at the work place. Data was also collected from SETA representatives, namely MerSETA and AgriSETA. The data was collected using an open questionnaire.

The specific welding skills that are evaluated are part of the main welding curriculum of an apprentice or trainee welder as discussed in **Chapter 4.12**, which consists of different modules divided into four phases including induction, safety hand and workshop tools, materials, principles and techniques of marking off, trade related skills, oxy-fuel gas welding and brazing, shielded arc welding, gas metal arc welding, and gas tungsten arc welding.

5.2 ASSESSMENT OF THE APPRENTICES

The welding curriculum of an apprentice is divided into four modules. The student's performance is assessed after completion of every module by the facilitators at the college and the project manager at the college moderates the work. The facilitators or instructors indicate on the West Coast Further Education and Training College Progress Report (WCFETC PR) if a student is competent in a module, or whether a student needs to repeat a certain module, or redo certain aspects of a module. The instructors sign off the record of assessment after assessing the work of the apprentice and the project manager at the welding centre moderates the work. The instructor and the apprentice agree on reassessment until the student is competent. On the records of assessment of the students or apprentice it is visible that students are not declared competent at the same time as the completion of modules varies.

According to the assessment records (WCFETC AR 2010-2011), the records indicate that students will start a module on the same time, but the date of completion and competency will vary. This is an indication that the apprentice level of understanding and mastering of the curriculum

varies from student to student. The students are placed with relevant employers after they have successfully completed the modules and found to be competent by the instructors and the Project Manager has confirmed the competency of the apprentice after his/her moderation process by signing off the modules.

The assessments of the students are kept in files at the Welding Centre. Assessments are also stored electronically on the Management Information System of West Coast FET College and Progress Reports are also sent to the SETAs who fund the training. The assessment records of 10 students were evaluated and analysed by the researcher, and the results of students are all recorded and kept in files which are used as the portfolio of evidence of students with all assessments. The assessment records are of students or apprentices who were at the college in 2010 and 2011, and were placed at companies for practical experience after the results, indicated that they successfully completed their modules at the institution.

The apprentice will only be sent to the college for a Trade Test if the apprentice has been competent in all modules and phases. If he/she passes the Trade Test, the apprentice will be a qualified artisan, (MerSETA, 2009:16). If the apprentice is found to be competent after executing the Trade Test, the results of the apprentice are sent to a regional moderation body that will moderate the results, which will then be sent to the relevant SETA which will issue an artisan certificate.

5.3 PROFILE OF THE APPRENTICE AS PER ASSESSMENT AND LOGBOOKS

Table 5.1 Outline profile of apprentices as per assessment and logbooks.

Table 5.1: Profile of the apprentice as per assessment and logbooks

Race	Number	Gender	Age
Coloured	7	Male	20+
Black	1	Female	20+
Black	1	Male	20+
White	1	Male	20

Source: Logbooks or training and assessment records of apprentices, 2010-2011

When students are placed with companies, they produce a logbook and the supervisor at the company must complete the logbook after every module; this serves as an assessment of the

students at the work place which verifies whether students are able to apply skills learned at college in the work place. The relevant SETA moderates the assessment records at the institution and at the work place. At the work place the SETA representative audits the logbooks to assess the progress of students and to determine whether the assessments are fair and according to the accepted standards.

Ten logbooks of students were evaluated by the researcher and the findings are presented below:

Three students of Services SETA completed all four phases of their apprenticeship training at the work place. All modules of the phases were signed off by the relevant supervisors and there is a stamp which indicates the modules have been signed off. The dates of signing off the modules and phases vary from 2009 to 2010. The other seven training records or logbooks indicate that the students are competent in all the modules and they can work independently. However, other sections of the modules are difficult to interpret or analyse; there is no comment which indicates whether the student is able to work independently or the student must work under supervision.

There is also evidence in the logbooks that some students in some modules first struggle to work independently. It is only on the second attempt that the student is able to work independently. The logbooks or training records of the students are not captured on the system; only the assessment records are captured on the Management Information System.

The information in the logbooks of the students does not give much information to analyse. The supervisors at the work place do not comment on the logbooks. The logbooks are only signed off, which is an indication of students being competent. Only signatures are provided without any comments. Furthermore there is no evidence in the logbook of visits of the Project Manager or Supervisor of the college to the work place. It is difficult to differentiate these logbooks; the only thing observed is signatures of supervisors and in one or two a comment.

5.4 METHODOLOGY AND RESULTS

5.4.1 Participants

Two groups of respondents (apprentices and supervisors at the work place) were interviewed. The questionnaire composed for the apprentices consisted of eight open questions. The

questionnaire composed for the supervisors at the Work place consisted of twelve open questions.

