HUMAN CAPITAL DEVELOPMENT IN SOUTH AFRICA: PERSPECTIVES ON EDUCATION IN THE POST-APARTHEID ERA

by

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DECLARATION

I, Ntombifuthi Winnie Gamede (Student no. 41982746) declare that **HUMAN CAPITAL DEVELOPMENT IN SOUTH AFRICA: PERSPECTIVES ON EDUCATION IN THE POST APARTHEID ERA** is my own work; that all sources used or quoted have been indicated and acknowledged by means of complete references, and that this dissertation was not previously submitted by myself or any other person for degree purposes at this or any other university.

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ABSTRACT

Human capital development is one of the key factors in human development in which the state plays a tremendous and critical role. Policies and systems established by the government to enable education, trade and socialisation help or undermine human capital development. The study argues that in the post-apartheid era, the government has moved on from apartheid human capital development to equal human capital development. The state has moved away from providing a fragmented system of a racial and exclusive education and training system to a non-racial and inclusive education and training system that creates equal opportunities for learning for all races. The study identified several challenges that hinder human capital development and recommended that there is need for the current government to create clear working relations between various bodies administering the post-school system. In order to arrive at those findings, the study adopted a quantitative research methodology.

Key words: Human capital; education; training, development; inequality

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LIST OF ACRONYMS AND ABBREVIATIONS

ABET	Adult Basic Education and Training
AET	Adult Education and Training
ANC	African National Congress
CBO	Community Based Organisations
CDE	Centre for Development Enterprise
CETC	Community Education and Training Centres
CHE	Council on Higher Education
CPE	Centre for Public Education
CUP	Committee of University Principals
DBE	Department of Basic Education
DET	Department of Education and Training
DG	Director-General
DHET	Department of Higher Education and Training
DNE	Department of National Education
DoE	Department of Education
DoL	Department of Labour
DPRU	Development Policy Research Unit
EAP	Economically Active Population
ECD	Early Childhood Development
ETD	Education and Training Development
FETC	Further Education and Training Certificate
FETMIS	Further Education and Training Management Information System
GET	General Education and Training
GETC	General Education and Training Certificate
GFET	General and Further Education and Training

GFETQF	General and Further Education and Training Qualifications
GENFETQA	General and Further Education and Training Quality Assurance Act
HEIs	Higher Education Institutions
HEQF	Higher Education Qualifications Framework
HET	Higher Education and Training
HEMIS	Higher Education Management Information System
HoA	House of Assembly
HoD	House of Delegates
HoR	House of Representatives
IEB	Independent Examination Board
ILO	International Labour Organisation
NAMB	National Artisan Moderation Body
NCV	National Certificate Vocational
NGO	Non-Government Organisation
NQF	National Qualifications Framework
NSA	National Skills Authority
NSDS	National Skills Development Strategy
NSF	National Skills Fund
NSFAS	National Student Financial Aid Scheme
NSMSTE	National Strategy for Mathematics, Science and Technology Education
OHS	October Household Survey
OQF	Occupational Qualification Framework
QCTO	Quality Council for Trades and Occupations
QLFS	Quarterly Labour Force Survey
RDP	Reconstruction and Development Programme
SA	South Africa

SAIVCET	South African Institute for Vocational and Continuing Education and Training
SAIRR	South African Institute of Race Relations
SANQF	South African National Qualifications Framework
SAQA	South African Qualifications Authority
SCE	Senior Certificate Examinations
SDA	Skills Development Act
SDLA	Skills Development Levies Act
SETA	Sectoral Education and Training Authority
SGTS	Self-Governing Territories
SGBs	Standards Generating Bodies
TAC	Technikon Advisory Council
TBVCs	Transkei, Bophuthatswana, Venda and Ciskei
TEFSA	Tertiary Education Fund of South Africa
TVET	Technical Vocational Education and Training
UNDP	United Nations Development Programme
WUS	World University Services

CHAPTER 1: INTRODUCTION TO THE STUDY

1.1 INTRODUCTION

The significance of education in the development of human capital is crucial because it produces educated and trained workers. A modest understanding of capital in today's literature is wealth that is used to create more wealth (Oluwatobi, Olurinola and Oluwadaminola, 2016). Romer (2001) highlights that capital accumulation depends largely on the savings rate, the marginal productivity of capital, and the growth rate of the population, technological progress, and depreciation. This means that human capital is a kind of wealth used to create more wealth in an economy. Therefore, one can argue that human capital is a component relevant to the development of an economy.

The findings from the research conducted by Jones (1996) and Barro (2001) have empirically proven these assertions. As human capital is relevant in economic growth, it will be reasonable to argue that improving the level of human capital, particularly through education, is vital to achieving economic growth as well as sustainable development. Oluwatobi and Ogunrinola (2011), and Jaiyeola (2015) also confirm the argument that access to education promotes human capital development. This means that by making education more accessible and establishing more avenues for its distribution, a more inclusive growth and development will be achieved (Oluwatobi *et al.,* 2016).

It can be argued that education plays an important role in enabling human capital development in any country. This is because educated individuals are the machines that drive the economy and elevate it to a higher level. Odden argues that the development of human capital starts by understanding the need to dramatically improve education and make it accessible to all individuals (Odden, 2011). One can undoubtedly argue that education is the driving force that improves human capital, in that different qualifications indicate the differences in the skills acquired (Moleke, 2005). Moleke further opines that the differences in qualifications are major indicators of employability, which means that individuals with lower qualifications have lower economic prospects than those with high qualifications (Moleke, 2005).

Thus, education offers skills and knowledge to people that enables them to become part of the wealth in society. This idea gained prominence in the 1960s through Schultz (1961), Becker (1964), and Harbison and Myers (1964). For example, Harbison and Myers (1964) revealed that human capital development is a determined effort to grow the knowledge, skills and capabilities of all the citizens in society. In economics, human capital development is referred to as the acquisition of human capital and its investment in the improvement of the economy (Todaro and Smith; 2015). Tilak (2002) argues that in political terms, human capital development can be understood as the process that equips individuals with the relevant skills to participate in political discourse. From a social and cultural perspective, Abdi argues that human capital development enables individuals to become liberated people and hence have freedom of choice and association that can lead them to meaningful lives (Abdi, 2002).

Furthermore, Woodhall (1985) posits that an educated labour force is one of the primary contributors to the economy of any country. These views, shared by almost all development economists, are summarised by Harbison (1964; 1973) who states that human beings are active resources that garner capital, use natural resources, build political, social and economic organisations and advance national development. It is argued that human capital lays the foundation for the wealth of a nation, and not real capital nor income nor natural resources (Levitan, Mangun and Marshal 1981). The United Nations Development Programme (UNDP) (1999) report explained that education contributes to the attainment of economic and social goals. In addition, education has repeatedly been found to play an important role in accelerating growth. Furthermore, education encourages equity by creating a more skilled labour force. It also plays a role in increasing the share of wages in total output, thus generally benefiting the labour sector. Moreover, education improves the distribution of income among different racial groups in a society. In some countries, inequalities in the distribution of income can be seen in variations in the number of learners at the institutions of learning. Mostly, the higher the average levels of schooling, the better the income distribution. In addition, education leads to an improved state of health and has intergenerational effects (World Bank, 1995).

The development of human capital does not only lead to higher worker productivity and better earnings, but it also helps with the absorption of workers into the labour market and enhances their job mobility. Low levels of educational attainment mean weak human capital. This in turn, restricts the capability of a worker to obtain new skills when the market changes. Workers have to adjust to technology changes (Johanson and Adams, 2004). In most countries, the provision of a formal education system and its various sub-systems is the function of the government. It is the duty of the government to cater for the well-being of all its citizens.

In fulfilling this duty, the government has to ensure that it establishes an integrated, coherent and well-structured education system for all. In addition, the government has to provide the physical and financial resources needed for the functioning of the system (Bunting, 1994). Hence, the main purpose of this chapter is to introduce the study and to provide a brief overview of the background of the study, the problem statement, objectives of the study, the research questions, the research methodology, limitations and the scope of the study and the outline of the whole study.

1.2 BACKGROUND TO THE STUDY

Davies (1996) stated that when the National Party won the South African parliamentary election in 1948, it immediately introduced a system of separate development for the different racial groups in the country. The National Party government introduced various laws, such as the Training and Artisan Act No. 38 of 1951, Bantu Education Act No. 47 of 1953, and the Extension of University Education Act No. 49 of 1959, to enforce racial discrimination in the distribution of education. These Acts became an effective and efficient tool that laid the foundation for unequal access to education and training opportunities (Sedibe, 1998). This systematically thwarted the human capital development of other races in primary, secondary and tertiary education and that of the country in generally (Lombard, 1981). According to Sedibe (1998), the introduction and implementation of these aforementioned Acts in the education sector resulted in the following inequalities, namely:

1. the unequal access to educational opportunities in primary, secondary and tertiary education;
2. an unequal distribution of the educational resources required for effective teaching and learning;
3. a lack of Mathematics and Physical Science subjects in most black secondary schools. In most schools, learners completed secondary education without Mathematics and Physical Science subjects. This prevented them from choosing science-based fields of study at universities. As a result, there were few Blacks who were able to penetrate into these fields; and
4. a shortage of adequately trained teachers in most black schools (Pillay, 1990).

The unequal provision of education led to the unequal attainment of skills. This led to occupational inequalities in the labour market, which were linked to the kind of human capital, provided (Moleke, 2005). The discrimination affected individuals, industries and society at large. At an individual level, Blacks, in particular, were unable to obtain the education and training that would prepare them for gainful employment. As a result of this, they were trapped in secondary employment with low wages. At industry level, the consequences of the racially discriminating legislation were apparent in the following areas:

1. in the selection and hiring of Blacks, particularly in White areas,
2. in the technical education and training of Blacks;
3. the remuneration of Blacks, and
4. in the collective representation of Black workers in the workplace and in management positions (Lombard, 1981).

The Council on Higher Education (CHE) (2004) revealed that during this period of oppression the racial discrimination and the unequal access to economic opportunities brought about deep-seated frustrations in society at large. In February 1990, the ban on the black political parties that fought for liberation was lifted. In April 1994, South Africa held its first multi-racial elections which the African National Congress (ANC) won by a large margin. When the post-

apartheid government came into power in 1994, it inherited an education and training system, which was racially divided in terms of how [1]non-whites and whites were educated and trained. This inequality in the education and training system necessitated restorative measures. The democratically elected government saw the importance of life-long learning and recommended that *"....education and training should be available to all from cradle to grave" (*ANC, 1994:8). Their recommendation emphasised the fact that each individual has a right to education because without it, a person will not be able to participate and meaningfully contribute in a society.

1.2.1 Education and training legislation after 1994

The government formulated various non-racial and inclusive laws to bring about an education system that is accessible to all (CHE, 2004). Below are some examples of the Acts and bodies formulated by the government to reform the education and training system. These Acts have been amended a number of time to ensure efficiency and effectiveness.

1. **The South African Qualifications Authority (SAQA) Act No. 58 of 1995:** SAQA is a statutory body appointed by the Minister of Education in consultation with the Minister of Labour and it reports to parliament. The SAQA Act was formulated to redress the imbalances of the past in education and to create an integrated national framework for learning achievements. Furthermore, it was formulated to intensify the quality of education and training. SAQA is the body responsible for the development and implementation of the National Qualifications Framework (NQF). SAQA creates the structures responsible for the generation of standards and it also ensures that the quality of the standards is maintained. Furthermore, it determines policies for the registration of Standard Generating Bodies (SGBs). An SGB is a statutory body that is responsible for specific functions relating to the establishment of national standards and qualifications. It also ensures

[1] Non-whites in a South African context refers to Blacks, Indians and Coloureds.

the accreditation of the education and training quality assurance bodies (DoE/DoL, 2003).

2. **The NQF Act No. 67 of 2008:** The NQF is the structure that categorises qualifications and competencies. At its inception, it initially consisted of registered standards, units and qualification at eight levels of learning. However, it has subsequently been amended to include ten levels of learning, ranging from NQF level 1 (which is equivalent to Grade 9/[2]ABET level 1) up to NQF level 10, which is the doctorate level. The NQF was designed to facilitate access to, and mobility and progression within education, training and career paths and to accelerate the redress of the imbalances of the past in education, training and employment opportunities (Van Rooyen, 2011).
3. The SDA Act No. 97 of 1998 came into effect in 1998, repealing the Manpower Training Act No. 56 of 1981, the Guidance and Replacement Act No. 62 of 1981, and the Local Government Act No. 41 of 1985. Among other things, the SDA is responsible for the development of the skills of the South African labour force (Muir, *nd*).
4. The National Skills Authority (NSA) is a statutory body established in 1999 in terms of chapter 2 of the SDA No. 97 of 1998. The NSA advises the Minister of Labour on the national skills development policy and strategy, and reports on the progress made in the implementation of the national development strategy. This includes advice on any regulations to be made. Furthermore, it liaises with the Sector Education and Training Authorities (SETAs), national skills development policy and the national skills strategy (DoE/DoL, 2003).
5. Learnerships and skills programmes were established in terms of chapter 2 of the SDA No. 97 of 1998. A learnership is a structured learning programme that combines work-based experience with classroom learning. The SETAs are involved in the formulation (and

[2] ABET and AET centres refer to adult learning. These terms are used interchangeably in the study.

funding) of learnerships that are linked to occupations and fields of learning in the economic sectors (Muir, *nd*).

Table 1.1: NQF levels

Levels	Band	Qualification type	School	ABET	NCV	NATED
10		Doctoral degree (professional)				
9		Masters' degree (professional)				
8		Postgraduate diploma				
		Bachelor's degree				
		Advanced diploma				
6		Diploma /Advanced certificate				
5		Higher Certificate				N4-N6
4		National Certificate	Grade 12/ NSC		NCV4	N3
3			Grade 11		NCV3	N2
2			Grade 10		NCV2	N1
		GETC	Grade 9	Level 4		
			Grade 7	Level 3		
			Grade 5	Level 2		
			Grade 3	Level 1		

Source: Adapted from SAQA

1.3 PROBLEM STATEMENT

According to the UNDP (1999), South Africa is regarded as an upper middle-income country, yet it still has an education profile of a low-income country. This is a result of the apartheid system of education and training which created the imbalances in the distribution of educational resources. To a large extent, there was an under-development of human capital in basic and tertiary education. This resulted in low levels of skills (Perry and Arends, 2003). The discrimination in the provision of education and training created a large number of people with

low skills and low functional literacy. This was apparent in the labour market where a large percentage of the population occupied low-skilled jobs, while Whites occupied secure and highly skilled occupations with fringe benefits. It is an indisputable fact that the apartheid system had negative effects on the development of human capital (Salim, Gewer and McGrath, 2005).

This is a major problem that the country is facing and it has affected the development of human capital. One can argue that the human capital, which has been driving the economies of the developed world, has been lacking in this country. While there is an abundance of literature on human capital development in South Africa, there have been fewer investigations into the role and perspectives of education in the post-apartheid era in the creation of an inclusive economy. This would help in understanding whether the post-apartheid government is investing in the education sector and enabling people to access education to create an inclusive economy that drives human capital development.

1.4 AIM AND OBJECTIVES OF THE STUDY

The aim of this study is to investigate and explain human capital development for inclusive growth in South Africa. In order to achieve this aim, the study sets out the following two-fold objectives:

1. To identify the landmarks that the government has achieved in the development of human capital;
2. To analyse whether the government has moved from the apartheid-style of human capital development to the equal development of human capital whereby access to education is made a right for all citizens.

1.5 RESEARCH QUESTION

The central research question this study sets out to answer is: to what extent has, the post-apartheid government helped the growth of human capital in the post-apartheid South African era? The central question is divided into three sub-questions that help to achieve the aim and objectives of the study.

1. Do all races have equally open access to education opportunities in primary, secondary and tertiary education?
2. Does human capital development under the post-apartheid government improve one's opportunities of employability?
3. Does human capital development improve one's chances of attaining better earnings and a subsequent improved livelihood?

1.6 RESEARCH METHODOLOGY

There are three key approaches available to achieve the objectives of the research and to answer the research questions, namely, the quantitative, qualitative, and mixed-method approaches. The quantitative method focuses on collecting and analysing numerical data mathematically to explain a certain phenomenon. For example, a comparison of the percentages of White and Black teachers in the school system, or to investigate how the marks for Mathematics and Science in the Department of Education have improved over time. These aspects can be investigated quantitatively as the data needed is already available in the numerical form. On the other hand, the qualitative approach focuses mainly on understanding or exploring fundamental reasons, opinions and motivations. However, it provides insight into the problem or assists to develop hypotheses for potential quantitative research. The mixed-method approach allows the researcher to use a combination of quantitative and qualitative methods to address the problem (Creswell, 2008).

This research study used secondary quantitative data collected from journals, Statistics South Africa (Stats SA), the Department of Basic Education (DBE), Department of Education and Training (DET), CHE, Human Science Research Council (HSRC), Human Resource Development Review, the Department of Higher Education and Training (DHET), Adult Education and Training (AET) centres, Technical Vocational Education and Training (TVET) colleges and SETAs. Secondary data for the years 1985, 1997, 2000, 2006, 2009 and 2013 was collected to show the gross enrolment numbers in public schools, while secondary data for the years 2002, 2007 and 2012 was collected to show the percentage of changes in the enrolment of 7-15 year-olds in the compulsory General Education and Training (GET) band. The GET band starts with Grade

1 and culminates in the GET Certificate at the end of [3]Grade 9, and the Further Education and Training band (FET) stretches from Grade 10 to 12 (see Table 1.1). The aim was to investigate changes in the percentages of learners enrolled, and the total number of learners by race that registered and passed Grade 12 for the years 1985, 1993, 2008, 2012 and 2014; as well as the total number of learners that registered and passed Mathematics and Physical Science in Grade 12 for the years 1997, 1999, 2003, 2005, 2009, 2011 and 2013.

University education data showing the overall enrolment numbers of students was collected for the years 1988, 1995, 2002, 2007 and 2012. The data for the years 1995, 2002, 2007 and 2012 showing the total number of student enrolment numbers by race and the graduate numbers by race was also collected. Data relating to AET centres for the period 2010-2013 was collected to investigate changes in the total number of students that registered, that wrote and passed their Adult Basic Education and Training (ABET) Level 4 (See Table 1.1).The data for the [4]TVET colleges for the period 2010-2013 was collected to investigate changes in the total number of students enrolled. Data from the SETAs for the period 2010-2014 was collected to investigate the number of people who received training from these sectors. The data for education and employment opportunities for the period 1996, 2002, 2007, 2012 and 2015 was collected from StatsSA to show whether there is a link between these two variables. The data for earnings for the period 2010-2014 was collected from StatsSA to show the relationship between education and earnings. The vacancy list data for the period 2010-2013 was collected from the Department of Labour (DoL) to indicate the number of employment opportunities created quarterly in the economy.

[3] The democratic education system uses Grade R to Grade 12 to identify the different levels of educational achievement from primary to the completion of secondary education.

[4] The FET colleges were renamed Technical Vocational Education and Training (TVET) colleges in 2012. These terms are used interchangeably.

1.7 SIGNIFICANCE OF THE STUDY

This study is important because it will enable government to assess the progress made thus far to overcome the legacy of apartheid in the development of human capital for all races and to move forward towards finding better ways to improve the supply of education and training for all races in South Africa. It will also help government to assess the current level of education of the labour force to enable more investment in the stock of human capital. In addition, it is also of value to both domestic and foreign investors, since it will inform them of government's intervention in the development of human capital. The study will also be a reference for future research since it is an academic endeavour to enhance academic knowledge.

1.8 THE SCOPE AND LIMITATIONS OF THE STUDY

The scope of the study was limited to the quantitative coverage of the access to education in the country. The study focused only on the gross enrolment numbers and the pass rate of learners and students at public institutions of learning in South Africa. An additional limitation to the study was the availability of data, as there was no data available for some of the periods covered in the study. The study had to work with the available data. Furthermore, the data consolidation for the post-school education commenced in 2010, but the first report was only presented in 2013. This created challenges in the collection of data and deciding how to compile it and align it to regular intervals, hence the irregular intervals of years given in the study. As number of students counted under SETAs may also be counted under other education and training institutions, a double count is likely. The statistics for the two universities that started operations in 2014 were not yet available when this study was conducted.

A comprehensive exploration of the quality of education offered at public post-school institutions of learning falls beyond the scope of the study. Furthermore, the exploration of the quality of education in the basic education system falls beyond the scope of the study. The gross enrolment numbers of learners in private institutions of learning, such as private schools, private colleges, private adult centres of learning and private institutions of higher learning, and the

quality of education offered at these institutions, also fall beyond the scope of the study. Therefore, further research covering the quality of education offered at the public institutions of learning, gross enrolment numbers in the private institutions of learning and the quality of education offered in these institutions could be a subject for further research.

The relationship between level of education, the type of employment and the earnings that a worker manages to obtain in the labour market falls beyond the scope of the study. The earnings presented in Chapter 4 provide a general overview of what workers with different levels of education are likely to earn in the labour market. These earnings are not specific to the private sector and/ or the public sector. Therefore, further research covering the different salary scales according to the level of education that an individual possesses and occupations in the private and public sector could be a subject for further research. The vacancy list in Chapter 4 provides a general overview of the skills that are in demand in the labour market. It does not give a breakdown of the skills that are in demand in each of the nine provinces, or in the various towns and districts of South Africa.

1.9 OUTLINE OF THE STUDY

In order to achieve the aim and objectives, and to answer the research questions, this study is divided into five chapters. A brief outline of the contents is provided below.

Chapter 1: Introduction to the study

This chapter introduces the field of study by providing a general overview of the concept of human capital and its uses in the economy. This is followed by a background to the study that discusses the development of human capital in South Africa as it presented during the apartheid era, and the changes that the new democratically elected government made after 1994 in efforts to reform the education and training system. Thereafter, the problem statement, objectives of the study, the research question, the research methodology, the limitations and the scope of the study and the outline of the whole study are discussed.

Chapter 2: Literature review

This chapter provides the theoretical background to the concept of human capital. The chapter comprises six sections namely, the historical origins of the concept of human capital, definition of terms used in the study, different approaches to the concept of human capital, human capital and economic growth, human capital theory, and its criticism and empirical evidence on human capital. All this is summarised by a conclusion.

Chapter 3: A historical overview of human capital development in South Africa

This chapter presents a brief historical background to human capital development in South Africa for the period 1948 to 1993. The chapter is structured into three sections. The first section involves an investigation of the human capital development in South Africa from 1948 to 1993. This is followed by a discussion of discrimination in the labour market that came as a result of unequal human capital development. The third section explains the consequences of this discrimination on human capital development. The discussion is summarised by a conclusion.

Chapter 4: Analysis of human capital development in South Africa after 1994

Chapter 4 presents an analysis of human capital development after 1994. The analysis is based on the secondary data collected to determine whether or not progress has been made since 1994 to address the legacy of apartheid in education and training, and to determine whether or not human capital development has since improved in the various levels of education in terms of access. The analysis further extends to education and employment opportunities, earnings, and the occupation vacancy list that is used to determine employment opportunities in the labour market. The whole discussion is summarised by a conclusion.

Chapter 5: Conclusion and recommendations

This chapter summarises the study and highlights possible challenges facing human capital development in South Africa. In addition, the chapter proffers

recommendations for policy makers and for future studies to facilitate the development of human capital in South Africa.

CHAPTER 2: THE THEORY OF HUMAN CAPITAL

2.1 INTRODUCTION

"The most valuable of all capital is that invested in human beings." Alfred Marshall (1920:626).

While the first chapter entails an introduction that explains the framework of the entire study, this chapter consists of the literature review on human capital. It is undebatable that technological advancements and the global knowledge-based economy engender nations to search for methods that will enable them to maintain and sustain competitive advantage over one another. These developments bring about a realisation that success and the growth of nations largely depend on the level of professional individuals' skills and expertise. In this sense, humans become assets of utmost importance. As a result of this, they are classified under the framework of human capital (Dae-Bong, 2009).

The aim of this chapter is to review and analyse the available literature on human capital in South Africa. Hence, the chapter is structured into six main sections. Section 1 explains the historical origins of human capital. This section is followed by Section 2, which gives the definition of the different concepts in human capital literature that are used in this study. Section 3 explains the different approaches to the concept of human capital. These approaches entail the macro-economic and micro-economic environments. Section 4 documents human capital and economic growth. Section 5 investigates human capital theory. In this section, the criticism of human capital history, the measurement of human capital, and the screening hypotheses are by and large explained. The sixth section entails an investigation into the empirical evidence of the concept of human capital. This is followed by a conclusion to the chapter.

2.2 Historical origins of human capital development

The origin of human capital theory dates back to the writings of the distinguished scholar, Adam Smith in his book, *Wealth of Nations,* which was published in 1776. In this book, he argues that education is the foundation of human capital in any society in that it allows and sustains economic success.

This means that the amount of skills gained by a worker while executing the job is above the costs incurred while accumulating education.

Many years later, in 1920, Marshall noted that in human capital, education acts "as a national investment", and in his observation, "the most valuable of all capital is that invested in human beings" (Marshall, 1920:626).

In supporting Marshall, Woodhall (1958) attested that an educated labour force is one of the key inputs to the economy of any country. Later, Harbison (1973) and Myers (1964) summarised these views about the importance of education by stating that human beings are dynamic agents that accumulate capital, and use natural resources, build social, economic and political organisations, in order to promote national development. Moreover, Harbison (1973) shows that human resources constitute the basis for the wealth of nations, and suggests a positive relationship between human capital and economic growth.

The book *Wealth of Nations* pinpointed the development of workers' skills and competencies as the most critical ingredient of economic progress and increased economic welfare. Becker states that in the early 1990s, during the presidential campaign in the United States of America (USA), former presidents Bush and Clinton emphasised the importance of enhancing the education and skills of workers. He further says that Bush and Clinton both used the phrase *"investing in human capital"* to define the process of enhancing the quality of the labour force, and made an undertaking to increase the expenditure on education and on-the-job training (Becker, 1992:11).

George (2002) argues that the ideology of Classical Economics regards capital and accumulated physical and financial capital, as the engine of the economy. This was the ground-breaking idea, at the time, of renting out property to make profits. It took politicians hundred years to internalise the idea that the land can be rented out to make profit, instead of accumulating it as an asset only. Thereafter, the accumulation of physical capital took centre stage. However, it did not take long before it became outdated too, just as the land-based thinking of the 1800s did. Subsequently, another asset gained dominance for its positive relationship with economic growth. That asset was human capital and social capital, consisting of human talents, and the accumulated knowledge of society

and its forms of interaction, organisation and culture. The Classical Economists (George, 2002) had anticipated this concept.

An indication of this can be found in the work of Smith (1776) and Marshall (1920), as well as in the *Dictionary of Political Economy* (1827*),* whose definition of capital specifically includes "*the Law, the Church, Literature, Art, Education, and an Author's Mind.*" In the middle of the 20th century, Schultz (1963) suggested that human resource, as one of the factor of production, is now playing a more important role in the production process than before. Furthermore, human resource has formed the basis to understand entrepreneurship as another form of human capital. In the 1960s, Becker (1964) developed the basic human capital theory as it is used today in the field of Labour Economics.

2.3 DEFINITIONS OF THE CONCEPTS

Human capital, education, training and development are intertwined concepts that cannot easily be divided into separate compartments. Each of these terms, as they relate to the study, will be discussed in this section.

2.3.1 Human capital

Boyes and Melvin (1994) state that there are four factors of production that are indispensable to the production process, namely, natural resources, labour, capital and entrepreneurship. Natural resources comprise all the raw material made available to people by nature. Labour includes the size of the population that is categorised as economically active (EAP). Capital is divided into the following:

1. physical capital, for example, roads;
2. manufactured capital, for example, machines, tools and buildings;
3. financial capital, for example, banknotes and shares and it refers to funds required to buy capital goods;
4. social capital, for example, communities and schools; and
5. human capital, for example, educational qualifications.

The focus of the current study is on one of these factors of production, namely, human capital. The interpretation of the concept 'human capital' is a combination of human and capital. Capital is defined as one of the factors of production that are used in the production process to produce goods and services which are not consumed for their own sake. On the other hand, human refers to the subject that assumes the responsibility for economic activities such as production, distribution, consumption and transaction (Boldizzon, 2008).

Schultz (1961) identified human capital as something similar to property and he recognised that the productive capacities of human beings are greater than all other forms of wealth grouped together. In support of the views held by Schultz (1961) on human capital, Eatwell, Milgate and Newman (1998) define human capital as the skills, knowledge, values and attitudes embedded in people. Similar to Schultz, Hartog and Van Den Brink (2007) define human capital as the knowledge, skills and competences embodied in individuals. Shuller (2000) describes human capital as the set of cognitive skills, knowledge and rational behaviour held by an individual. Human capital is the amalgamation of education, skills, training, experience, energy, intelligence, work habits and initiative that influence the value of a worker’s marginal product (Frank and Bemanke, 2007). The production-oriented view regards human capital as a stock of skills and productive knowledge embodied in the population of an economy.

Furthermore, human capital is also defined as a human factor in an organisation, the synthesis of intelligence, expertise and knowledge that gives the organisation its unique character (Bontis, Dragonetti, Jacobsen and Roos, 1999). It could be further defined as a skill that a worker acquires through training and experience, in order to plan, organise, delegate, manage and control the operational processes in organisations. Todaro and Smith (2013) state that human capital is the term used by economists for education, health and other human capacities that can enhance productivity when their use is increased. In addition, investment in human capital creates a productive work force that is equipped with increased knowledge and skills, essentially for sustained national development (World Bank, 1995).

Lepak and Snell (1999) suggest that the improvement of human capital in organisations is associated with its core competencies and competitiveness. The human capital embedded in individuals affects organisations in the following ways:

1. it contributes to increased productivity and quality of work;
2. it creates a positive climate for growth;
3. it contributes to organisational development;
4. it minimises the costs of production;
5. it improves the corporate image; and
6. it improves the organisational culture and climate (Erasmus *et al.,* 2013).

Investment in the acquisition of human capital is done by the government, private sector and the individuals themselves. Human capital is accumulated through educational activities such as primary education, secondary education, vocational education and tertiary education (Alan, Altman and Roussel, 2008). As a result, education plays an important role in defining the concept of human capital.

2.3.2 Education

Education is defined as the process of receiving and giving systematic instruction, teaching, coaching, guidance and training, particularly at homes, schools, colleges and universities to enable a person to make sound judgements based on the knowledge provided (Rundel, 2002). Education includes the intellectual, emotional and physical development of a person. It is the ability to learn unassisted, to be impartial and tolerant and to have a willingness to participate in the area of human development. It is one of the ingredients needed to grow the economy and sustain it (UNDP, 1999). Education is further defined as an intentional and organised endeavour to acquire and impart knowledge, skills and values. Furthermore, education comprises activities of learning in organisations and includes those that are job-related and those that are generic, such as stress management (Erasmus, Loedolff, Mda and Nel, 2013).

Coombs, Prosser and Ahmed (1973) show that there are various education systems to be found, such as formal, informal, non-formal education, and distance learning. Formal education is acquired through systematic, organised and administered institutions according to prescribed laws, offering a curriculum that is rigid to the set objectives, methodology and content. It requires a certain level of learner/student attendance. Informal education is received outside the classroom in places such as museums, community-based programmes and libraries. Non-formal education is a continuous process that is voluntary and unplanned. This process gives an individual an opportunity to gain and build knowledge and allows for the mastery of skills from daily experiences and interaction with the environment. Distance learning is characterised by non-contiguous communication between a student/learner and a teacher. The teaching and learning is managed through print and electronic devices. All these forms of education are needed in the development of a person, a community and the economy (Dib, 1988).

The education of a child starts from home, through the interaction with parents, siblings, relatives and neighbours. It then extends to school where a child receives formal education that prepares him/her for his/her role in society (Todaro and Smith, 2013). A study conducted by Harrison (1984) on the anatomy of poverty showed that a lack of education in a family leads to a cycle of poverty that extends to other generations. In this case study, Harrison (1984) presented the case of a boy named Francisco who was malnourished while in his mother's womb. Although he was born underweight and suffered from many infections, he survived. At the age of eight, when he started school two years later than his peers, he had the reasoning capacity of a six-year-old child. He attended a school that did not have teaching and learning aids and had poorly qualified teachers. The school also did not have a feeding scheme for poor children like Francisco.

At school, Francisco could not concentrate on his lessons because he was constantly hungry and that caused him to perform poorly in his studies. He was in school for one year and left for three years to help his uncle on the farm. He went back to school again for a year and left permanently after that. When he left school permanently, he could not write, read or count. He went to look for

work without formal qualifications and all he could get were poorly paid piece-jobs. At the age of twenty-two, he married a girl who was emaciated and illiterate. By the age twenty-seven, he already had five children and had lost two. Their children were faced with the very real possibility of growing up in poor health and also being illiterate. The case study indicates that a lack of education is likely to perpetuate intergenerational poverty (Harrison, 1984).

An improved level of social capital and better health for individuals and their families is associated with their socio-economic status. The economic and social status of a family is likely to affect the future human capital attainment of a child and possibly that of future generations. The acquirement of education contributes significantly to the total number of economic and social goals of a country. Education has been repeatedly found to play an important role in the acceleration of economic growth and poverty reduction. Education improves productivity, both in the formal sector and in the non-wage sector, particularly in rural areas. Furthermore, it assists in the improvement of income distribution among social classes (World Bank, 1995).

In line with the belief in the significant role played by education in improving a worker's productivity, Rosen (1999) emphasises the importance of training in the human capital discipline. Education, training and development (ETD) play a crucial role in tackling a country's economic objectives, and the strategic and operational purposes of businesses. The ever-growing global knowledge-based economy has increased the need to train and develop employees in organisations.

2.3.3 Training and development

Training refers to planned activities of acquiring knowledge, attitudes and skills in order to execute a particular task. Organisations use training to improve the skills, knowledge and behaviour of its employees and employers. Training is job-related, since it targets the tasks executed in organisations (Erasmus *et al.,* 2013). Rundel (2002) sees training as an act of empowering a person with skills for a particular job. The key aims of training are to improve employees' performance at work; to ensure that the required standards to perform tasks are adhered to; to empower employees to fill up available positions in

organisations, and to increase the profits margin and service levels of organisations (Swanepoel, Erasmus and Schenk, 2012).

According to Coetzee, Botha, Kiley and Truman (2007) the augmentation of skills in the workplace means that the applied competence of employees is fostered by ameliorating their skills, knowledge and abilities through formal education, skills training and continued development. A skilled workforce plays a central role in global competitiveness. Greyling (2001) defines the development of skills as the situation wherein employees are empowered in a workplace through the provision of workshops and study leave. The development of skills is further defined as a process whereby individuals participate in various activities provided at the workplace that will give them opportunities to learn, apply and create knowledge (Swanepoel *et al.,* 2012). Acquiring a particular skill requires a positive attitude, willingness and a desire, from the individual participating in the activities, to learn and to share what has been learned with others. A positive attitude creates an environment that is conducive for individuals to function better and to work in harmony with others (White, 1998).

Grobler, Wärnich, Carrel, Elbert, and Hatfield, (2006) state that there are at least nine reasons that induce managers and the government to develop people. These reasons are as follows:

1. Employees may perform below the required minimum standards because of the lack of the necessary skills. Such employees need training to improve their performance.
2. Technological changes and new innovations in the production of goods and the rendering of services require a continuous update of skills.
3. The ever-changing legal, technical and social environments influence the manner in which managers and professionals execute their daily tasks. The skills and knowledge of people who do not adapt to the changes become obsolete.