A third questionnaire was composed to elicit data from the AgriSETA and MerSETA. This questionnaire was answered by a representative of AgriSETA and MerSETA respectively. The questionnaire was sent to the representative of AgriSETA who is responsible for auditing the apprentices of West Coast FET College whilst they are at the work place. It was also sent to the MerSETA representative responsible for the primary accreditation of the Welding Centre of WCFETC.

In total 10 apprentices registered as students at West Coast FET College responded to the questionnaire. These students did their apprenticeship at five different companies: Saldana Steel, Fluid Flow, Filigree, Westarcor and Afrox. Six supervisors at the work place filled out the 'supervisor questionnaire'; three of these supervisors were employed by the same company, Westarcor. The SETA questionnaire was completed by a representative of the AgriSETA and MerSETA respectively.

All responses of these sources were transcribed per question. Response categories were derived from the transcriptions of both groups, namely apprentices and supervisors at the work place.

5.4.2 Results for apprentices

The preparation of the responses for further analysis was done in two steps. First the meaningful keywords in the responses were identified. For example, an apprentice responded to question one "Describe how you experienced the training at the college?" as follows:

"The training is of top notch and the lecturer X, was first in SA. Having sound experience and instructor could help me to the best of their abilities.

Lecturer x have years of experience and transferred it to the students.

No point where I have struggled – instructor would always help to the best of their abilities.

As apprentice at the Welding Centre of West Coast FET College he or she will bound to get the best learning experience and being the best, but it all depends on you as a student.

So training was of good quality".

The keywords of relevance are 'top notch' and 'good quality'. Depending on the keywords used by others, a decision was made about which keyword represents best the connotative meaning of the other keywords used to answer a question. All answers to question (1) had keywords such as 'high quality', 'very good', 'good quality' and 'high standard'. Therefore "good" and "high" were considered as significant response categories of Question 1. Thus treating keywords as response categories.

The next step in the analyses was to evaluate the frequency of occurrence of the response categories per question.

Since the responses to each question can have different unique keywords the number of identified keywords in the responses determines the number of response categories per question. For example, Question (1) had two response categories: "good quality" and "high quality". The first response category was used by 3 respondents, the second was used by 4 respondents.

The results are presented in Table 5.2. The frequency of occurrence of response categories is presented in brackets. The categories are not classified according to any particular order.

Table 5.2: Response categories

Question	Categories					
	0	1	2	3	4	5
1		Good quality (3)	High quality(7)			
2	Missing (2)	No (1)		Yes (7)		
3	Missing (2)	n/a (1)		Yes (7)		
4		No (2)		Yes (8)		
5		task/function (1)	People (3)	Pressure (3)	Work-process (3)	
6		Negative (2)	Production (4)	hand tools (1)	Safety (2)	no practical work (1)
7		pass part (2)	pass all (8)			
8		Negative (1)	Yes (9)			

Source: Author, 2012

Table 5.2 shows that the students were consistent in rating the training at the college: three students rated the training as good and 7 rated it as high quality (1), as well as the application of skills and knowledge at the work place. Two students mentioned (2) missing tungsten inert gas (TIG)

and gauging training, and one student did no practical work but advised clients about machinery produced by the company.

Although all modules were considered applicable (3), two respondents mentioned they missed gas welding and one considered it not applicable, since he did no practical work. Most equipment appeared to have the same function (4), most considered the equipment to be the same but vary in size. However, the college's equipment was considered as of better quality but smaller than that of industry. One respondent observed that the equipment at the work place was mainly digital equipment and one said the equipment is not the same because he is not in the welding field.

The adjustment to the work place (5) shows different aspects. Three students mentioned getting used to the production process. Three students referred to the work pressure and in particular shifts as a challenge and three more students indicated that they are getting used to the type of people at the work place. One student indicated that there is a difference between the functions or tasks at the college and the work place. The impact of the difference between a work place and college (6) varied. One respondent complained about lack of preparation and support by the college during his period. Another indicated that the status and functioning at the work place were not like being a learner or student. Two mentioned that safety was affected and one complained about the lack of hand tools and the difficulty of borrowing hand tools from other workers. Four students indicated that they are part of a production team in the work place. One student however said that he is not involved in doing actual welding work but advised clients on welding equipment.

Most students passed their modules (7). The two who missed some modules do not appear to be affected in their work as apprentices. Finding work or placement (8) appeared a confusing question. Some seem to regard placement as referring to apprenticeship and others to employment. However one apprentice indicated that the college did not place him and did not keep the promises of finding work for him. Nine students indicated that the college found work for them.

5.4.3 Results of Supervisors at the work place

Six supervisors within and appointed by the companies responded to the supervisor questionnaire. All responses from these sources were transcribed per question. Response categories were derived from the transcriptions in a similar manner as used with the responses of the apprentices (see 5.4.2).

The response categories used by supervisors and the frequency of occurrence are presented in Table 5.4. The categories are not classified according to any particular order.