4. Organisations employ new employees daily. The newly employed and/ or promoted employees do not always have the skills needed to perform their new duties. This necessitates the need for training.
5. Education and Training Development (ETD) is needed for succession planning. Employees have to undergo training to learn new skills that will enable them to perform their tasks and to fill open vacancies in the organisations.
6. ETD enhances personal growth and organisational effectiveness.
7. ETD plays a significant role in tackling organisational challenges such inefficient performance, low productivity, poor service delivery and absenteeism.
8. ETD promotes the employability of designated groups. The government financially supports companies, non-governmental organisations (NGOs) and community-based organisations (CBOs) to introduce skills development programmes. These programmes assist the unemployed to acquire skills that will enable them to enter the labour market and/ or to start their own small businesses.
9. ETD expedites employment equity. The skills development legislation makes provision for a levy grant for employers to promote the development of Blacks, Coloureds and Indians, women and the disabled to address the inequalities in the educational and equity profile of the South African labour force (Grobler *et al.,* 2006).

In recognising the importance of developing skills in South Africa, the government introduced the NQF and the following laws to grow skills:

1. SAQA Act No. 58 of 1995;
2. SDA No. 97 of 1998 and
3. Skills Development Levies (SDL) Act No. 9 of 1999.

The SDA and SDL were formulated to develop and enhance the skills of South Africa's workforce, and to embolden learnerships and skills programmes. These laws were introduced to ensure the multiplication of the levels of

investment in education and training, and to turn workplaces into learning environments (Coetzee *et al*., 2007)

These functions were realised by the establishment of the financial institutional framework consisting of the SDA, the National Skills Fund (NSF), and skills development levy-grant scheme as stated in the SDL Act No. 97 of 1998, Sector Education and Training Authorities (SETAs), labour centres, and a Skills Development Planning Unit. The fulfilment of these functions is achieved by a partnership between the public and private sectors through the provision of education and training in the workplace (DoE and DoL, 2003). Through the improvement of human capital, and education and training in a country, the lives of ordinary citizens are developed.

The definitions of the concepts above show the different approaches that economists use in an attempt to define and comprehend 'human capital'. The next section explains different approaches of the concept human capital.

2.4 APPROACHES TO THE CONCEPT OF HUMAN CAPITAL

A comparison of the different understandings of the concept 'human capital' shows that, in principle, there are two approaches to defining it, namely, the Micro-Economic and the Macro-Economic approaches as indicated in Figure 2.1.

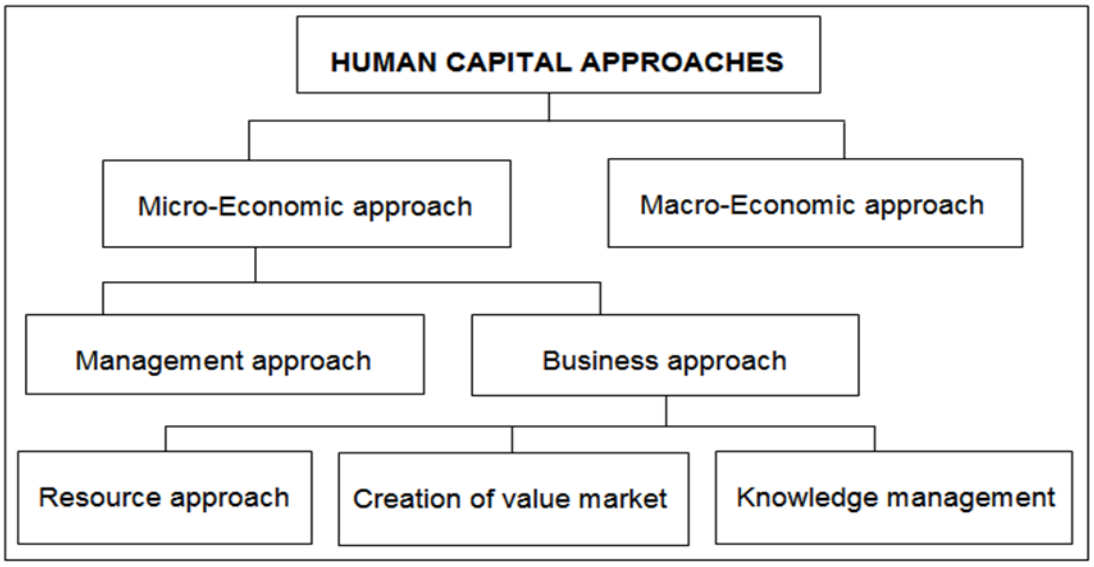


Figure 2.1: Different approaches to the concept 'human capital'

Source: Adapted from Kucharcikova (2011:61)

2.4.1 Micro-Economic approach to human capital

This approach is divided into the management and business approach. Under the management approach, Sum (2010) reveals that there is widespread use of human capital, strategic human resource management philosophies and techniques within organisations. The management approach describes human capital as a catalyst that improves the assets of an organisation and that of employees in order to boost the level of productivity, and to maintain the competitive advantage (Schultz, 1971). According to Kucharcikova (2011), the management approach views human capital as an intangible asset of a company that forms part of the intellectual capital and market value of the company.

The business approach is divided into the resource approach, creation of market value and knowledge management. Kucharcikova (2011) states that under the business approach, human capital is regarded as one of the factors essential in business production. The resource approach includes resources such as machinery, equipment, energy, finances, information and the workers needed for organisations to function. Organisations use the Department of Human Resource Management (HRM) to recruit, manage, motivate, train and re-train employees (Koubek, 2007). It is estimated that organisations spend millions each year on training and development. Pease (2015) revealed that the global market economy demands a global workforce. This is a challenge to a number of organisations.

An ability and readiness to compete on a global scale is essential to the success, growth and competitiveness of organisations. Organisations are an amalgam of full-time employees, fixed-term contracts and freelancers. There is a growing trend towards flexible forms of employment, which are driven by a new mix of education and work. Examples of these forms include independent contractors, specialised sub-contracting and working from home. This allows employees the mobility to move from one organisation to another, from one job description to another and across geographical boundaries. These trends have developed in response to the demands of a global market place, which seeks new talent to create market value for a business (Pease, 2015).

The ever-changing market environment drives organisations to seek better ways of production in order to maintain competitiveness and to provide customers with exceptional service and value for their money (Kucharcikova, 2011). This has necessitated a need to measure the knowledge assets that organisations possess. The measurement of assets includes experience, organisational technology, customer relationship and professional skills. In addition, the hardware, software, databases, legal structure of an organisation, patents, trademarks, logos, manual systems and everything that the organisation utilises to support the employees' productivity are also part of knowledge assets (Bontis, 2001). The process of measuring knowledge involves knowledge management. Knowledge management is a managerial approach that seeks to advance the development, acquisition, distribution, implementation and administration of knowledge in organisations.

All these activities are done to ensure the efficiency and effectiveness of systems and the competitive advantage of an organisation. Knowledge management needs a commitment and consistency to build new knowledge that is task-focused, and to distribute it throughout the organisation and to incorporate it in products, services, logos and systems (Nonaka and Takeuchi, 1995). The systems that have been put in place by organisations to develop human capital have an effect on the level on individuals' earnings, productivity and the national economy.

2.4.2 Macro-Economic approach to human capital

Kucharcikova (2011) states that increased economic growth is one of the main objectives of governments. Economic growth is defined as an increase in real national income. It is calculated as a percentage change in the real gross national product (GNP) or real gross domestic product (GDP) per year (Boyes and Melvin, 1994). Economic growth is achieved through extensive and intensive use of the factors of production. The extensive growth is determined firstly by the quantity and quality of the labour force. The quantity depends on size, age and gender distribution of the population. The quality of the labour force depends on school education, post-school education, vocational education and in-service training (Boyes and Melvin, 1994).

Furthermore, it also depends on the creation of employment opportunities, the effective and efficient management of personnel and the utilisation of labour in all levels, harmonious labour relations, positive attitudes and work ethics. Secondly, it is determined by the quality and quantity of capital. Capital is divided into physical capital; manufactured capital, financial capital, social capital and human capital (Mankiw and Taylor, 2011). Thirdly, economic growth is determined by the level of technological knowledge that the country possesses in the form of the ability to use science, research and development in the production processes. Technology is combined with capital and labour to ensure effective and efficient production. The use of technology necessitates a need for a well-trained labour force. Lastly, economic growth is determined by the availability and the use of natural resources (Mankiw and Taylor, 2011).

The determinants of economic growth are used in a certain way. The manner in which they are used is called aggregate production function. There is a correlation between the total quantity of labour(L), physical capital (K) and human capital used in the production process and the country's GDP.

$$GDP = f(L, K, H) \quad 1$$

Lipsey and Chrystal (2007) show that the intensive growth refers to the GDP per head. Quality, efficiency, and the way in which the factors of production are used all have an influence on the intensive growth. The determinants of intensive growth consist of the total factor productivity (TFP) and technical progress. In the current knowledge-based economy that is characterised by the rapidly changing and extensive use of technical innovations, education plays a crucial role. It aids the technological progress, improves the productivity growth, and increases the value of the human capital and economic growth (Volejnikova, 2010). Man is the embodiment of human capital. Investing in human capital is key to economic growth in the modern economy (Oluwatobi, et al; 2016).

2.5 HUMAN CAPITAL AND ECONOMIC GROWTH

The approaches to the analysis of factors that lead to increased economic growth have gradually changed over time. In the late 1800s Marshall stated that education played an important role in unearthing the undeveloped skill in

individuals that was used in production. It is therefore a kind of investment in man, the superlative mechanism of production, and the greatest productive machinery. Furthermore, education promotes distributive justice by increasing the earnings of unskilled workers, while at the same time reducing their number by reducing the occurrence of that type of work. Education improves the quality of work done, and advances production. It is for this reason that the ultimate investment of any government is the investment in education (Marshall, 1873). However, Marshall's views on the investment in education as the main factor contributing to economic growth took some time before it was included in economic growth theories (Bailey and Eicher, 1994).

The well-known Solow Neoclassical theory of growth was developed in the 1950s. Solow's model of growth is widely used as a basic reference for the literature on growth and development. The Solow model of growth states that economies will conditionally converge to the same rate of income, provided they have the same levels of savings, labour growth, productivity growth and depreciation. The Solow model builds on the Harrod-Domar theory by adding labour as a second factor, which can be substituted for capital, and allowing for technological change. The model assumes that there are diminishing returns to the use of these inputs (Todaro and Smith 2015).

The Neoclassical theory of economic growth explored economic increases, using supply production factors. In this growth theory, capital and labour were regarded as the primary factors of production. Their premise was founded on the general production function. The total output (Y) is the function of the stock of capital (K) in the economy, that is, the hours that a machine uses to produce (X) quantities and labour force (L) that is the hours of labour in a month to produce Y quantities.

$$Y = f\ (L, K) \qquad 2$$

The general production function was improved and it became the Cobb-Douglas function. This function delineates the technological relationship between the quantities of two or more inputs, mostly physical capital and labour, and the quantity of output that can be produced by these inputs. Total output

(Y) is the function of labour force(L), physical capital (K) and other inputs(A), showing the labour and capital elasticity coefficient, constant between 0 and 1.

$$Y = (L, K, A) \quad 3$$

Furthermore, Solow perceived technology as the key to exponential growth that was independent of the other production factors. In addition, Solow concluded that permanent increases in the level of economic growth are a result of technological progress and not the saving rates in a country. In Solow's model, output (Y) is a function of labour(L), capital (K) and technological progress(t).

$$Y = f\ (L, K, t) \quad 4$$

Solow's work resulted in the creation of growth accounting and the discovery of the 'residual'. According to the Solow model, any increases in GNP that can be ascribed to short-term adjustments in stocks, of either capital or labour, are credited to a third unknown factor known as residual. The residual is responsible for about 50% of historical growth in the industrialised nations. The model attributed large increases in economic growth to an exogenous or independent process of technological progress. Hence, the model became known as an exogenous model (Todaro and Smith, 2015). In the paper that Solow presented in 1957, using American data for the period 1909 to 1949, his findings were that capital and population growth accounted for about 12.5% of the changes in the production function. Solow's model failed to explain the source of about 87.5% of output growth. The model failed to explain the 'residual' that is human capital which was the active ingredient of economic growth (Gisanabagabo, 2006).

Subsequent to the lack in the explanation of the 'residual', new investigations by Schultz (1960; 1971) and Becker (1964) began to enquire about the factors which decisively influence human capital, and its importance. This led to a prolific literature on human capital and on-the-job training. The new growth provided a theoretical framework to be used to analyse the insistent GNP growth that was influenced by a system that was regulating the internal process of production, rather than the forces outside the system. As a result of this, an explanation for the residual discovered in Solow's model of growth was given. The residual that contributed to large proportion of growth was human capital.

The discovery of the residual was ground-breaking. The endogenous growth accounting theories used human capital accumulation in their empirical analysis to explain increases in economic growth. However, the theoretical exposition was inadequate to describe how investment in education contributes to economic growth. They unanimously agreed on the importance of education, however, education and endogenous human capital were only included formally into the models of growth in the 1980s (Bailey and Eicher, 1994).

In the 1980s, the new endogenous growth theories postulated that the accumulation of human capital is a key contributor to economic growth. Findlay and Kierzkowski (1983) formulated the first model that included endogenous human capital accumulation. The production function was extended to include human capital. This function was now the function of output(Y), level of technique and technology(A), labour (L) capital (K) and human capital(H).

$$Y = f\ (A, L, K, H) \qquad 5$$

Furthermore, Findlay and Kierzkowski (1983) chronicled the importance of the stock of human capital in influencing competitiveness, comparative advantage and the system of trade. Thereupon, Romer (1986) developed a growth model that included human capital as an exogenous factor. The work of the economists during this period did not explain clearly the kind of capital which contributes to economic growth.

Thereafter, there was a growing literature on the theoretical and empirical analysis of the role of technological change and human capital in competitiveness and economic growth. By the mid-1980s to the early 1990s, studies by Lucas (1988), Romer (1989) and Mankiw (1992) showed that the level of education, the size of the educated labour force (Romer, 1986, 1989, 1990), the number of patents issued (Grossma and Helpman 1991; Judd 1985) and the magnitude of expenditure on private and public research activities in the private and public sectors has an effect on the growth of an income of a country, its systems and extent of trade. The new growth model showed that the production function is influenced by endogenous labour, capital and education, through the improved quality of capital, labour and better infrastructure. An increase in the supply of education and skills development

has a multiplier effect on economic growth. Human capital is a key factor to extensive and extensive growth (Kucharcikova, 2011).

2.6 HUMAN CAPITAL THEORY

The epitome of human capital theory is that investment is made in human resources in order to enhance productivity and earnings. This is illustrated in Figure 2.2. Marshall, King, and Briggs (1980) reveal that the key aspects in the decision to invest in education are:

1. expected increase in earnings associated with qualifications acquired;
2. costs of investing in education especially the opportunity cost of other pursuits; and
3. ability and age.

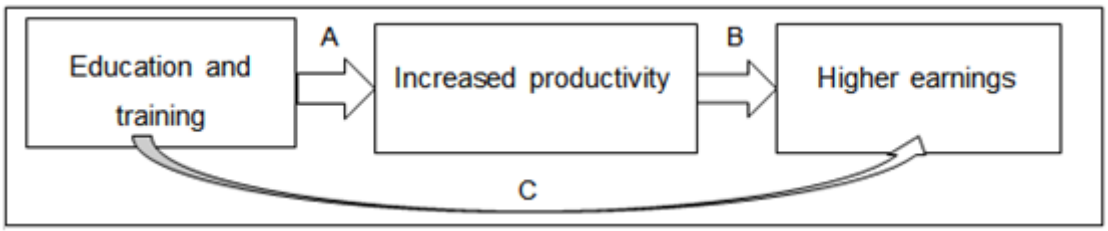


Figure 2.2: Human capital theory

Source: Adapted from Barker, 2007:206

Investment in human capital shows that there are costs involved in the expectation of future returns. The costs incurred in the accumulation of education include direct costs, such as tuition fees, textbooks, boarding and travel expenses. There are also indirect costs, such as the income and work experience forgone in the process of acquiring human capital. Individuals weigh the differences between the benefits of going to work and further studies (Becker, 1964). Generally, individuals enter the labour market after the completion of a certain level of education and work up to age 65. This means that if an individual enters the labour market after the completion of secondary school education, he/she will be about 18 years of age, while after the completion of higher education; he/she will be about 21/22 years of age. If an individual chooses to pursue higher education, it will be four years or more of forgone income (Barker, 2015). This is illustrated in Figure 2.3.

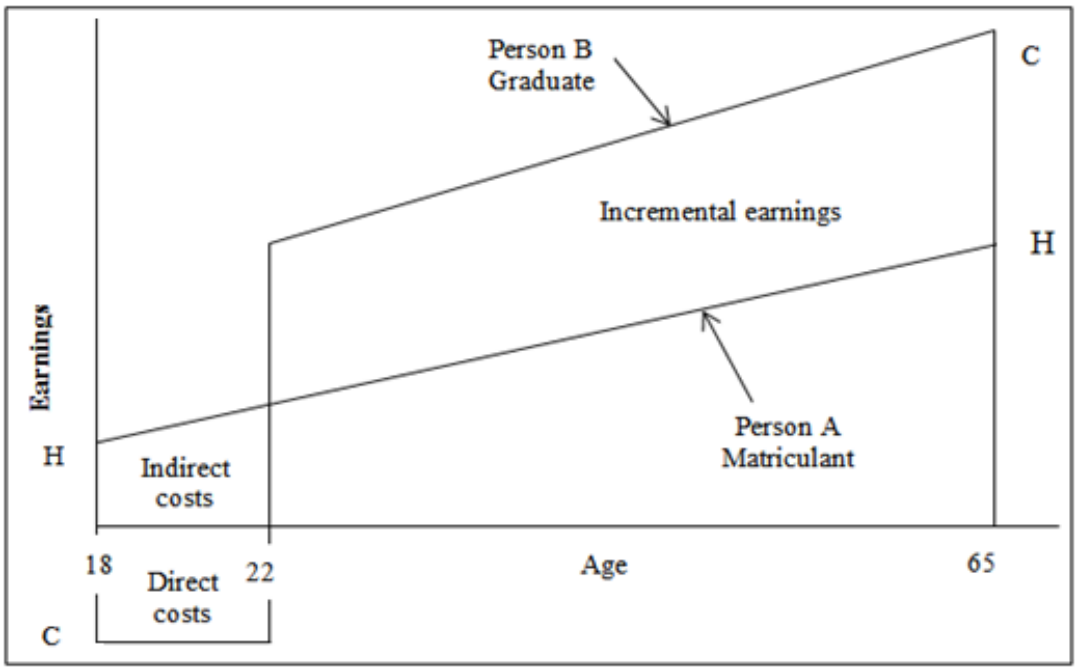


Figure 2.3: Comparison of potential earnings stream: matriculant vs graduate

Source: Barker, 2015:219

The earnings are associated with the different levels of education. The assumption is that if person A enters the labour market at age 18, his/her earning profile is likely to be on line HH. However, if person B pursues tertiary education and faces the costs of studying, upon entering the labour market, his/her earning profile is likely to be on line CC. The investment in education is profitable if the incremental earnings are greater than the total costs. Nonetheless, the expected future benefit has less value when compared with the present benefit. Consequently, the costs and benefits of investing in education should be interpreted using the present value. The econometric techniques to discount the future values to the present values are used to calculate the net present value of future costs and earnings. The calculations are able to give the rate of return of investment in education. The earnings are measured in present value terms to enable comparisons across different time periods (Barker, 2015).

The rate of return of education is divided into private and social or public rate of return. The private return focuses on the costs incurred by an individual to receive education and the benefits he/she is likely to get in the form of employment, better earnings, promotions at work, and so on, as a result of education. Social return focuses on the costs incurred by governments in the

form of education expenditures, and research and development leave to make education accessible. This extends to benefits such as a reduction in crime, improved health, reduction in poverty, high levels of educational stock in a country, improved citizen participation in the growth and productivity of the economy (Hanushek and Wößmann.; 2007)

The return on human capital investment is determined by the number of economically active years of an individual. An individual is like a firm that produces human capital that fuses together raw abilities, commitment, dedication, time and the number of years taken to get a qualification. Time and raw materials are subject to restrictions as the amount of money invested in education increases and the amount of human capital acquired also increases. The building of human capital is a process that occurs over time. The expected retirement age of a worker is age 65. Under this assumption, if a person continues to invest in human capital, the years remaining to derive the rewards diminishes. Therefore, the returns of investing in human capital are greater on the units acquired during the years when the person is young and highly economically active, and lower in those units acquired later in life (Marshall *et al.,* 1980).

Individuals enter the labour market with a certain level of educational qualification. That level of educational qualification enables individuals to secure employment in a labour market. However, it has not adequately prepared him/her with skills and training needed in the labour market. This is probably the reason that propels individuals to continue to invest in human capital in the form of on-the-job training and work experience once in the labour market (Becker, 1964). On-the-job training differs from formally structured activities such as apprenticeships and other training programmes, as well as from processes such as learning from experience (Mincer, 1993). Unlike the education at the higher institutions of learning where students attend classes, submit assignments and write examinations, on-the-job training occurs silently, for example through a conversation between an experienced worker and a novice worker during lunch times or when a junior employee is filling in for a senior worker who is attending to other matters at work. It is not simple to notice

directly when a skill is transferred in on-the-job training situations (Marshall *et al.,* 1980).

Becker (1964) indicates that on the-job-training is divided into two categories, namely, general training and specific training. General training is imperative and needful in all industries, and it includes the ability to write, count, read, interpret and implement the instructions given. Specific training concentrates on a particular skill that should be acquired to perform a task. This kind of skill is industry-related.

The distinction made regarding the differences in training is to show the influence of these in earnings and employment in the labour market (Schultz, 1961). The firm is likely to raise the employee's earnings in accordance with the value that it attaches to the productivity of the employee who has received training. Should the employer offer a lower increase in earnings, there is a danger that the employee might be lured away by competitors in the industry who may give him/her a better increase, and benefit from the training that the employee has received. To combat this, employers tend to give their employees a contract to sign that binds them to the employer for a certain period of time. In this way, the employer is able to benefit from the training that was provided. In cases where the firm does not provide or pay for the general training, the employee pays. The employee pays the cost of training by working at a number of jobs that provide an opportunity to learn and acquire general skills (Marshall *et al.,* 1980). If the unskilled worker does not receive training, his/her level of productivity is likely to remain the same for the duration of his/her working life. Earnings of a worker increases as the worker receives training (Schultz, 1961).

The human capital theory concludes that higher levels of education lead to improved productivity and high earnings. This conclusion has received some criticism as discussed in the next section.

2.6.1 Criticism of human capital theory

2.6.1.1 Measurement

The general assumption of the investment in human capital is that the individual's stock of knowledge is improved by acquiring education and training and that this increases an individual's productivity at work (Tilak, 2002). As a

result, individuals with more human capital are likely to earn more, as illustrated in Figure 2.2. This method of assessing the theory of human capital leads to problems of measurements (Marshall *et al.,* 1980). When examining the first relationship between education and training in Figure 2.2, it appears as if it is easy to measure the level of education that an individual has attained when examinations standards are used.

Solmon (1993) showed that although it is important to measure the years that a person takes to get an education, it is not sufficient. The kind of education that a learner receives also deserves attention. This is so, because the type of education that a person receives while at school determines the kind of work that he/she will perform in the labour market. Solmon (1993) further states that the quality of education is a 'missing ingredient' in the human capital model as originally outlined by Schultz (1961) and Becker (1964). While educational attainment appears to be a variable that could be measured without difficulty, what is important is not the amount of time a person spends in school but the amount of knowledge that is imparted therein. Solmon (1985) indicates that a more complete education-induced human capital model should be drawn as follows:

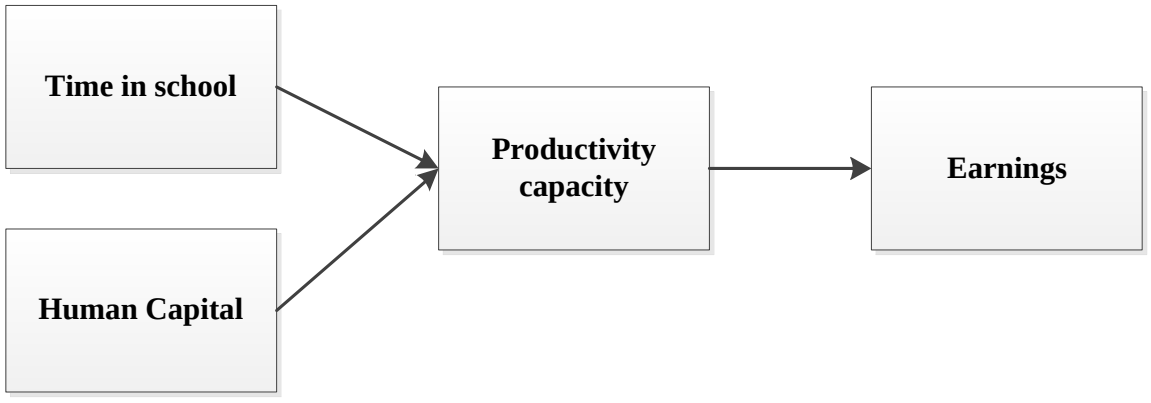


Figure 2.4: Complete education-induced human capital model

Source: Solmon (1985:279)

Marshall *et al.* (1980) agree with Solmon (1985) in stating that the amount of knowledge imparted in the classroom is important. The measurement of knowledge introduces a qualitative aspect into the definition of education. The question is: how is the quality of a person's education measured? What distinguishes School A from School B (Hosking, 1992)? The quality of

education is the contribution made by homework, textbooks, teacher's subject knowledge, and experience, libraries, laboratories, recreational facilities, the effort of a student, and the learner-teacher ratio (Solmon, 1993).

Barker (2007) reveals that it is easy to differentiate between those who are attending school and those who are not. Furthermore, it is easy to list a number of the training programmes available in the workplace but it is difficult to assess their quality. In some workplaces, it is easy to check whether the workers are applying the skills that they have learned in the workshops, in some, it is difficult. The experience factor is also significant when the amount of capital accumulated by a person is measured (Marshall *et al.,* 1980).

Moving forward with examining of the relationship between education and productivity in the human capital chain, it is difficult to measure the level of productivity, particularly at an individual level. For example: how is the productivity of a teacher measured? How many students would pass if the services of a teacher were abolished? It may seem easier at face value to measure productivity in a factory that produces tangible goods, than in a company that renders services. Occupations are not all the same. Therefore, it is even more difficult in one firm to measure the productivity of two workers doing different tasks. As a result, the measurement of the productivity of workers is often left in the hands of management in the organisations. This is done through the design of different performance measures (Marshall *et al.*, 1980).

Figure 2.2 further shows the relationship between education and productivity and earnings. It seems that individuals who are highly productive earn more than those who are not. Again, it is not easy to measure this, especially on an individual level, since data on productivity does not reflect individual contributions. Therefore, the relationship between human capital and earnings is easily measurable through observation and monitoring. In this case, it is easy to see the difference in the earnings between a person who has a tertiary qualification and the one who just finished secondary school. The relationship between human capital and productivity, and productivity and earnings can only be theorised about as it cannot be measured directly.

As a result of this, the human capital theorists (Becker, 1964 and Schultz, 1961) choose to focus on the positive relationship that exists between human capital and earnings. Human capital theorists have tried to prove that high levels of education lead to high earnings. However, they are unable to give strong reasons for this relationship. The lack of evidence in this regard, opens up the human capital theory to different interpretations of the relationship between training and wages (Marshall *et al.,* 1980).

More measurement problems are pronounced with respect to on-the-job training. While it easy to observe people who are attending school and those who are not, it is not easy in the case of people receiving training and those who are not. This happens because on-the-job training occurs informally. Consequently, human capital theorists have chosen to be comfortable with the indirect tests of their theory. This necessitates a need to circumvent the paths in Figure 2.2 between human capital and productivity (path A) and productivity and earnings (path B), and consider only the opposite relationship between human capital and earnings (path C). This link indicates bias in favour of university graduates on the part of employers, which is not justified by considerations of productivity (Barker, 2007). Mostly, employers rely on screening to identify suitable employees.

2.6.1.2 The screening hypothesis

Hypothetically, Barker (2007) argues correctly or incorrectly by stating that employers use an educational attainment screening instrument to determine the ability of workers, and consequently place them. Workers tend to be grouped according to their level of education, and those who are more educated are deemed to have more ability. Hence, their quick placement, promotions and higher salaries at work. However, high level of education may have no correlation to ability. Once more, the correlation between the level of education and productivity in Figure 2.2 comes to the fore. Logically speaking, high levels of education lead to higher earnings, but the social rate of return of education may be overstated. The screening hypothesis argues that although education is linked with increased earnings and with increased productivity, there is no causal relationship between these variables.

In the search for workers with high ability, employers are unable to differentiate them from those with low ability, prior to employment. Having little or no information about the personal qualities of job applicants, employers use the level of education to distinguish workers with high ability from those with low ability. Job applicants are aware that employers use the level of education to screen them. This motivates the applicants to up their level of education in order to make themselves more distinct. Therefore, achievement in education could be correlated with higher productivity but does not cause it. Education is an instrument only in the hands of employers that use it to select suitable applicants (Blaug, 1992).

The screening hypothesis argues that secondary and tertiary education has no effect on an individual's productivity; accordingly, it does not have economic value. The reasons for this are as follows: (a) the educational system may select learners/students based on their natural abilities, and improve them in the process, and (b) the screening hypothesis explains the supposed correlation between education and earnings up to the point of hiring workers.

Once applicants are hired, employers will use other means to distinguish workers with ability from those without, without using formal qualifications as a criterion. Human capital theorists suggested that the acquiring of education is likely to lead to improved productivity and higher earning. In contrast, the screening hypothesis generates the notion that the economic value of education is reflected in the effective behaviour of individuals as compared to his/her cognitive achievements (Blaug, 1992).

2.7 EMPIRICAL EVIDENCE ON HUMAN CAPITAL

The empirical evidence from human capital theorists suggests that the worker's level of education improves his/her level of productivity and determines his/her earnings in the labour market. This in short means that a person who has invested in human capital by pursuing college or university education is likely to be efficient and effective. Furthermore, such a person has better opportunities in the labour market than a person who joined the labour market immediately after completing secondary education. This has been confirmed a

number of times by various studies such as Earle (2010), Keep and James (2010) and Ali (2002).

In 2002, Tilak conducted a study on building human capital in East Asia using secondary data collected from research studies and national sources of information. Tilak (2002) found that a large number of people in East Asian countries are literate, healthy, live longer, and a majority of them attend school. East Asian countries were colonised by the United Kingdom (UK), France, Spain, the Netherlands and the USA. After their colonisation ended, they managed to successfully overcome the legacies of colonialisation by realigning, reconstituting and reconstructing education to serve the needs of the people. Investment in all levels of education, namely primary, secondary, Technical Vocational Education and Training (TVET) colleges and universities is critical to the development of any country.

In addition, Tilak (2002) found that earnings tend to improve by increasing levels of education. In Korea, a high school graduate earns about 1.18 more than the person who did not complete a high school education. A college graduate earns about 1.39 more than the school graduate. A graduate from university earns about 1.52 more than the college graduate. Ordinarily, an extra year of schooling was found to raise the individual's earnings by approximately 6%.

As part of their study on the effect of an additional year of schooling, Biyase and Zwane (2015) asked the question: Does education pay in South Africa? Biyase and Zwane used the National Income Dynamics (NIDS) data set to examine the potential influence of educational levels on wages in South Africa over the period from 2008 to 2012. Their findings showed that there is a strong positive relationship between the levels of educational attainment and earnings. Their research (spanning from 2008 to 2012) found that an average person who did not complete secondary education received a monthly income of about R3 778, while tertiary graduates earned about R12 951. Those who completed secondary school earned an average income of about R4 311 up to R7 175 per month. The NIDS data affirms that high level of education is associated with an increase in individual earnings in the labour market.

A study by Ali (2002), using secondary data from the United Nations' Education Scientific and Cultural Organisation (UNESCO), on building human capital for economic development in Arab countries, found that Arab countries have made education a priority since 1960. This led to the improvement of the stock of human capital of the labour force and generally improved the literacy levels of the population. Djistera (2006) conducted a study using panel data analysis for the periods 1971 to 2000 on the role of human capital in the Asian high-economic growth. Djistera found that improvements in human capital played a primary role in taking and using advanced technology from developed countries. Djistera (2006) concluded that for a country to have sustained economic growth in the long run, it needs to invest in human capital.

A study by Permani (2008) on education as a determinant of economic growth in East Asia for the period 1965 to 2000, using panel data, found that the East Asian growth miracle was triggered by human capital development coupled with efficient resource allocation.

Earle (2010) conducted a study on tertiary education, skills and productivity in New Zealand using the Households Labour Force Survey (HLSF) from Statistics New Zealand for the period 1992 to 2008. Earle (2010) found that there has been an expansion in the number of New Zealanders with tertiary qualifications up from 49% in 1992 to 57% in 2008. The employment levels of graduates increased from 10% in 1992 to 21% in 2008.

Graduates' unemployment in South Africa was discussed by Bhorat (2004) in a study about the changes in labour force participation, employment and unemployment in the first seven years after the new democratically elected government came into power in South Africa in 1994. The data from the October Household Survey (OHS) and Quarterly Labour Force Survey (QLFS) for the period 1995 to March 2002 from Statistics South Africa was used. Bhorat found that between 1995 and 2002, the level of unemployed graduates was above 6%. Bhorat also found that unemployment among graduates seemed to depend on the field of study, where graduates from the Social Science field were subjected to higher levels of unemployment than graduates from other fields of study.

This study was followed by a study conducted by the Development Policy Research Unit (DPRU) in 2006 on graduate unemployment in South Africa using 1995 OHS and 2002 to 2005 QLFS data. The DPRU compared figures from the March 2002 and March 2003 QLFS, the September 2004 QLFS and September 2005 QLFS with the 1995 OHS figures. Their findings were similar to the findings of Bhorat (2004), in that there had been an increase in broad graduate unemployment from 6.6% in 1995 to 9.7% in 2005. The DPRU also found that the unemployment rates of graduates differed according to race groups.

Pauw, Oosthuizen and Van der Westhuizen (2008) did some work to explain the reasons behind the rise of graduate unemployment in South Africa between 1995 and 2005. They compared the 1995 OHS and 2005 QLFS data. Their findings were similar to those of Bhorat (2004) and the DPRU (2006). They argued that the reason for the rise in the graduate unemployment rate for that period was due to a mismatch of skills that the graduates had and the skills that employers demanded in the labour market.

In 2010, Kraak also conducted a study on graduate unemployment in South Africa between 1995 and 2005, comparing the 1995 OHS and 2005 QLFS data. Kraak's findings attributed the problem of graduate unemployment to the structural shifts in the economy. A structural shift is a move from low-skill occupations and labour intensive-methods of production toward a high skill economy and capital intensive methods of production (Swanepoel and Van Zyl, 1994). Kraak (2010) argued that these changes in the economy led to a rise in graduate unemployment despite the shortage of skills during the same period. Kraak agreed though that the graduate unemployment level of 4.7% in South Africa was comparable with that of countries in Europe at that stage.