Table 5.4: Supervisors response categories

Question	Categories				
	0	1	2	3	4
1		Partly (2)	very well (4)		
2		Adequate (2)	yes very (4)		
3		Ok but (3)	Disciplined (3)		
4		N/A (1)	Yes (5)		
5		Vaguely (1)	Yes (5)		
6			Yes (6)		
7		Not first (2)	Yes (4)		
8	Missing (1)	yes but (1)	Yes (4)		
9		No (3)	Yes (3)		
10		computer literacy (soft skills) (1)	Gaps in the welding training (5)		
11	N/A (1)		hydraulics/pipe fitter (1)	Boiler(2)	Fitting & turning (2)
12	Missing (1)		Yes (5)		

Source: Author, 2012

The results of the supervisors' survey are presented in Table 5.4. For example, of six supervisors two responded to question 1 'partly' and the remaining four said 'very well'.

Table 5.4 gives the impression that there is high consistency amongst the answers. This, however, also reflects the presence of three supervisors at the same company probably operational in similar work areas.

All considered the comparison between what is needed and what is offered as well be it, that one company is not in welding but appreciates the potential welding skill and knowledge that the student has. One supervisor qualified his 'yes', commenting that the student could prepare the necessary requirements for welding adequately. Four supervisors considered the students very well equipped (2). All supervisors were positive about behaviour in the work place. However three

supervisors responded positively to queries about the work discipline and ethics, and the other three supervisors remarked on problems with overtime and time in general (3).

Five students were considered to be able to use welding equipment (4). Five students are able to apply their skills and knowledge (5). One company was using the skills and knowledge as means to sell welding-related equipment. All were explicit about the students being able to work independently (6). One supervisor comments that this is what one should expect after training in welding at the FET College.

Two supervisors indicated that it was the first time (for the company) to have students whilst the other four companies have accommodated students from the college before (7). Four companies and work place supervisors are very willing to take more students whilst one company indicated positively but was unsure. One company did not respond at all (8). Some made remarks regarding the absence of students because of classes. Half of the supervisors commented that students did struggle with practical work (9). Two of these supervisors attributed this to (initial) nervousness of the student. One supervisor particularly indicated specific skills to use measurement instruments and to measure material. One supervisor in particular highlights the lack of computer literacy as a gap in the training (10). Five supervisors remarked on thin plate welding, gauging, layered work as gaps in the training. Two supervisors indicated a need for training in fitting and turning; two said their companies have a need for Boiler Makers and one indicated the need for Hydraulics / pipe fitting training. One supervisor indicated that their company has no need for training as it is not a welding company. In that context Fitting and Turning and Boiler-Making are trades that are considered by supervisors as requiring attention by the college (11).

All students were considered as competent in the modules (12). One supervisor failed to answer this question.

5.5 RESPONSES FROM AgriSETA and MerSETA

Both SETAs responded positively to the accreditation status of the Welding Centre, with MerSETA stating that the school is internationally recognised by virtue of being accredited by MerSETA, which has an international reputation. However, AgriSETA states that it is not in a position to pronounce on the international standards, but the college is nationally recognized because of its quality management systems.

The two SETAs are both certain that welding is a scarce skill. AgriSETA suggests that the college should do market research to determine the gaps in the welding field and MerSETA stated that the gaps are short welding skills and coded welders.

MerSETA is confident that the theoretical and simulated practical offered at the college is good enough to supply the country with needed apprentices, who will only require on-the-job training from companies. AgriSETA is also confident that the apprentices will be absorbed by the market on completion of the apprentice programme. AgriSETA does not make any commitment on the promotion of the welding quality curriculum delivery within the AgriSETA sector; however, it acknowledges that apprentices funded by AgriSETA within a scarce skill must be deployed within the AgriSETA sector upon completion of the apprentice programme. MerSETA stated it will definitely endorse and promote the quality delivery of the welding curriculum offered at the college within the companies in its sector. AgriSETA states that welding is a scarce skill and it is in high demand, while MerSETA states that the welding offered at the college is relevant to the industry, as it receives positive feedback from the companies who take in apprentices from WCFETC Welding Centre. MerSETA will urge companies to take in apprentices from West Coast FET College.

Regarding the gaps in the welding curriculum, AgriSETA did not provide a response and MerSETA stated that the gap was on-the-job practical work. According to MerSETA, the companies are happy to take in welding apprentices from West Coast FET College. AgriSETA stated in the previous response that welding is in high demand, but did not specifically comment on the welding at the Welding Centre.

MerSETA states that the products of the Welding Centre are adequately prepared with the skills and knowledge needed at the work place. However, MerSETA reminds us that the Welding Centre does not train the student to the point where he or she is a qualified welder (artisan), but to the point that the student is ready to start on-the-job training. AgriSETA also responded positively and said the training at the Welding Centre is adequately equipping the students with skills and knowledge needed at the work place, and indicated that if it was not, it would have intervened by stopping the training which is funded by them.