In March 2008, the DoL commissioned Vass, Roordt and Qingqwa (2008) to analyse the data examining the historical employment trends among designated groups, that is Blacks (Africans, Indians and Coloureds) for the period 1998 to 2005. In their analysis, Vass, Roordt and Qingqwa (2008) used data from 1998, the 1999 OHS, and the 2000 to 2005 LFS to examine the share of employment for the designated groups. Their findings revealed that during

the period 1998 to 2005, the largest proportion of the Blacks employed with degrees was about 31% to 40%. The employment share of this cohort in the economy was growing at about 8.8% per annum. This was followed by the employment of about 34% of Blacks with matric plus a certificate. This group experienced a decline of about 61% to 52% in the employment share from 1998 to 2005. The share of the employment of Blacks with certificates or diplomas increased from 59% in 1998 to 66% in 2005. The employment of Blacks without matric was about 28%. Their findings further indicated that the gap between Black individuals and White individuals employed with matric-plus a certificate and those without matric is narrowing.

With respect to occupational classifications, the relative status of the leading qualifications, together with historical trends in occupational divisions, had an effect in the representation of designated groups with formal post-school qualifications. Accordingly, nominal equity was achieved in those occupations which were historically dominated by Blacks and which required matric plus a further certificate or diploma. There was a considerable closing of the racial gap at mid- and low-level qualifications. However, in the occupations which were dominated by Whites and required a degree, there was a little or no change in the race gap. This is often observed in the employment patterns of legislators, senior officials and managers. Consequently, the employment of Whites is consistently high, irrespective of the level of education, compared with the employment of other designated groups for these positions. There remains a challenge concerning the transformation in the employment of Blacks with degrees.

The progress made by designated groups with degrees, shows a close correlation with historical legacies across race and the distribution of educational resources. Apart from the fields of study traditionally dominated by Blacks, employment of Blacks in other fields continues to be a challenge. Furthermore, their findings show that in terms of the Employment Equity Act No. 55 of 1998, a growing number of the designated group with formal post-school qualifications are regarded as suitably qualified and are placed accordingly in the workplace. The employment share of Blacks has increased rapidly to match that of Whites in the labour market. However, this did not affect

the employment share of Whites and their representations in certain occupations (Vass, Roordt and Qingqwa, 2008).

The Solidarity Research Institute (SRI) conducted a study on the South African labour market and the matriculants for the year 2011 and 2015. The SRI used the data from Department of Basic Education (DBE) for the 2011 matric results and data from Statistics South Africa (StatsSA). The findings from the study showed that unemployment among youth is high; and passing matric does not improve the situation. This is created by the poor performance of the majority of matric learners in learning areas such as Mathematics, Life Sciences, Physical Science and Accounting. A consistent feature in the labour market over the years is that people with little or no training often struggle to find employment. If they manage to find employment, they are relegated to a secondary type of employment where there is little pay with no benefits. A matric certificate is still important as it opens the doors of learning. However, it is no longer a straight pass to better paying employment. What aggravates the situation is the increasing number of people with matric who are not working. This indicates that the value of matric in the labour market has declined. Most matriculants need to upgrade their qualifications to be absorbed into the labour market.

In 2013 the Centre for Development Enterprise (CDE) commissioned Altbeker and Storme (2013) to analyse data examining the trends in graduate unemployment in South Africa since 1995. In their study, Altbeker and Storme used a large sample of data of about 30 000 households per quarter, the OHS for the period 1995 to 1999, the QLFS for 2000 to 2007, as well as the QLFS for 2007 to 2011 from StatsSA. Their research showed that the unemployment level of graduates was at 5%, which was lower than that of people with secondary education which was at 29%, while it was 42% for those who did not complete secondary education. Altbeker and Storme (2013) also found that it is a myth that graduates struggle to get employment as it was stated in the *City Press* newspaper, which ran a story on youth unemployment on 16 June 2012. The number of graduates in South Africa is rising and the majority of them are able to find employment (Altbeker and Storme, 2013).

The findings by Altbeker and Storme (2013) resonate well with the findings from the 2012 study conducted by Van der Berg and Van Broekhuizen from the Department of Economics at the University of Stellenbosch. Van der Berg and Van Broekhuizen compiled their study using the OHS for the periods 1995 to 1999, the QLFS for 2000 to 2007, and the QLFS for 2008 to 2011 from StatsSA to examine the overall trends of graduate unemployment. They also used data from the 2007 Community Survey which showed the full extent of the employment situation of the working population in the country. In their study, Van der Berg and Van Broekhuizen (2012) found that there was no evidence to suggest that there was an increase in the level of graduate unemployment. Instead, they found that the levels of graduate unemployment were low when compared with those who did not complete secondary education and those who entered the labour market immediately after completing secondary education.

In 2013 Muthethwa, on behalf of the DoL, conducted a study on job opportunities and unemployment in the South African labour market using data from various newspapers in all nine provinces, and the QLFS from the DoL for the period from 2012 to 2013. In examining the quarterly number of vacancies by occupational group from April 2012 to March 2013, Muthethwa (2013) found that there was an increase in the demand for managers and professional workers and a decrease in the employment opportunities for elementary workers in the South African labour market. This shows a need for higher levels of education. In addition, during the same period, Muthethwa (2013) found that there was a decrease in the employment opportunities for those who had not completed secondary education. From Muthethwa's findings, tertiary qualification appears to be urgently needed in the labour market.

In 2015, Festus, Kasongo, Moses and Yu conducted a study on the changes in the South African labour market for the period 1995 to 2013. They used the OHS 1995, the LFS of September 2004, and the QLFS of 2013 Quarter 1 data. The findings of the study were that while unemployment has risen, formal employment has also risen over the same period. They found that unemployment has concentrated on the poorly educated. A high share of unemployment is among those who did not complete secondary education and those with a matric qualification only. Individuals with post-matric qualifications

have low levels of unemployment. The low level of unemployment among those with post-matric qualifications shows the link between acquiring further education and better job opportunities.

In 2016, Bhorat, Cassim and Tseng conducted a research study on higher education, employment and economic growth titled: Exploring the Interactions. They used Olley and Pakes' two-stage regression on a modified Cobb-Douglass production function to estimate the extent to which the educational attainments of labour affect the nature and direction of economic growth in South Africa. Due to similarities between the OHS, the LFS, and the QLFS, Bhorat, Cassim and Tseng (2016) decided to combine these data sets and created Data-First at the University of Cape Town under the data project umbrella called the Post-Apartheid Labour Market Series (PALMS). The data set ranges from 1995 to 2012 and it brings together the homogenous labour market survey datasets into a single, serial statistical data source.

The PALMS assisted Bhorat, Cassim and Tseng (2016) to provide a descriptive overview of unemployment and the sectoral-education mix employed in the economy. Furthermore, PALMS' projections on the population sizes of individuals employed in the economy, the labour force, the working age, and the population by education, helped them form the micro-productivity analysis of labour inputs. The micro-productivity analysis of effective labour inputs had 39 observations, six annual OHS from 1994 to 1999, 16 biannual LFSs from 2000 to 2007, and 17 QLFSs from Quarter 1 2008 until Quarter 1 2012. These labour market series were arranged in line with the data for output (or GDP) measured by value-added at constant 2005 prices, and the financial data of investment and capital stock for StatsSA and the SARB.

In their study, Bhorat, Cassim and Tseng (2016), found that there is a close relationship between the different levels of education and unemployment. The labour market is in favour of those with higher levels of education. This is shown by the 4.2% unemployment rate among graduates. This is in contrast with about 30.9%, 11.3% and 16.0% of individuals with who did not complete secondary education, those with matric as their highest qualification, certificate and diploma holders and those with no education at all, respectively.

The unemployment level of those with matric as their highest qualification is high. The situation is exacerbated by the fact that the high school enrolment over the past 20 years has produced more school leavers who enter the labour market each year as new job seekers. However, the labour market seems to prefer individuals with tertiary qualification as opposed to those with matric or TVET qualifications. The market replaces the need for workers with TVET qualification with those possessing tertiary qualifications. This is an indication that, just as in the apartheid era, the labour market has not been able to improve the employment opportunities for the TVET graduates. The insignificant contribution made by the TVET to economic growth is an indication that this sector has not generated the expected results. The labour market seems to be skill biased, favouring those with higher levels of education. There is a growing trend that workers with some form of education, including certificates, replace those with no education in the low-skilled occupations such as crafts and trades.

In 2009, Van Zyl and Bonga-bonga conducted a study on the fiscal stimulation of human capital and the resultant economic growth in South Africa. Van Zyl and Bonga-bonga used the constant elasticity of substitution modelling (CES modelling) with the government expenditure data series from the South African Reserve Bank (SARB) quarterly bulletins for the period 1979 to 2006 and the time series publications by StatsSA. The data series used in this study consisted of the average capital labour ratio, the ratio of average wages and the prime overdraft rates as the proxy of the price of labour by the price of capital, logarithm of the gross domestic product, the capital stock (K) and the employment level(L). Van Zyl and Bonga-bonga (2009) found that the increased budget for education and training has no significant effect on the economy. A possible explanation to this is the misallocation of resources in education and training, the large number of drop-outs and poor performance in key learning areas such as Mathematics and Physical Science in Grade 12.

2.8 CONCLUSION

This chapter examined the historical development of the concept human capital. The chapter indicated that the concept dates back to the mid-1700s and

early 1900s, from Smith, Marshall and Fisher. It was in the 1960s where the concept human capital was coined by Schultz and Becker. The concepts human capital, education, training and development are used interchangeable. However, they have one common denominator that is the improvement of an individuals' skill in order to be productive, earn a better salary, and contribute to the country's economic growth. In unpacking the concept human capital, two approaches: micro-economic and macro-economic are used. The Micro approach is divided into the management and business approach, and the business approach is further divided into the resource approach, creation of market value and knowledge management.

Human skills as an important factor in the accumulation of growth came to the forefront in the 1950s. Prior to this revelation, economists of the time had emphasised the accumulation of physical capital, increases in population and technological progress. The role of human capital in the economic growth became evident in the work of Solow, who could not attribute the substantial growth to capital and labour only. At the same time, Solow found it difficult to explain this substantial growth. This led to Schultz and Becker investigating this unknown factor which contributed to the increase in economic growth. They discovered that this mysterious feature is human capital. In the 1980s, the new endogenous theories put more emphasis on the role of human capital. Human capital was then included in the production function as an exogenous factor. This prompted further research and empirical analysis on the significance and the contribution of human capital to economic growth. In the 1990s, the research by Romer (1990) showed that production is actually determined by endogenous labour.

Becker and Schultz observed that human capital is knowledge and skills that are intrinsic to the person who possesses it. In addition, Schultz and Becker illustrated that the accumulation of human capital leads to increased productivity and higher earnings. The theory of human capital has been criticised for not recognising the quality of education and its impossibility to measure the link between the level of education and productivity and high earning. In addition to the criticism levelled against human capital theory, screening hypothesis theory argues that there is no absolute link between

higher levels of education and productivity. They state that the economic value of education is rather in the behaviour of an individual than in the cognitive abilities.

The studies on the correlation between the level of education and employment and earnings in South Africa indicate that the investment in human capital does have a positive influence on labour outcomes. In the context of South Africa, the empirical evidence indicates that there is a need for a tertiary qualification in the labour market. This necessitates the need for cooperation between the private sector and the public sector in assessing the challenges that South Africa faces regarding the development of human capital, and the absorption of the majority of people with low levels of education into the labour market. There is also a challenge concerning the absorption of graduates with TVET qualifications. This calls for a close working relationship between the government and the private sector in assessing the needs of the economy. There seems to be a challenge between the budget allocation for education and training and the expected results. This requires a consistent evaluation and improvement of the teaching and learning activities and the consistent upgrade of educators' knowledge of the subject content and the use of the (modern) teaching aids efficiently.

CHAPTER 3: HISTORICAL OVERVIEW OF HUMAN CAPITAL DEVELOPMENT IN SOUTH AFRICA FROM 1948-1993

3.1 INTRODUCTION

"One cannot understand the present or the future without adequate knowledge of the past." Sikula (1973:3).

Chapter two involved a literature review that investigated and defined the possible concepts in the field of human capital development that are used in this study. This chapter consisted of an examination of a historical inquiry of the human capital in South Africa. The South African labour market shows a lack of equilibrium in the demand and supply of labour. There is a large supply of unskilled workers with a relatively low educational level. On the other hand, there is a shortage of workers with the skills required by the growing economy. This shows a structural mismatch of skills between the labour supply and labour demand (Coetzee *et al.,* 2007). The South African economy started to experience the structural shifts between sectors in the 1970s. Since then, there has been a steady decline in the employment share of the primary sectors, although the employment levels in the secondary sectors have remained relatively stable and the tertiary sector has been experiencing an increase in its share of employment in the economy. These changes in the structure of the South African economy are not unique, in the sense that they are universal. The structural changes in the performance of the economy brought about changes in the methods of production, which resulted into capital deepening (Bhorat and Hodge, 1998).

The capital-intensive economy requires highly skilled labour that is capable of developing, maintaining, implementing and using the sophisticated technology available. The structural changes in the economy highlight the importance of human capital development. As indicated in Chapter 2, human capital plays a distinguished role in a competitive and knowledge-intensive global economy (Frank and Bernanke, 2007). Schultz (1963) demonstrated that the main source

of improvements in productivity over time has been in the development of knowledge, skills and ideas to meet the demands of a global market place.

The aim of this chapter is to investigate and explain the historical overview of human capital development in South Africa. The chapter is structured into three main sections. The first section involves an investigation of the human capital development in South Africa from 1948 to 1993. The second section briefly documents the discrimination present in the labour market as a result of the unequal distribution of educational resources. The third section explains the consequences of this discrimination on human capital development.

3.2 HUMAN CAPITAL DEVELOPMENT: 1948 TO 1993

Chivaura and Mararike (1998) state that the foundation of South Africa's social, economic and political development was shaped by policies that created divisions within the society. The policies favoured Whites economically and educationally above other races, namely Blacks, Indians and Coloureds. This favouritism created a distorted economy whereby one race became highly skilled and had access to economic opportunities, better working conditions, employment stability and higher earnings. On the other hand, the other races, particularly Blacks, lagged behind, had low skills and were restricted to jobs that offered them little or no security, little or no prospects of promotion, low earnings and poor conditions of employment (Barker, 2015). The separate system of education was formulated on the basis of multiple segmented educational institutions with different administration boards. The racial development of human capital created inequality in terms of management and administration, access, curricula and expenditure on education (Chivaura and Mararike 1998).

Hansard (1972) reveals that in 1948, after the National Party won the parliamentary elections, they re-assembled the system of education. This led to the promulgation of Acts, such as Training of Artisans Act No. 38 of 1951, Bantu Education Act No. 47 of 1953, and the Extension of University Education Act No. 45 of 1959 (Davies,1996). The implementation of these Acts gave the government the power to establish a system of unequal distribution of educational resources to different races in the society.

After the National Party's election victory, the then Minister of Native Affairs and later the Prime minister made following statement:

> *"As has been correctly stated here, education is the key to the creation of the proper relationship between European and non-European in South Africa. Put native education on a sound basis and half the racial questions are solved. I say that there should be reform of the whole educational system and it must be based on the culture and background and the whole life of the native himself in his tribe. The present policy is also a danger for our own Western civilization. We should not give the natives an academic education, as some people are too prone to do. If we do this, we shall later be burdened with a number of academically trained Europeans and non-Europeans, and who is going to do the manual labour in the country. I am in thorough agreement with the view that we should so conduct our schools that the native who attends those schools will know that to a greater extent he must be a labourer in the country. When I have control over native education I will reform it so that the Natives will be taught from childhood to realise that equality with Europeans is not for them. People who believe in equality are not desirable teachers for Natives. What is the use of teaching the Bantu child Mathematics when it cannot use it in practice? That is quite absurd." (Verwoerd, 1953:3585-3588).*

The management of the education system was divided into various subsystems, with five ministers in charge of different departments. The provision of education for Whites, Indians and Coloureds was known as an “own affair” and it focused on issues dealing with the culture and values of these races. The Minister in charge for each population group was a member of the designated Council of Ministers (DET, 1985). The education for Blacks was grouped under government’s general affairs with health and the defence force. It was administered and controlled by the central management of the Department of National Education (DNE) through the Department of Education and Training (DET). The House of Assembly (HoA), House of Delegates (HoD) and the House of Representatives (HoR), self-governing territories (SGTs) and Transkei, Bophuthatswana, Venda and Ciskei (TBVCs) were in charge of the

19 departments of education (Sedibe, 1998). Figure 3.1 shows the structure of the education system in South Africa in 1993.

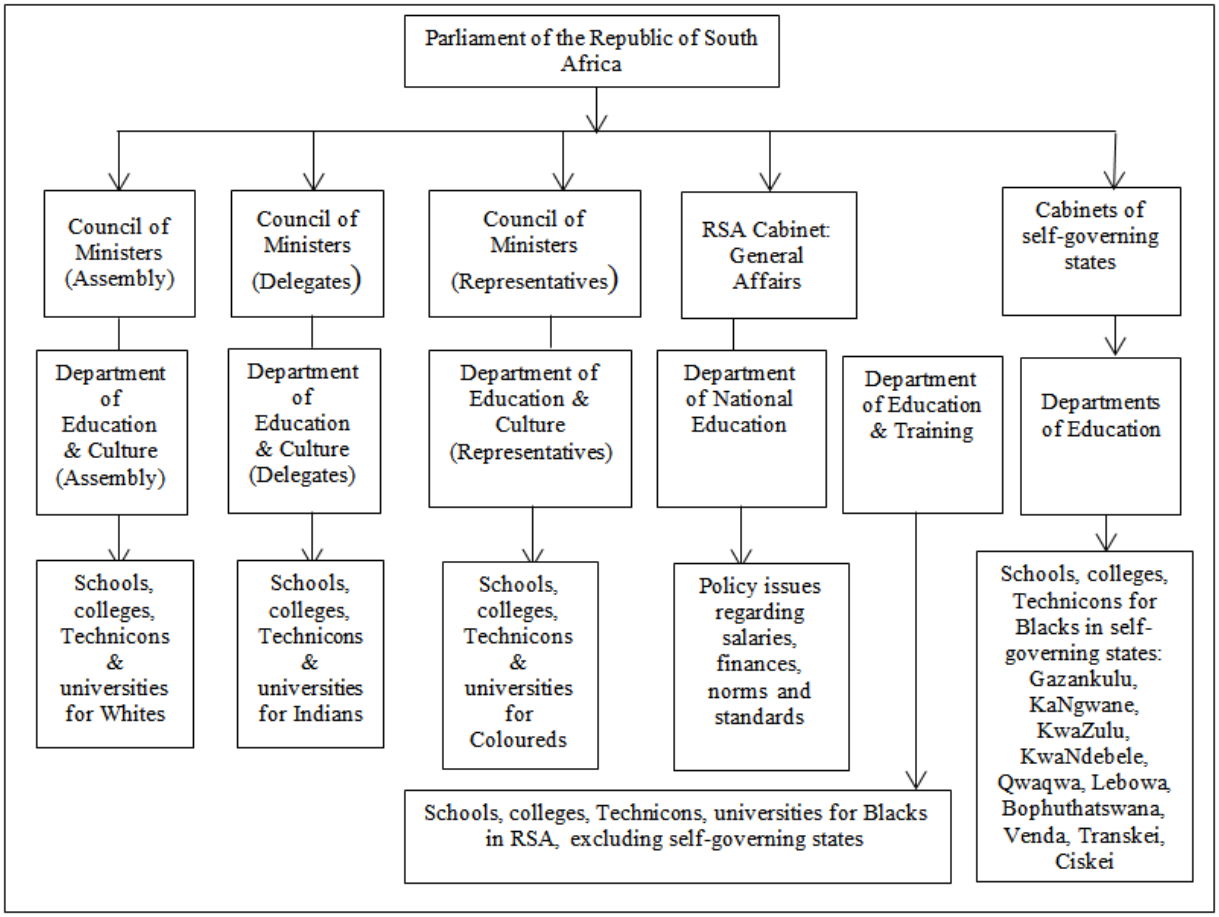


Figure 3.1: Management of education in South Africa 1993

Source: Bunting, 1994:7

Malherbe (1997) reveals that the provision of private education was the responsibility of the founders of the institutions, namely, parents, governing bodies and donors. The Matriculation examination for Blacks in the four provinces of South Africa, namely; Cape of Good Hope, Natal, Orange Free State and Transvaal; and in the SGTs and TBVCs was administered by the DET. The examination of other racial groups was handled by central departments of the representative houses. The examination of private education was managed by the Independent Examination Board (IEB).

English and Afrikaans were compulsory languages in all the black schools in the four provinces of SA and in the SGTs. Learners were required to learn Afrikaans and English and a third language that was their mother tongue. Although, geographically black schools were arranged according to their

languages in line with the Group Areas Act No. 41 of 1950, English was the language of instruction. Learners in white and private schools studied both Afrikaans and English and had an option of learning a foreign language. In these schools, competency in one of the indigenous languages was not enforced (Sedibe, 1998).

The system of education and training was characterised by the underdevelopment of human potential, particularly that of Blacks, right from its foundation. The curriculum in White schools was diverse and it opened to them opportunities for further development in future. However, in schools for Blacks the curricula was limited and it restricted them to menial jobs.

Macrae (1994) shows that the uneven distribution of Mathematics and Science subjects in schools, particularly in black schools created a poor foundation for these core subjects. This resulted in most Black learners graduating from matric without these subjects. Barker (2007) reveals that Mathematics and Science education has always been, and still is, a prerequisite for many tertiary qualifications. Given that Mathematics and Science subjects were not part of the curriculum in many black schools, this proved to be an obstacle that restricted their career paths in Science and Technological fields. The restriction created a differentiation in the skills levels of the races in South Africa. The low outputs in the number of people graduating with Mathematics and Science in matric, tertiary education and in TVET colleges has resulted in the shortage of skills in the fields of Natural Sciences, Engineering, health, Economic and Management Sciences (Erasmus and Steyn, 2002). The imbalances in the distribution of education have negative effects on the future labour market.

For example, in 1965 there was one White first-year medical student enrolled for a South African medical course for every 4 000 Whites in the country. On the other hand, there was one Black first-year medical student enrolled for every 700 000 Blacks in the country. In 1972, a total of 82 non-white doctors graduated of which 19 were Black (Digby, 2013). In turn, the system criticised other races for underperforming and succumbing to inferiority because of the small number of Accountants, Economists, Engineers, Doctors available in the

country (Biko, 1978). The inequality in the provision of education manifested itself further in the facilities needed for meaningful teaching and learning.

The lack of facilities, such as adequate classrooms, libraries, laboratories and furniture that are needed for effective teaching and learning created further hindrances to effective participation in different learning areas and sporting codes (Thomas, 1998). The large number of Black learners led to over-crowding in classrooms. The over-crowded classrooms led to a platoon system whereby schools had two sessions, one in the morning and another in the afternoon (Pillay, 1990). In addition to this challenge, there were a large number of Black teachers who did not have the appropriate years of training after matric, in contrast with the large number of well-trained White teachers who had a matriculation certificate and a teaching diploma (DET, 2001). The unequal educational opportunities were also evident in the expenditure per learner.

World University Services (WUS) (1983) states that the legacy of discriminatory spending on schools remains a living reality and is evidenced by the scale of adult illiteracy, particularly that of Blacks, poverty and the low matriculation pass rate. The differences on per capita expenditures adopted by government, made it practically impossible to provide equal education for all. The differential spending on education created inequality in the access to education between different races (Nasson and Samuel, 1990).

Table 3.1 shows the unequal distribution of educational resources.

Table 3.1: Distribution of resources in education 1970

Race Group	No education		Primary education only		Primary and secondary		Primary, secondary & tertiary		Total	
	c_i	r_i	c_i	r_1	c_i	r_i	c_i	r_i	c_i	r_i
White	0	0	2.0	6.0	7.8	33.6	2.4	27.5	12.2	67.1
Black	26.0	0	40.8	7.2	7.1	6.0	0.4	4.0	74.3	17.2
Coloured	0	0	1.2	1.2	1.5	2.8	0.1	1.2	2.8	5.2
Asian	1.1	0	6.8	1.2	2.6	3.8	0.2	1.5	10.7	10.5
Total	27.1	0	50.8	19.6	19.0	46.2	3.1	32.2	100	100

c_i=per cent cohort, r_i=per cent resources

Source: Marais 1995:45

The total column in Table 3.2 shows that despite the fact that Blacks composed about 74% of the population they received approximately just 17.2% of the education resources. A percentage of about 67.1% of all resources were spent on Whites even though they represented only about 12.2% of the population. The total row (the bottom row) of Table 3.2 shows that the distribution of resources was not equal with approximately 27.1% of the cohort not getting any of the state resources allocated to them (Marais, 1995).

Table 3.2: Distribution of resources in education (1985)

Race Group	No education		Primary education only		Primary and secondary		Primary, secondary & tertiary		Total	
	c_i	r_i	c_i	r_1	c_i	r_i	c_i	r_i	c_i	r_i
White	0	0	0 4	1 0	5 6	25 9	2 3	19 7	8 3	46 6
Black	16.0	0	37 0	11 1	28 0	21 7	0.8	3 8	82 2	36 6
Coloured	0	0	2 9	2 4	3 9	6 9	0.3	1.6	7 1	10 9
Asian	0 3	0	0 1	0 1	1 7	4 0	0.3	1.8	2 4	5 9
Total	16. 7	0	40. 4	14 6	39. 2	58 .3	3 7	26 .9	100	100

c_i=per cent cohort, r_i=per cent resources

Source: Marais 1995:49

Table 3.2 shows a slight improvement in the distribution of resources. The total column shows that approximately 36.6% was allocated to Blacks, compared to the approximately 17.2% which they received in 1970. However, more resources were still allocated to Whites. During this period, Whites received approximately 46.6% of the resources, even though they constituted only about 8.3% of the population (Marais, 1995).

The DET (1988) states that there were three causes for the inequalities in expenditure between race groups. Firstly, it was due to the differences in the qualifications of teachers. In the mid-1980s, a large number of Black teachers did not have formal educational qualifications higher than standard ten (Grade 12) while White teachers had qualifications above standard ten. Secondly, it was as a result of significant differences in the pupil–teacher ratio. In white schools, the pupil-teacher ratio was 19:1 and in black schools, the ratio was around 58:1. The white schools received a larger budget, irrespective of the smaller number of pupils in the classroom. Lastly, the budget was allocated according to different operational expenses amongst schools serving different race groups (Blignaut, 1981). However, in 1985, the race groups received proportional resources at tertiary level. This implies that the government was trying to reform and distribute the education resources equally to curb the socio-economic problems of an uneven distribution of income in society (Marais, 1995). This is shown in Table 3.3.

Table 3.3: Expenditure per learner by level of education (rands)

Level	Black		Coloured		Indian		White	
	1970	**1985**	**1970**	**1985**	**1970**	**1985**	**1970**	**1985**
Primary	21	249	112	937	92	937	366	2 044
Secondary	113	552	156	1 474	120	1 474	624	2 504
Tertiary	[5]*1 323	5 500	*1 384	5 500	*1 384	5 500	936	5 500

[5] The budget allocation for education in 1970 does not supply a true reflection of the actual amounts given for different races.

Source: Central Statistical Services (1986 cited in Marais 1995:48)

Table 3.4 indicates the gross enrolment numbers of learners for the different race groups in 1970 and in 1985. It shows that even though there was an improvement in the number of Black learners attending school, the differences between Blacks and Whites were still largely visible. In 1970, about 35% of Blacks did not receive a primary education, compared to approximately 20% in 1985 who did not receive education. A total of about 100% of Whites received primary education in both 1970 and 1985. In 1970, there were only about 0.5% Blacks enrolled for tertiary education. This number increased by approximately 0.5% in a period of 15 years to 1% in 1985, compared to tertiary enrolment figures of 20% and 28% for Whites in 1970 and 1985, respectively. Enrolment ratios for Indians and Coloureds for the periods under review were higher than those for Blacks, but still substantially lower than those for Whites (Marais, 1995).

Table 3.4: Enrolment ratios in South Africa 1970 and 1985 in percentages

Level	Black		Indian		Coloured		White	
	1970	**1985**	**1970**	**1985**	**1970**	**1985**	**1970**	**1985**
Primary	65	80	100	100	90	96	100	100
Secondary	10	35	58	95	26	57	84	95
Tertiary	0.5	1	5	15	2	4	20	28

Source: Central Statistical Services (1986 cited in Marais, 1995:48)

Similar to schools, the Technikons and universities were managed by different departments of education. The DNE was a central coordinating body in charge of monitoring and establishing financial and academic norms and standards.

The higher education system was structured along ethnic lines. There were 36 institutions of higher learning divided between 21 universities, 15 Technikons, 120 colleges of education, and 129 technical colleges that were administered by various different government departments (CHE, 2004).

The 21 universities were administered by four independent ministries. The administration of these universities did not include the DNE that had no statutory responsibilities towards individual universities. There was no direct

communication between the DNE with individual universities. All the communications were conducted in two ways, either through the department to which the university was responsible or through the Committee of University Principals (CUP) (Pillay, 1990).

There was no formal communication between the CUP and the four ministries of education that were responsible for the 21 universities. There was also no formal communication between the individual universities, CUP and the buffer body that was the representative of the interest of the communities served by universities, namely, the universities and Technikon Advisory Council (TAC). Lastly, there were no lines of communication between the four ministries responsible for universities and the TAC. The management structure of the Technikons was similar to that of universities (Bunting, 1994). Figure 3.2 shows the control of universities and Technikons at a national level.

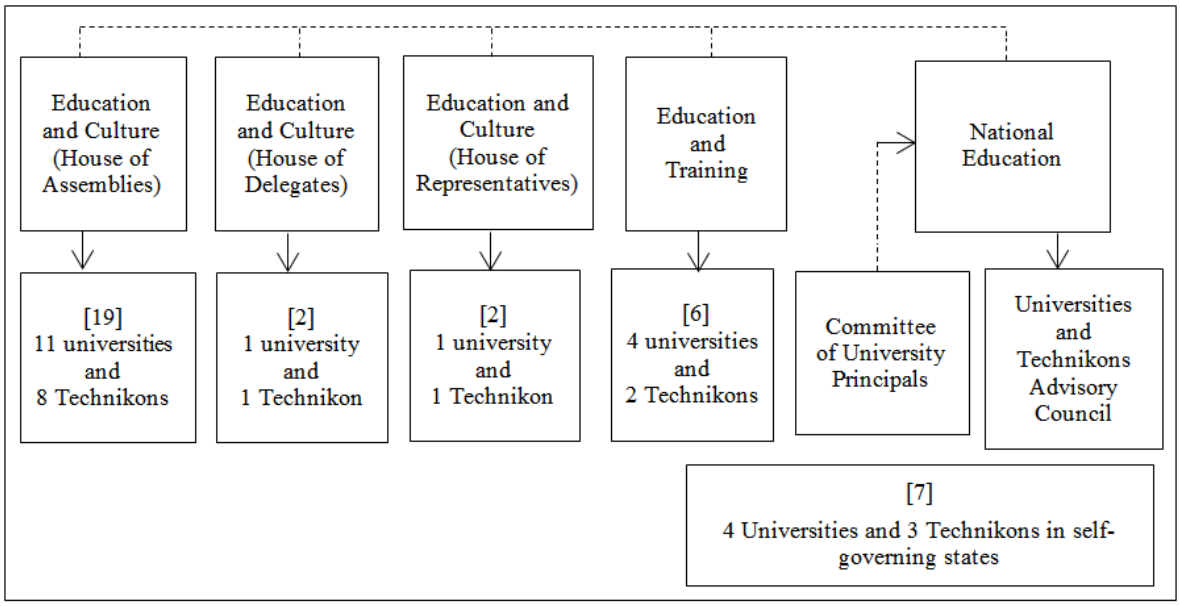


Figure 3.2: The control of universities and Technikons: 1993

Source: Adapted from CHE, 2004:40; Bunting, 1994:26.

In theory, the doors of universities were open to all. However, this open door policy was limited by the inability of the secondary school system to provide equal opportunities for all. The separate system of education created a pre-university structure for Blacks and Whites (Davies, 1996). The majority of Black students attended tribal universities and only about 5.5% attended open universities (universities for Whites).

The distribution of students showed the skewed pattern when compared with Whites. According to Central Statistics Services (1988), the percentage enrolments for different races in tertiary institutions in 1985 were as follows: there were about 64% Whites, approximately 22% Blacks, about 8% Indians and approximately 6% Coloureds (Pillay, 1990).

Bunting (1994) points out that access to higher institutions of learning was still not equal and that the number of White students in the university system in 1991 was nearly four times higher than this group's share of the total population. The proportion of Blacks in the university system in 1991 was by contrast, less than half this group's share of the total population.

Table 3.5 shows the inequalities in the access to higher education for the different population groups.

Table 3.5: Indicators of access to higher education in 1991

Race Groups	Total higher education enrolments as a proportion of population	Total higher education enrolments per 1000 of population
White	60%	51
Indian	33%	35
Coloured	11%	13
Black	9%	9

Source: Bunting (1994:39) (adapted)

Table 3.6 shows the likely progress of cohorts of White and Black learners from Sub-A (Grade 1) to higher education. Table 3.6 further shows that at least 80% of White learners entering primary school were likely to complete Standard 10[6] and pursue tertiary education. On the contrary, only about 20% of Black learners entering Sub A would ultimately reach Standard 10. They dropped out of school because of various reasons, ranging from poverty to financial constraints, and few of the 20% would pursue tertiary studies (Bunting, 1994).

[6] Bantu education used Sub A, Sub B, Standard 1 to Standard 10 to identify the different levels of educational achievement from primary to completion of secondary education.

However, most of the reasons showed the inability of the education system to provide general support in terms of the resources required to operate schools effectively, as well as a lack of moral support for the disadvantaged groups to encourage and keep their children at school despite the socio-economic challenges (UNDP, 1999).

Table 3.6: Likely progress of cohorts of White and Black learners

Stages	White	Black
Entering Sub A	1000	1000
Entering Standard 10	800	200
Passing Standard 10	750	80
Entering Teacher training college	20	08
Entering Technikon	170	08
Entering university	280	28

Source: Bunting (1994:40) (Adapted)

Bunting (1994) revealed that the small number of Black Standard 10 leavers who were able to pursue their studies at universities were faced with additional inequalities within the university system in 1991. They had to go to Black universities where the education they received was viewed as inferior by labour market standards.

The main sources of imbalances in the right-of-entry to higher institutions of learning were socio-political conditions, particularly the unfavourable basic education given to Blacks. Furthermore, language and the admission policies of universities also presented challenges. The admissions policies at all former Whites-only universities required applicants to have a certain level of performance in their matriculation. A large number of Black applicants did not have Mathematics and Science. As a result of this, a large number of students applied for admission in the education, Social Sciences and Arts fields (Pillay, 1990). The use of Afrikaans as a medium of instruction by some universities was another exclusionary mechanism for Blacks who wanted to study there as they were not proficient in Afrikaans (Bunting, 1994). The crowding of graduates, particularly Blacks, in the Humanities and Social Sciences fields still

show the segmentation of the labour market as previously racially determined. Graduates in these fields find it more difficult to find employment. As a result, they are relegated to inferior positions in the labour market, with lower economic prospects and little chance of mobility in either the internal or the external labour market (Moleke, 2005). The differentiation in the provision of education has effects on the educational level of a labour force.