5.6 SUMMARY

The evaluation and analysis of the data provided by the two main sources, namely the supervisor at the work place and the apprentices as well as the SETA representatives, revealed that the West Coast FET College is contributing positively to the transfer of skills and knowledge of an apprentice from the FET to the work place. Both sources revealed that the training the students receive at the college is at a standard that is acceptable at the work place and that it offers the apprentices the knowledge and skills which they are able to apply at the work place as referred to in **section 5.4**. It is also evident that the apprentices understand and are able to apply all modules of the Welding curriculum taught at the college except for two students, who mentioned missing tungsten inert gas and gauging.

The results also revealed that most students were competent in all their modules and those who missed one or two parts of the modules appear not to be affected. Their practical work is regarded as being good by their work place supervisors and the SETA representatives confirmed that the companies where the college placed the students are happy with the performance of the students. The results highlighted some concerns and there was enough evidence to enable the researcher to conclude that the transfer of skills and knowledge of an apprentice from the further education and training college to the work place is evident. However, the sample was significantly small. The next chapter will offer recommendations and a conclusion.

CHAPTER SIX

RECOMMENDATION AND CONCLUSION

6.1 INTRODUCTION

This chapter will present the research findings and make some recommendations. It will provide a summary of the previous chapters and a conclusion.

6.2 SUMMATION OF TRANSFER OF SKILLS FROM WEST COAST FET COLLEGE TO THE WORK PLACE

The programme provisioning in the FET colleges has been identified by the democratic South African government as providing the intermediate skills to equip students with the knowledge and skills to enter the labour market and to improve the skills of employees who are already in the labour market, as discussed in Chapter One. This first chapter provided a brief overview of the case study and briefly discussed the preliminary literature review. The programme provisioning of West Coast FET College and other colleges in the Western Cape was discussed.

The research design which is non-empirical and empirical was conducted by analysing existing data, questionnaires and responses from the respondents. The research question presented in Chapter One was: How and to what extent does West Coast FET College contribute to knowledge, skills development and socio-economic demands of the region? The objectives were to determine if programme provisioning at West Coast Further Education and Training College is demand driven, and the study investigated how and to what extent the students are appropriately trained or prepared for the socio-economic demands or field of work, as discussed in Chapter One. These objectives were achieved as indicated in Chapter Five by the respondents, who considered that the apprentices were adequately equipped.

The literature review on the importance and contribution of education to collective economic knowledge and individual cognitive and vocational training was provided in Chapter Two. The role of human capital development in economic development in different countries was explored and discussed. Different education systems of countries coupled with emphasis on human resource development were highlighted and discussed. Comparison and discussion of countries which prioritised and invested in vocational education and have put systems in place to ensure people development as a continuous endeavor to equip the nation with skills which are in

demand at the work place were provided. It is not always the case that the relationship between education and economic growth is positive. However, there is some evidence which shows that education is a significant contributor to the collective economic knowledge and individual technical skills. This chapter showed that training is designed to assist individuals in gaining the knowledge, skills and attitudes to execute work at the work place; this is fundamental to the thesis which evaluated the transfer of the skills of an apprentice from the college to the work place. The quality and investment of countries in vocational education varied and results showed that countries that did not invest in vocational education and had no quality technical education to support the work place had a severe skills gap.

Chapter Three provided an outline of the legislative and policy framework for education and training institutions in South Africa in support of the skills development and human resource development by discussing the following: Education White Paper 4 of 1998 (RSA, 1998a); Higher Education Act (101 of 1997) (RSA, 1997) Skills Development Act (97 of 1998) (RSA, 1998b); National Plan for Further Education Colleges (RSA, 2008a) and the FET Act (16 of 2006) (RSA, 2006a). Furthermore, the post-apartheid legislative, policy and regulatory framework to support the development and promotion of further education and training institutions in South Africa were introduced by the government to close the skills gap and focus on human capital development, which would assist economic growth. The chapter also discussed a number of post-1994 strategies which guide the conduct of FET colleges in pursuit of their mandate of skills development as required for the growth of the economy; these strategies included: JIPSA (RSA, 2008b); Asgisa (RSA, 2007); HRD SA-SA 2010-2030 (RSA, 2009) and NSDS III 2011-2016 (RSA, 2010).

Chapter four provided an overview of the West Coast Further Education and Training College. A brief description of the case study, the Welding Centre of West Coast FET College, was provided, with details of the training programmes as well as enrolment statistics, staff profile and the apprenticeship programmes. West Coast FET College is a public Further Education and Training (FET) college which is intended to assist students to obtain a meaningful qualification; to gain access to the world of work; to become an entrepreneur; or to access university, depending on subject choices. The college offers integrated theoretical and practical learning, and exposure to work place experience. West Coast FET College serves areas from Atlantis up to Bitterfontein in the upper North. It consists of five campuses, namely Atlantis Campus, Citrusdal Campus,

Malmesbury Campus, Vredenburg Campus and Vredendal Campus and a central office situated in Malmesbury.