3.3 DISCRIMINATION IN THE LABOUR MARKET

This section deals with discrimination in the labour market as a result of unequal human development.

The inequalities in the labour market are connected with the structure of the education system. This structure determines the opportunities that higher education graduates have as job-seekers. Inequalities in higher education, namely differentiation between and within various institutions and between various disciplines, are directly linked to the differentiation between various occupations in the labour markets (Moleke, 2005).

Weak human capital in the form of low levels of educational attainment limits the ability of workers to acquire new skills when markets change, and thus cause a slowdown in both investment and market adjustment to technology (Johanson and Adams, 2004). The inequality in the distribution of education played a role in the distribution of skills, particularly that of Blacks. The small number of Blacks in technical science fields shows the legacies of a lack of teaching skills and expertise in Mathematics and Science subjects, particularly at basic education.

Table 3.7 shows the distribution of Blacks in in selected key occupations per percentage distribution for 1965 to 1985.

Table 3.7: Distribution of Blacks in key positions: 1965-1985

Key positions	1965	1985
Engineers	0.0	0.1
Scientists	0.6	5.5
Medical Doctors	2.0	8.1
Nurses	44.9	60.0
Lawyers	0.9	6.0
Educationists	56.2	63.0
Architects	0.0	2.9
Managing Directors	3.6	3.9
Other Managers	1.7	3.0

Source: National Manpower Commission, 1988 (cited in Pillay, 1990:214)

According to Johanson and Adams (2004), the national economy of a country is hindered by the inability of the government to develop and effectively use the skills and knowledge of its people. The level of education of the SA population in the 1970s was very low. Approximately, 37% of the EAP had no education at all, about 38% had Standard 3 to Standard 9, about 16% had Sub-A to Standard 2, and about 9% had Standard 10 and above (Barker, 2015).

This indicates that the implementation of the Acts, such as the Training of Artisans Act No. 38 of 1951, the Bantu Education Act No. 47 of 1953, and the Extension of University Education Act No. 45 of 1959, coupled with low expenditure had negative consequences in the development of human capital, particularly that of Blacks.

To ensure a highly developed labour force for future inclusive economic growth, it is important that great emphasis be placed to the expenditure in education, especially for Blacks, because this labour pool has the potential of providing the greatest source of skills expansion (Lombard, 1981).

Figure 3.3 shows the educational level of the population in 1970.

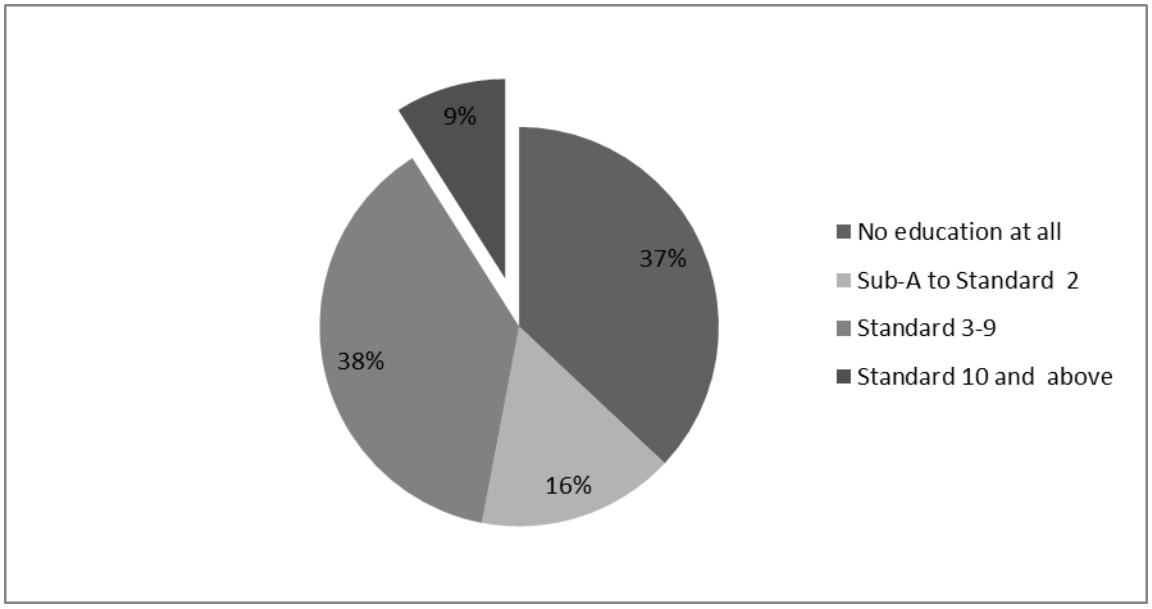


Figure 3.3: Educational level of the economically active population in 1970

Source: Barker 2015:223

The low-skilled labour force was failing to meet the demands of the changing economy. The low educational profile of the labour force occurred at the point when the economy of the country was changing. In the 1970s, the economy of South Africa started to grow. The rapid growth revealed the shortage of skilled labour. The number of Whites who were skilled was not enough to fill the gaps in the labour market created by positive growth changes in the economy. This resulted in the training of other races, although in limited numbers to fill some of the skilled jobs reserved for Whites and at a lower wage (Harbison, 1971).

The development of human capital during this period indicated two elements, namely the use of skills and knowledge of Whites, and the underdevelopment and underutilisation of human capital of other races, particularly Blacks. The underdevelopment of human capital often leads to the underutilisation of it. The policies of the apartheid system had negative effects on the economy and its development. They prohibited other races from being employed in the jobs for which they were competent and skilful and restricted them to low and semi-skilled jobs. This resulted in the underdevelopment and underutilisation of human capital. The restrictions in laws implemented by the government exacerbated the problem of how to tackle the skills shortages presented by the growing economy (Lombard, 1981).

3.3.1 Discriminatory laws in the labour market

Houghton (1976) reveals that the South African labour market was founded on unpleasant racial policies that bred human humiliation. Wage levels, occupational structures and skills acquisition were reinforced by racial discrimination. The nonexistence of effective labour market processes, such as skills development and occupational mobility, in combination with a lack of affordable job search and circulation of market information prevented Blacks from a meaningful contribution to the economy (HSRC, 2003). The labour market had a certain procedure for wage settings, labour orders, industrial councils, and apprenticeship and conciliation boards. These procedures were regulated by laws enforced for the protection of Whites in the labour market. Below are some of the laws enacted for this purpose.

1. The Industrial Conciliation Act No. 11 of 1924 was designed with the intention of protecting unionised White workers. This Act allowed the Minister of Labour to reserve certain jobs for a particular race and to determine how many workers of a particular race could be employed. This Act laid the basis for racial division in terms of trade union representation. Legally, black trade unions could not be registered and this prevented them from negotiating collectively and effectively with employers for better conditions of employment for their members. The Industrial Conciliation Act protected its supporters, who were mainly Afrikaans-speaking workers, from labour market competition from the cheaper and less skilled black workers;
2. The Basic Conditions of Employment Act No. 3 of 1983 regulated the hours of work in a week, overtime, lunch breaks, weekend work, annual leave, sick leave and maternity leave. The regulation was discriminatory with countless exclusions and exemptions. The agricultural, domestic and public service workers and welfare organisations were excluded. The minimum standards set in the Act did not apply equally to all workers. Thus, permanent workers were given preferential treatment over contract workers. The minimum standards did not apply in the same way to all workers who were covered under the Act;

3. In 1949, the government introduced the Unemployment Insurance Act No. 49 which excluded all natives whose income was less than R40.00 a month. This decreased the unemployment benefits allocated for Blacks;
4. Blacks were not allowed to train as artisans in white urban areas under the Training of Artisans Act No. 38 of 1951. This Act was supported by the policy statement that was made by the then Minister of Labour who said in the Senate: "*The policy of this government... is to refrain from training and using Blacks as skilled workers in white areas. This is and remains the government policy.*" (South African Institute of Race Relations, 1972:259). The few Blacks who managed to train as artisans were unable to get jobs in this field as a result of screening which was used as a selection tool;
5. The Bantu Labour Act No. 67 of 1964, Section 22 stipulated that Blacks needed permission in order to work in an urban area. This prevented a large number of them from getting employed within a reasonable period of time;
6. The Bantu Affairs Administration Act No. 45 of 1971, regulated the movements and prevented their mobility in searching for employment in white areas;
7. The Workmen's' Compensation Act No. 30 of 1941 provided a lifelong pension for Whites who were incapacitated that was equivalent to 75% of their monthly income, but it made little provision for Blacks. Blacks were given a sum of money that was equivalent to three years of pay;
8. The Wage Act No. 5 of 1957 placed minimum wages through a Wage Board, for all other races except Blacks who were working in the agricultural sector, domestic service and state sectors. This meant that Blacks were to accept any wage given to them, which was not in line with the market wage. This impacted negatively on their socio-economic status in the economy;

These laws were designed to provide a regulatory framework and a process of rigidity. In addition, measures such as pass laws, influx control and the regional

developmental policy were put in place to direct the mobility of labour. According to the Natives Act No. 54 of 1952, all Blacks from the age of 16 were compelled to carry reference books at all times. The reference book had the fingerprint, and the personal details of the holder. Blacks were arrested immediately when found not carrying their reference books. On average, every two minutes, a black person was arrested under this Act.

The influx control laws meant that no Black South African was allowed in an urban area without a permit, unless he/she was born in that area and had lived in it since birth. The regional developmental policy was introduced with the aim of bringing manufacturing industries nearer to the homelands. These industries were put in between the White and Black areas so that they could draw cheap labour from the homelands. They were situated in a so-called ‘no mans’ land', and as a result of this no taxes were paid from these industries (Lombard, 1981). In addition to the laws that limited the movement of workers, there were further discriminatory tendencies in the workplaces.

3.3.1.1 Discrimination due to training

According to Barker (2015) statistical and 'impositional discrimination' can be applied by employers to discriminate against workers at the workplace. In this study, impositional discrimination refers to employers setting criteria for applicants that are beyond those actually needed for the job specification as a means of excluding workers of a particular population group. Statistical discrimination is where employers use screening criteria to eliminate applicants with certain attributes from the lists of potential candidates based on the ‘statistical evidence’ that people from a specific population group (race, gender) on average will not be able to execute tasks in the same way as workers from other population groups.

Standing, Sender and Weeks (1996) reveal that employment training and skill formation were racially determined. The enrolment numbers of Blacks in vocational colleges was low. In 1990, out of about 568 920 secondary students enrolled with the DET, only about 13 460 were enrolled in technical drawing, and approximately 691 were enrolled for electronics. Technical careers were seen to be appropriate for Whites only. Whites were trained in all occupations,

while Blacks were trained inadequately in selected fields. For example, in 1982, there were about 10 659 White apprenticeships, while only about 3 838 Black apprenticeship contracts were registered. In 1986, the number of White apprenticeships decreased by approximately 26% to 8 038 and that of Blacks by about 17% to 1 628. In 1990 there were 9 054 apprenticeships registered, of which 6 709 (74%) were for Whites and 951 (10.5%) were for Blacks (Lombard, 1981).

Blacks who qualified as artisans were placed in the lower skilled artisanal categories. There were large numbers of Blacks in the welding, boiler making, fitting and sheet metal working trades. By contrast, Whites were predominant in the highly skilled trades such as engineering, electrical and motor sectors. However, the quality of the White artisan workers was low, as there were few who passed the written trade tests (Standing *et al*., 1996). However, through the system called 'effluxion of time' as was stipulated in the Manpower Act No. 56 of 1981, after five years of doing a job, the apprentice qualified automatically as artisan. As a result of this Act, a large number of Whites who had failed the trade test 'qualified' as artisans. In addition to this, in 1990 a large number of White artisans had only Standard 7 as their highest level of education. The lack of educational qualifications on their part restricted their capacity to attract and respond to new skilled tasks. Therefore, to maintain that Blacks could not be employed in artisanal jobs because they lacked education is a fallacy, especially seen in the light of the many Whites that had no proper qualifications in these apprenticeships (Lombard, 1981). The discriminatory tendencies extended to recruitment practices.

3.3.1.2 Discrimination by recruitment practices

Lombard (1981) points out that the job reservation sections of the Industrial Conciliation Act No. 28 of 1956 institutionalised job discrimination. Screening of Black applicants using qualifications which they did not have was another way of maintaining discrimination in the labour market. The apartheid government imposed entrance qualifications that made it difficult for Black job seekers to qualify since they did not have the required level of education. For example, in the metal industry, Blacks were taken only if they had passed Standard 10 with Mathematics and Science as subjects, while Whites were

accepted with only Standard 8. In addition to this, in the mining sector, Blacks were required to pass a test that was controlled by a Commissioner of examiners who was appointed by the Government Mining Engineer. Whites entered this sector without a required qualification. The inclination to discrimination was further noticed in occupations (Standing *et al.,* 1996) as discussed in the next section.

3.3.1.3 Occupational discrimination

Lombard (1981) shows that occupational discrimination was, and still is, a problem in the South African labour market and is the cause of inequality. This method served as a tool to increase the salaries of Whites and to keep the Blacks, who were blocked from certain occupations, at lower levels. Blacks were under-represented in managerial positions. Whites held management positions without the required qualifications. In addition to this, various forms of discrimination as stated in Section 3.1.1.1 were practised to exclude Blacks from occupying these positions. Table 3.8 shows that Whites occupied four out of every five management posts in the early 1990s.

Table 3.8: Managers in South Africa by race in 1970, 1980, 1985 and 1991

	Black			White				Total	
Year	Number employed	% of employed	% of total growth	Number employed	% of employed	% of total growth	Number employed	% of employed	% of total growth
1970	2 306	2.7	-	80.678	93.6	-	86.234	1.1	-
1980	4 040	2.9	75.2	125.820	91.7	56.0	137.140	1.6	59.0
1985	10 802	4.2	167.4	224.043	87.5	78.1	255.955	2.9	86.6
1991	33 320	9.6	208.5	275.827	79.2	23.1	348.157	3.0	36.0

Source: Central Statistical Services, Reports for 1982, 1990 and 1992 (cited in Standing *et al*, 1996:391)

In 1995, Blacks constituted 77.1% of unskilled workers and 65.2% of semi-skilled workers; however, they were only represented by 3.4% in managerial positions. On the contrary, Whites constituted only 1.8% of the unskilled

workers, and were well represented in managerial positions by 86.5%. The labour market was further prone to income discrimination.

3.3.1.4 Discrimination by income

The labour market in South Africa was, and still is, characterised by inequalities in wages and fringe benefits. The government has, however, strongly determined wage rates in industrial jobs. Wages were linked to qualifications, thus, where educational requirements were high, wages, benefits and security were set high and where education levels were low, wages, benefits and security were also low. This move strengthened and supported other laws which prevented Blacks from occupying these jobs. Thus, the government effectively and efficiently used these tools to place Blacks in low-skilled, low-status jobs by refusing them entry to certain jobs, refusing to give them bargaining rights, refusing to provide them with equal education, and by bringing in unskilled labour from neighbouring countries (Bergmans, 1982). This is illustrated by Figure 3.4.

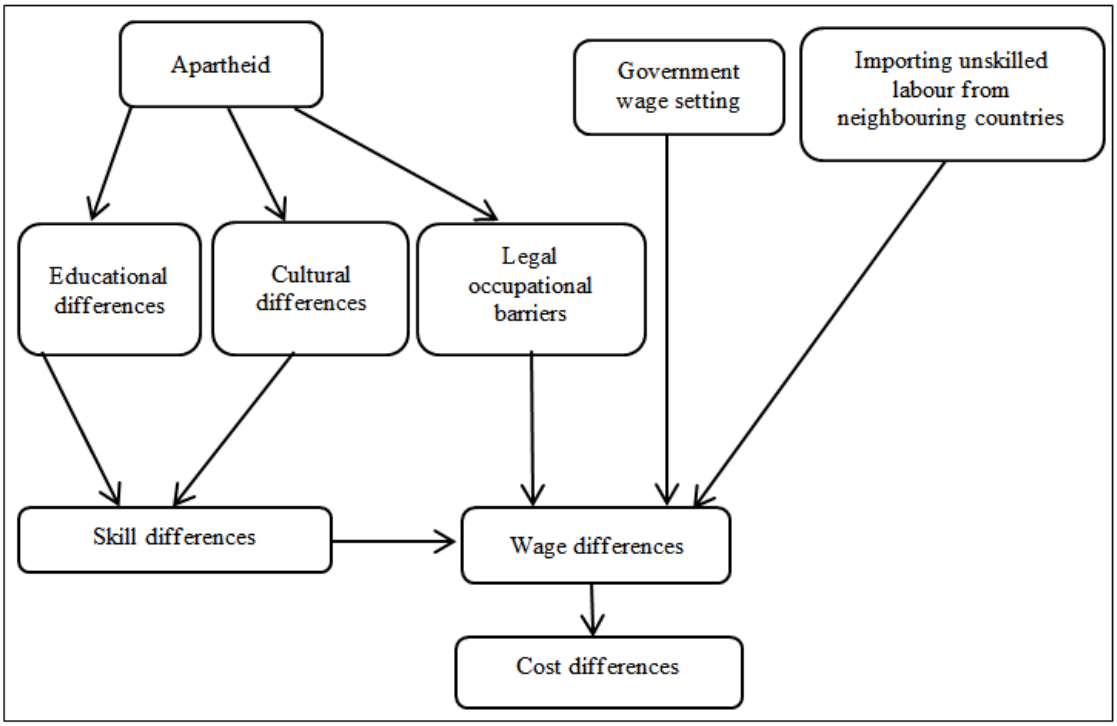


Figure 3.4: Schematic diagram of the cause of wage and cost differences

Source: Bergmans, 1982: 635

3.3.1.5 Discrimination by sector of employment

Standing *et al.* (1996) argue that segregation by means of sector employment was largely practised during the apartheid era. There was unequal representation of racial groups in all the sectors in the economy. This is shown in the Table 3.9 on the next page.