The following is the programme provisioning at West Coast FET College as per information pamphlets, website and brochures (WCFETC, 2011):

- National Certificate Vocational (NC(V))
- Learnership Programmes
- Short Skills Programmes
- National Technical Education Diploma (NATED) (See also website: www.westcoastcollege.co.za).

The Welding Centre offers a number of programmes ranging from skills training to apprentice programmes. The main Welding programmes include:

- Welding Apprenticeship
- Pre-trade testing for Section 28 candidates
- Trade testing for Sections 13 and 28 candidates
- Recognition of Prior Learning Assessments
- International Plate Welding
- International Fillet Welding
- International Pipe Welding.

6.3 RECOMMENDATIONS

The research data was collected from two main sources and the sample was very small. The responses from both the main sources – namely the supervisor at the work place, and the apprentices – revealed that the respondents were able to distinguish the operations of the college and the work place. For example, the apprentices were able to cite the following differences between the work place and the college, as discussed in **Chapter Five 5.4:** most equipment appeared to have the same function, although the college equipment was considered as being of better quality but smaller; getting used to the production process, others referred to the work pressure and in particular shifts; and others referred to getting used to the type of people at the work place.

There are a number of significant and remarkable comments that the institution could take into consideration as pointers for improvement.

6.3.1 Assessments and logbooks

West Coast College should restructure the assessments as it is confusing. There is no formal document or certificate which states that the student is competent in all the modules before the student is sent to the work place. The signing off by the facilitators and the project manager is not enough; this confirmation must be more formalised and authentic. The assessment format needs to be redesigned for effectiveness and efficiency. The format of the logbooks also needs to be modernised to make provision for an electronic system. The college should ensure that the college staff also sign off on the logbooks of the apprentices and recommend dates for students to return to the college for a Trade Test. Students or apprentices do not have dates when they will come back to the college to do the Trade Test which will qualify them to be artisans after successfully completing the test as mentioned in **chapter 4.13**. The duration of the placement at companies for practical experience is known; however, in some instances there is no follow up from the college to ensure students come back to complete the artisan programme and students also do not follow up with the college to ascertain the date of the Trade Test examination.

It is difficult to give actual causes for the students not going back to the college and to provide statistics, because the research was not focused on the causes of students not going back to the college to do the Trade Test, but on whether the college contributes to the skills needed at the work place, as stated in Chapter One. It is recommended that the college does follow-up research and focus on how many of the apprentices come back to the college or go to other institutions to do the Trade Test to complete their qualification.

6.3.2 Results of apprentices

From ten students interviewed two students mentioned missing tungsten inert gas (TIG) and gauging; this is, however, not mentioned by the supervisors at the work place as a hindrance, but it was cited as a training need by the students. It is difficult to deduct from the assessment when students should return for re-assessments or completion of outstanding modules hence it is recommended or suggested that the assessment record document be redesigned to allow for comments to make it more effective, efficient and professional.

Students adjustment to the work place shows different aspects. Some refer to getting used to the production process. Others referred to the work pressure and in particular shifts. And again others referred to getting used to the type of people at the work place. The impact of the difference between a work place and the college varied. One respondent complained about lack

of preparation and support by the college during his/her period. Another apprentice indicated that the operations at the work place were not the same as at the college. The above responses from students once again highlight the need for an integrated apprentice training approach, where apprentices are not only exposed to simulated practical training in the college workshops, but they are also exposed to the work place workshops (on-the-job training). The integrated apprentice training, if introduced, will assist in alleviating the initial nervousness of some apprentices, which in some cases could be misinterpreted by some work place supervisors that students struggle initially with the practical component, as mentioned in **Chapter 5.4**, and also with the pressures of the new environment. The apprentices will be more prepared for the work place if they get prior exposure to the work place before their actual placement, in other words a dual apprentice system which allows for on the job training whilst studying at the college.

Some apprentices seem to refer to placement as the apprenticeship, others as employment. Some of the supervisors treated students as if they are employees. The college needs to make the companies aware that the students are not employees. The situation of the companies abusing students to work night shifts on their own and treated as employees would stop, if the college would visit the companies regularly during the whole duration of work placement. This could also assist in bringing the students back to the college to complete the training by doing the Trade Test.

6.3.3 Results of supervisors at the work place

From the responses of the supervisors, three out of the six who were interviewed commented that students initially struggled with practical work, and two out of the three supervisors attributed this to initial nervousness of the apprentice. This initial nervousness could be overcome, if the students are well prepared for the work place by exposing them to the work place during their studies at the college and not only after completion of the modules. The college must also pay attention to specific skills to use measurement instruments to measure material; in other words, one or two students are not able to read the measuring tape which is used to measure material, as indicated by one supervisor. One supervisor in particular highlighted the lack of computer literacy as a gap in the training; the college will have to ensure that all students are computer literate and it must be compulsory. From the results of the supervisors, there were also comments about thin plate welding, gauging, layered work as a gap in training. The college will have to address the gaps in thin plate welding and in gauging, although this was not a comment made by the majority and clearly it is not affecting the

practical performance of the apprentices, as almost all supervisors interviewed indicated that the students are competent in all practical work, except for one who did not answer that question as indicated in section 5.4. Fitting and turning and boiler-making are trades that are considered by supervisors as needed in industry; this implies that these trades require further investigation and attention from the college.

6.3.4 Summary of recommendations

- The college should visit the companies regularly during the whole duration of work placement. This could also assist in bringing the students back to the college to complete the Trade Test after completing the practical at the work place. The college should be able to intervene when students are exploited, for example, working night shifts without supervision.
- The college will have to address the gaps in training in thin plate welding and gauging.
- Fitting and turning and boiler-making are trades considered by supervisors as needed in industry in Saldanha; this implies that these trades require further investigation and attention from the college.
- The college must integrate work place practical training by exposing apprentices to the work place during their studies at the college and not only send them to the work place after completion of the modules; for example, the student may do a module (theory and workshop simulation) at the college and go to the work place for practical. The college must implement a dual apprenticeship system.
- The assessment record document of students needs to be redesigned to allow for comments on the document to make it more effective, efficient and professional.
- Computer literacy must be built into the apprentice training programme and it must be compulsory.
- The college needs to conduct a customer satisfaction survey annually.

6.4 CONCLUSION

This chapter provides a summary of previous chapters and it also discusses the findings of the research. The chapter also provides a few recommendations to be considered by the college for improvement of the apprentice programme.

The valuable data collected from the two main sources namely the supervisors and the apprentices allowed the researcher to make conclusions and assisted in determining whether the transfer of skills and knowledge of an apprentice from the further education and training

college to the work place is successful. The tool used to evaluate the transfer of skills and knowledge of an apprentice from West Coast FET College to the work place enabled the researcher to achieve the objectives of the study. The feedback from the two main sources gave the researcher sufficient insight to conclude that the college is indeed able to transfer the skills of apprentices from the West Coast FET College to the work place, as indicated in chapter 5.4. Supervisors indicated that most students are also able to apply their skills and knowledge and were considered as able to use welding equipment. Furthermore, the data revealed that only two students struggled with tungsten inert gas (TIG) and gauging, but they were able to apply their skills and knowledge.

Lastly, the tool used to determine whether the college is able to produce products that are equipped with basic technical skills and knowledge to execute duties at the work place revealed that those skills and knowledge gained from the college yielded positive results. The study was not intended to suggest the college produces a complete product, but a product that has basic welding skills as indicated in Chapter One. In other words, the study does not suggest that the college delivers a complete product to the world of work, but a product that has some basic skills and simulated work experience which can be developed further at the work place.

Furthermore, the college needs to conduct follow-up research and focus on how many of the apprentices come back to the college after work placement, or go to other institutions to do the Trade Test to complete their qualification and become artisans as indicated in **Chapter 4.13**. The college also needs to conduct research to determine how adequately the students are trained for the world of work in all the programmes that the college offer, and not only in engineering and in one domain, for example, welding. The sample must be increased and the research tool or instrument must be improved in order to get better and more valuable feedback.

References

Aldrich, J.W.1994. Staffing Concepts and Principles. In Tracey, W. R. (ed.) *Human Resources Management and Development Handbook*. New York: Amacom. 185-186.

Ashton, D. & Felstead, A. 2001. From Training to lifelong learning: the Birth of the knowledge Society? In Storey, J. (ed.). *Human Resource Management*. London: Thomson Learning.165-173.

Brinkerhoff, D.W. 1994. The HRD Professional Staff. In Tracey W.R. (ed.) *Human Resource Management and Development Handbook*. New York: Amacom. 222.

Chang, H.J. 2010. *23 Things they don't tell you about capitalism*. Essex: Penguin Books.

Davenport, T. O. 1999. *Human Capital: What it is and why people invest in it*. San Francisco: Jossey-Bass.

De la Fuente, A. & Ciccone, A. 2003. *Human Capital in a global and knowledge-based economy*. Belgium: European Communities.

Department of Economic Development and Tourism (DEDAT). 2010. Business Case for the provincial skills forum (Western Cape) (Draft). Cape Town: DEDAT.

Department of Education (DoE). 2006a. National Skills Development Framework for Employees in Public Education. Cape Town: Formeset Printers.

Department of Education (DoE). 2006b. Recapitalisation of FET Colleges: Provinces' Progress Reports (June 2006). Cape Town: Government Printers.

Gamble, J. 2003. *Curriculum Responsiveness in FET Colleges*. Cape Town: HSRC Press.

Green, P.C. 1999. *Building Robust Competencies: Linking Human Resource Systems to Organizational Strategies*. San Francisco: Jossey-Bass.

Harrison, R. & Kessels, J. 2004. *Human Resource Development in a Knowledge Economy: An Organisational View*. New York: Palgrave, Macmillan.

Holden, L. 2001. Human resource development: the organisation and the national framework. In Beardwell, I. and Holden, L. (eds.). *Human Resource Management: A contemporary approach*. United Kingdom: Pearson Education. 326, 341-346.

Joy-Matthews, J., Megginson, D. & Surtees, M. 2004. *Human Resource Development*. London: Kogan Page.

Luke S. J., Ventris, C., Reed, B.J. & Reed, C.M. 1988. *Managing Economic Development: A guide to State and Local Leadership Strategies*. Jossey-Bass: San Francisco.

Mabey, C., Salaman, G. & Storey, J. 1998. *Human Resource Management: A Strategic Introduction*. Oxford: Blackwell Publishers.

Megginson, D., Banfield, P. & Joy-Matthews, J. 1999. *Human Resource Development*. London: Kogan Page.

Memorandum of Agreement between West Coast Further Education and Training College and Oranjevis, 2011.

MerSETA. 2009. *Implementation Guideline for Metal Apprentices*. (17 November) Johannesburg: MerSETA.

MerSETA. *Training Schedule Welder*, 1995.

MerSETA website 2011 [Online]. Available: <http://www.merseta.org.za>

Nadler, L. & Nadler, Z. 1989. *Developing Human Resource*. San Francisco: Jossey-Bass Inc.

Noe, R. A. & Tews, M.J. 2009. Strategic training and development. In Storey, J., Wright, P. & Ulrich, D. (eds.) *The Routledge Companion to Strategic Human Resource Management*. New York: Routledge. 262.

Prawiro, R. 1998. *Indonesia's struggle for economic development*. Oxford: Oxford University Press.

Pritchett, L. 2001. Where has all the Education gone? *The World Bank Economic Review*, 15: 3, 367-391.

Republic of South Africa. (RSA). 1981. *Manpower Training Act (56 of 1981)*. Pretoria: Government Printers.

Republic of South Africa. (RSA). 1995. *South African Qualifications Authority Act (85 of 1995)*. Pretoria: Government Printers.

Republic of South Africa. (RSA). 1997. *Higher Education Act (101 of 1997)*. Cape Town: Government Printers.

Republic of South Africa. (RSA). 1998a. *Education White Paper 4 – A programme for the Transformation of Further Education and Training*. Pretoria: Government Printers.

Republic of South Africa. (RSA). 1998b. *Skills Development Act (97 of 1998)*. Cape Town: Government Printers.

Republic of South Africa. (RSA). 1998c. *Further Education and Training Act (98 of 1998)*. Cape Town: Government Printers.

Republic of South Africa. (RSA). 2001. *Human Resource Development Strategy 1: A nation at work for a better life for All*. Pretoria: Government Printers.

Republic of South Africa. (RSA). 2002. Province of Western Cape: *Provincial Gazette no. 5829*, 20 February. Cape Town: Government Printers.

Republic of South Africa. (RSA). 2005b. *National Skills Development Strategy 1 2005-2010*. Pretoria: Government Printers.

Republic of South Africa. (RSA). 2006a. *Further Education and Training Colleges Act (16 of 2006)*. Cape Town: Government Printers.

Republic of South Africa. (RSA). 2006b. *National Policy Regarding Further Education and Training Programmes: Approval of the documents, Policy for the National Certificates (Vocational): Qualifications Framework (NQF)*. Government Gazette no. 2867, 29 March. Pretoria: Department of Education.

Republic of South Africa. (RSA). 2007. Accelerated and Shared Growth Initiative For South Africa (AsgiSA) [Online] Available at: www.info.gov.za/asgisa/asgisa.htm (Accessed 18 May 2007).

Republic of South Africa. (RSA). 2008a. *National Plan for Further Education and Training Colleges in South Africa*. Government Gazette 31712, 12 December 2008. Pretoria: Government Printers.

Republic of South Africa. 2008b. *Joint Initiative on Priority Skills Acquisition (JIPSA)*. Pretoria: Government Printers.

Republic of South Africa. (RSA). 2009. *Human Resource Development Strategy for South Africa. 2010-2030*. [Online].

Available: http://chet.org.za/manual/media/files/chet_hernana_docs/South%20Africa/National/HRDS-SA.pdf

Republic of South Africa. (RSA). 2010. *New Growth Plan*. Pretoria: Government Printers.

Republic of South Africa. (RSA). 2011. *National Skills Development Strategy III. 2011-2016*. Pretoria: Government Printers.

Roos, J., Roos, G., Dragonetti, N.C. & Edvinsson L. 1997. *Intellectual Capital – Navigating the new business landscape*. London: Macmillan Press.

Stewart T.A. 1998. *Intellectual Capital: The New Wealth of Organizations*. Great Britain: Nicholas Brealey.

Ulrich, D. 1998. A new mandate for human resources. *Harvard Business Review*, 76:1, January/February, 124 -134.

Unwin, L. 2003. Being Responsive: Colleges, Communities and Stakeholders. In Cosser, M., Mcgrath, S., Badroodien, A. and Maja, B. *Technical College Responsiveness*. Cape Town: HSRC Publishers.

Wilson, J.P. 2005. National Economic Development and Human Resource Development. In Wilson, J. P. (ed.) *Human Resource Development: Learning and Training for individuals and organizations*. London: Kogan.59-64.

West Coast FET College Apprentice Training records (Logbook) 2010 – 2011.

West Coast FET College Apprentice Assessment records 2010 – 2011.

West Coast FET College Human Resource Staff Establishment Report, 2011.

West Coast FET College March Newsletter 2011 [Online].

Available: <http://www.westcoastcollege.co.za/pdf/MARCH 2011.pdf>

West Coast FET College Marketing Leaflets and Brochures 2011.

West Coast FET College Strategic Plan 2011 – 2013.

West Coast FET College Student Administration Management Information Report, 2011

West Coast FET College website 2011 [Online]. Available: <http://www.westcoastcollege.co.za>

Western Cape Education Department. (WCED). 2007. Annual Report, 2007/08. Cape Town: Western Cape Education Department.

Western Cape Government. (WCG). 2006. Micro Economic Development Strategy for Western Cape (MEDS): Synthesis Report. Cape Town: Western Cape Government Printers.

Appendixes

Appendix A

QUESTIONNAIRE: APPRENTICES

1. Describe how you experienced the training at the college?
2. Could you apply the skills and knowledge gained at the Welding Centre in the work place? If yes please explain. If no, please provide an explanation.
3. Were all the modules taught at the college applicable to the work place? If not which modules were not applicable and which were applicable?
4. Was the equipment used at the college the same as the equipment used at the work place? Please describe in detail how the equipment differs if so!
5. How was the adjustment from the college to the work place? Please describe your experience in detail.
6. If the work place environment differed from the college environment, how does it differ? Describe whether the difference impact positively or negatively on your work performance?
7. Were you competent in all your modules at work place or did your supervisor had to send you back to the college to re do certain modules? If yes, please explain why. If no please explain why.
8. Did you find work or work placement easily?

Appendix B

QUESTIONNAIRE: SUPERVISOR AT THE WORK PLACE

1. How does the skills trained at the college compare to the skills needed at your company?
2. Describe whether the product that you got from the Welding Centre at West Coast FET College was adequately equipped or prepared with skills and knowledge needed at your company?
3. How do you experience the discipline, work ethics and behavioural patterns of the apprentice you took in from West Coast FET College?
4. Explain whether the student is able to use the welding equipment at your company?
5. Was the apprentice able to apply the skills and knowledge gained at the college at the work place?
6. Is the apprentice able to work independently?
7. Is it the first time that you got an apprentice from West Coast FET College?
8. If you were asked to take in more apprentices from the college, would you take in more? Please explain your response.
9. Did the apprentice struggle with practical? Did the college only train the basics or was the apprentice able to do the entire practical which was required by the company?
10. Are there any gaps in the training that the Welding Centre could perhaps follow up on? If the answer is yes, what are the gaps and how would you advise the college to improve the gaps?
11. Are there any skills in other trades besides welding that are needed in your company which West Coast FET College could provide that can assist you in retaining your workers?
12. Are students competent in all the modules and able to transfer or apply knowledge and skills gained at the Welding Centre to the work environment?

Appendix C

QUESTIONNAIRE: AGRISETA AND MERSETA

1. In your experience please explain whether the Welding Centre's accreditation status is comparing well internationally
2. Does the Welding Centre address the scarce skills in the region? If not, what can the Welding Centre do to address the economic needs in the region?
3. Please describe whether the Welding Centre produces the type of apprentices that can be linked to economic opportunities in the region and country?
4. Would you on the basis of the quality delivery of the curriculum promote the apprentices and the Welding Centre to companies within your sector? Please explain your answer.
5. Please explain whether the welding curriculum offered at the college is relevant to the skills needed in the work place?
6. Are the companies satisfied with the level of readiness of the apprentice from the Welding Centre of West Coast FET College?
7. Are there gaps in the training offered by the Welding Centre? If the answer is yes, what are the gaps and how would you advise the college to improve the gaps.
8. Is the product from the Welding Centre at West Coast FET College adequately equipped or prepared with skills and knowledge needed at the companies?