Table 3.9 shows that Blacks were largely concentrated in agriculture, mining, construction and domestic employment. Employment opportunities have decreased in these sectors and the salaries were generally low when compared with the financial sector. Whites were largely based in the financial sectors. These were the sectors which offered security in future employment and a higher income (Lombard, 1981). In addition, there was inherent discrimination due to work status and unions in the labour market.

Table 3.9: Sectoral distribution of employment by race 1990-1992

Industries	Years	Percentages				
		Indian	Coloured	White	Black	Total
	1990	2.85	31.00	17.56	48.59	100
	1991	3.42	31.87	15.25	49.46	100
	1992	3.18	34.85	15.01	46.96	100
	1990	1.38	12.62	11.75	74.25	100
	1991	1.81	11.84	11.56	74.78	100
	1992	1.73	10.84	12.80	74.68	100
	1990	4.90	8.39	58.23	28.48	100
	1991	5.04	8.67	58.31	27.98	100
	1992	4.54	8.68	60.50	26.29	100
	1990	0.12	1.39	10.20	88.29	100
	1991	0.16	1.17	11.18	87.49	100
	1992	0.10	1.36	10.87	87.69	100
	1990	6.21	17.62	22.15	54.02	100
	1991	6.66	18.18	22.42	52.75	100
	1992	6.69	17.20	22.86	53.25	100
	1990	0.16	5.03	44.27	50.54	100
	1991	0.28	5.09	45.64	48.99	100
	1992	0.29	4.93	46.92	47.86	100
	1990	2.70	10.36	41.75	45.20	100
	1991	2.62	10.18	42.68	44.52	100
	1992	2.60	9.52	40.73	47.15	100

Industries	Years	Percentages				
		Indian	Coloured	White	Black	Total
Wholesale, retail trade, catering and accommodation	1990	7.37	13.15	30.70	48.78	100
	1991	7.30	14.17	30.85	47.69	100
	1992	7.55	14.23	30.65	47.58	100
	1990	3.25	12.36	34.67	49.71	100
	1991	3.11	12.21	34.13	50.55	100
	1992	3.06	13.17	34.83	48.93	100

Source: Manpower survey 1992 (cited in Standing *et al.*, 1996:395)

3.3.1.6 Discrimination by work status and through unions

Work status is associated with labour security. Blacks were employed in insecure forms of employment, namely, casual and contract labour. Black workers were not allowed to have representation in the labour market. This prevented them from bargaining for better wages, favourable working conditions, and job grading, training and allocation systems in the labour market (Standing *et al.,* 1996). The labour market discrimination had negative effects in the individuals, industries and the society at large.

A large number of Blacks were concentrated in informal activities which did not fall within the range of regulatory forms of labour protection. When Blacks opted for self-employment as a means of survival, they were faced with a low income, low status and low security. This form of employment included activities such as operating spaza shops, street vending, running shebeens, sewing and selling clothes. For the purposes of this study, while a spaza shop means an unregistered business that is run from home, a shebeen is a registered small business that sells liquor that is also run from home.

3.4 RESULTS OF RACIAL DISCRIMINATION

The apartheid system of government affected individuals, industries and society at large. This is seen in the distribution of wealth and in the economic status of households in the society. The primary result of the racial segregation was the restriction of the workers' mobility. Insufficient education, inadequate training and skills and the laws restricting the movement of blacks from rural to urban areas made it impossible for Blacks to become gainfully employed.

The second result of the racial discrimination in the society was the dissatisfaction and disaffection of the Black workforce, which persists even today. A person who is not treated well over a period of time will develop a deep-seated anger that may also include hatred. This anger and hatred become a fertile ground for rejection and rebellion against the existing social and economic order.

The third result is the underutilisation of human resources. The underutilisation of Black South Africans as a result of racial discrimination necessitated the recruitment of foreign nationals, while domestic Black unemployment was increasing. Recruiting immigrants legally in a growing economy is acceptable, however efforts should be made to train and develop the skills of the inhabitants of the country.

An added result was an increase in the level of poverty among Blacks that led to a high incidence of child mortality, increased levels of malnutrition, crime and depression (Lombard, 1981).

3.5 CONCLUSION

The Training of Artisans Act No. 38 of 1951, the Bantu Education Act No. 47 of 1953, and the Extension of University Education Act No. 45 of 1959 were the foundation for the unequal development of human capital in terms of access, curricula, teaching and learning resources, and expenditure on education in SA. The formulation and the implementation of these Acts led to the unequal provision of education, which extended to the unequal opportunities and discrimination in the labour market. One population group had access to education and better employment opportunities, while the other population groups had little access to education and job opportunities. The manner in which the curricula were designed in schools, particularly in Black schools proved to be a hindrance to the access to Science and Technological fields at tertiary institutions of learning. In addition, the unequal distribution of educational resources affected the education profile of the population at large.

The education system failed to appreciate the changes that were taking place in the economy. Although the economy was creating jobs for the skilled labour market, the government was restricting access to training and job opportunities

for all through discriminatory laws. The discriminatory laws distorted the functioning of the labour market in terms of job allocation, job grading, training, wages, pension benefits, free movements to search for employment, and the unequal representations of all population groups in the different sectors in the labour market.

CHAPTER 4: HUMAN CAPITAL DEVELOPMENT IN SOUTH AFRICA SINCE 1994

4.1 INTRODUCTION

"Education can add to the value of production in the economy and also to the income of the person who has been educated. But even with the same level of income, a person may benefit from education in reading, communicating, arguing, in being able to choose in an informed way and in being taken seriously by others and so on." Amartya Sen (1997:1959).

While Chapter 3 consisted of an examination of the historical background to human capital in South Africa, this chapter aims to present an analysis of human capital development in the post-apartheid era. The analysis is based on the secondary quantitative data collected from academic journals, StatsSA, DBE, DHET, AET centres, TVET colleges and SETAs to determine whether or not progress has been made in tackling the legacy of apartheid in education and training since 1994, and to determine whether or not human capital development has, since 1994, improved in all levels of education in terms of access. The analysis extends further to education and employment opportunities, education earnings, and the occupation vacancy list that is used to determine the employment opportunities in the labour market.

The DHET data was sourced from the Higher Education Management Information System (HEMIS), which contains data provided to the Department by the:

1. public HEIs;
2. annual reports submitted by registered private HEIs;
3. Further Education and Training Management Information System (FETMIS), which contains data provided to the Department by public TVET colleges and registered private TVET colleges;

4. database on AET centres, which contains data provided to the Department by provincial education departments and annual reports submitted by private AET Centres;
5. SETAs Learner Management System, which contains data provided to the Department by SETAs;
6. Quarterly Reports provided to the Department by SETAs;
7. data provided to the Department by the National Artisan Moderation Body (NAMB);
8. reports provided to the Department by the NSF; and
9. National Examination Database, which contains administrative data about student examinations and certification for GETC-ABET, National Certificate (Vocational) and “N” qualifications (DHET, 2012).

On the other hand, the DBE collects data from schools districts (Centre for public education [CPE] *n d*).

Secondary data for the years 1985, 1997, 2000, 2006, 2009 and 2013 was collected to show the gross enrolment numbers in public schools, while secondary data for the years 2002, 2007 and 2012 was collected to show the percentage of changes in the enrolment of 7-15-year-olds in the compulsory General Education and Training (GET) band. The GET band starts with Grade 1 and culminates in the GET Certificate at the end of Grade 9, and the Further Education and Training band (FET) stretches from Grade 10 to 12. The aim was to investigate changes in the percentages of learners enrolled, and the total number of learners by race that registered and passed Grade 12 for the years 1985, 1993, 2008, 2012 and 2014; as well as the total number of learners that registered and passed Mathematics and Physical Science in Grade 12 for the years 1997, 1999, 2003, 2005, 2009, 2011 and 2013.

University education data showing the overall enrolment numbers of students was collected for the years 1988, 1995, 2002, 2007 and 2012. The data for the years 1995, 2002, 2007 and 2012 showing the total number of students by race and the graduate numbers by race was also collected. Data relating to AET

centres for the period 2010-2013 was collected to investigate changes in the total number of students that registered, that wrote and passed their ABET Level 4. The data for the TVET colleges for the period 2010-2013 was collected to find out about changes in the total number of students enrolled. Data from the SETAs for the period 2010-2014 was collected to investigate the number of people who received training from these sectors. The data for education and employment opportunities for the period 1996, 2002, 2007, 2012 and 2015 was collected from StatsSA. The data for periods 2011-2013 was collected from StatsSA to show the relationship between education and earnings. The vacancy list data for period 2010-2013 was collected from the Department of Labour. It shows the number of employment opportunities created quarterly in the economy.

As mentioned previously, the objective of this chapter is to explain and analyse how South Africa's post-apartheid government has related to human capital development. The chapter is structured into seven main sections. Section 1 consists of an analysis of the changes in the DoE in the post-apartheid era. This section focuses on the changes in the legislation that governs education. Section 2 analyses the growth in the learner enrolment in public schools, students' enrolments at TVET, AET, universities and SETAs. Section 3 briefly looks at the national artisans' development programme. This is followed by a discussion of the challenges facing the department of education in Section 4. Section 5 analyses the relationship between education and employment opportunities, while Section 6 reports on the relationship between education and earnings. Section 7 analyses the role of the vacancy list in showing the patterns of changes in occupations. This is followed by concluding remarks.

4.2 CHANGES IN THE DEPARTMENT OF EDUCATION IN THE POST-APARTHEID ERA

The structure of education, as it was inherited by the democratically elected government in 1994 (explained in Chapter 3) necessitated the need for transformation into a new structure that would be inclusive of all race groups in the country. Immediately after the assumption of power, the government started a process of restructuring the education system with the sole aim of laying a

solid foundation for a single coordinated and differentiated system of higher education (DoE/DoL, 2003). The following bodies, namely, the Centre for Education Policy Development, the National Training Strategy Initiative; and the ANC Education Desk, in consultation with its partners in organised labour, organised businesses, providers of education and training, and stakeholders in the education and training system made proposals towards the formation of the new education and training system. The main purpose was to integrate education and training. Their extensive consultations resulted in the publication of three documents, namely, the Implementation Plan for Education and Training, the Discussion Document on a National Training Strategy Initiative and the Policy Framework for Education and Training (Van Rooyen, 2011).

Van Rooyen (2011) states that the restructuring of the education system led to the promulgation of the following Acts, namely, the SDA No. 97 of 1998, SAQA No. 58 of 1995 and the Skills Development Levies Act (SDLA) No. 97 of 1999. The formation of the South African NQF was supported by the formation of all the above-mentioned Acts. The SAQA Act No. 58 of 1995 laid the foundation for the establishment and enactment of the NQF Act No. 67 of 2008.

The aim of the formulation of SAQA was to administer and control the development and implementation of an integrated national framework that ensures quality of learning. The main functions of SAQA are to improve the quality of education and training, to ensure a faster pace of reform in education and job opportunities, even the path to acquire education, and to facilitate transportability between different levels in the education system. SAQA also offers a verification service to check the originality and validity of South African qualifications against the records in in the SAQA database. It further compares foreign-based qualifications with local qualifications registered on the NQF and advises on the equivalent level of the foreign qualification. This service is increasingly used for appointments in various departments of government and in private companies (CHE, 2004).

SAQA cooperates with three Quality Councils responsible for different sections of the South African education and training system. These councils are the Council on Higher Education for qualifications in higher education, Umalusi for

qualifications in TVET colleges, adult education, private providers and schools, and the Quality Council for Trade and Occupations (QCTO) for workplace (occupational) qualifications offered at post-school institutions and in places of work. SAQA oversees their coordination (DoE 2003 /DoL, 2003). SAQA aims to improve the standard of qualifications, sets minimum requirements and necessitates that all qualifications be registered on the SAQA database.

The integrated NQF education system is governed by the General and Further Education Amendment Act No. 50 of 2008, the Skills Development Amendment Act No. 37 of 2008 and the Higher Education Laws Amendment Act No. 26 of 2010. The NQF focuses on the supply and regulation of all qualifications and unit standards across ten levels of learning, irrespective of race and gender. Furthermore, the NQF is a tool designed to bring in non-racial, non-discriminatory human capital development aimed at contributing to the national, social and cultural development of the country. (Van Rooyen, 2011).

The entire educational system, from primary education to tertiary education, received an overhaul, which resulted in the transformation of the manner in which education was structured and administered. The segregated and racially duplicated institutions of the apartheid period were replaced by a single coherent and diverse national education system that serves adults, youth and children within in the framework of the Human Resource Development Strategy for South Africa (South African Year Book, 2013). The intensive consultations and the implementation of new Acts led to the formation of the new structure of higher education and basic education as shown in Table 4.1 and Table 4.2, respectively.

After 1994, the ministry of education was known as the Department of Education (DoE). In 2009, this ministry was split into two departments, namely, the DBE and the DHET. The DBE is responsible for schools, including Early Childhood Development (ECD), and aims to achieve quality basic education in line with the Constitution and through the National Education Policy Act No. 27 of 1996. The provision of basic education is administered by national and provincial governments. The DHET is responsible for the post-school education and training institutions, namely, Higher Education Institutions (HEIs), TVET

colleges and AET centres. Furthermore, DHET ensures the facilitation of workplace education and training by SETAs and the support of skills development by the NFS (South African Year Book, 2013).

Table 4.1: South African Public Higher education in 2004

Institutional Type		Institutions
Universities	8 separate and incorporated universities	– University of Cape Town (UCT) – University of Fort Hare (UFH) + Rhodes University East London Campus – University of Free State (UFS) + Vista University (Bloemfontein) + University of the North (QwaQwa) – University of Pretoria (UP) + Vista University (Mamelodi) – Rhodes University – University of Stellenbosch (US) – University of Western Cape (UWC)+ University of Stellenbosch Dental School – University of Witwatersrand (Wits)
	3 merged universities	– University of Durban-Westville (UDW) + University of Natal = University of KwaZulu-Natal. – University of the North (UNIN) + Medical University of South Africa (MEDUNSA)* = University of Limpopo – Potchefstroom University of Christian HE (PUCHE) + University of North West (UWN) + Vista University (staff and students of Sebokeng) = North West University
Universities of Technology	3 separate and incorporated (Technikons) Universities of Technology	– Technikon Free State (TFS) + Vista University (Welkom) = Central University of Technology – Vaal Triangle Technikon + Vista University (Infrastructure and facilities of Sebokeng = Vaal University of Technology

	3 merged (Technikons) University of Technology	– Cape Technikon + Peninsula Technikon (Pentec) = Cape Peninsula University of Technology – Mangosuthu Technikon + infrastructure and facilities of the Umlazi campus of the University of Zululand = Durban Institute of Technology (DIT) – Technikon Pretoria (TP) + Technikon Northern Gauteng (TNG) + Technikon North West = Tshwane University of Technology
Comprehensive Universities	2 Independent Comprehensives	– University of Venda = University of Venda for Science and Technology – University of Zululand
	4 merged comprehensives	– Rand Afrikaans University (RAU) + Technikon Witwatersrand + Vista University (East Rand and Soweto) = University of Johannesburg – University of Port Elizabeth (UPE) + Port Elizabeth Technikon (PET) + Vista University (Port Elizabeth) = Nelson Mandela Metropolitan University. – Technikon South Africa (TSA) + Vista University Distance Education Centre (VUDEC) = University of South Africa (UNISA) – University of Transkei (Unitra) + Border Technikon + Eastern Cape Technikon = Walter Sisulu University of Technology and Science
National Institutes		– Mpumalanga Institute for Higher Education – Northern Cape Institute for Higher Education

*On 1 January 2015 MEDUNSA uncoupled from the University of Limpopo to become The Sefako Makgatho Health Sciences University.

Source: CHE, 2004:50.

Between the years 2001 and 2003, through a process of combination, the various colleges of education were reduced from the 120 that were present in 1994 to 50, after which they were further reduced to 25. In 2001, the colleges of education were formally absorbed by the existing universities (CHE, 2004). Between the years 2000 and 2003, the public TVET colleges were reduced from 152 to 50. In addition to this, through a process of combination, the total number of universities was reduced from 36 to 23. In 2011, there were 23 public higher education institutions, of which six were universities of technology that focused on vocationally oriented education, six comprehensive universities, which combined academic and vocational diplomas and degrees, and eleven traditional universities offering theoretically oriented university degrees (South African Year Book, 2015). In 2014, two new universities were established namely, Sol Plaatjie in Northern Cape Province and University of Mpumalanga in the Mpumalanga Province. This brings the number of universities to 25. The government has plans to further expand the institutions of learning to accommodate the growth in the numbers of students (SA Infor. reporter, 2015). The restructuring of the education system extended further to basic education.

Basic education is administered nationally and according to provinces. Since the administration of education was previously fragmented into various bodies of administration, this created inefficiencies and inequalities which were inherited by the nine provinces, namely, Limpopo, Gauteng, Mpumalanga, Free State, KwaZulu-Natal, North West, Western Cape, Eastern Cape and Northern Cape created after 1994. KwaZulu-Natal, Eastern Cape and Limpopo were bequeathed with the largest number of learners and former racial departments of education that were not functioning properly. This is shown in Table 4.2. This has impeded the advancement in the development of human capital in these provinces (Perry and Arends, 2003).

Table 4.2: Total number of learners in South African public schools in 2004

Province	2004
Eastern Cape	2 150 308
Free State	690 490
Gauteng	1 697 908
KwaZulu-Natal	2 718 176
Mpumalanga	1 893 626
Northern Cape	934 786
Limpopo	903 379
North West	209 000
Western Cape	978 718
Total	12 176 391

Source: HRD Review, 2003:308

Jewison (2008) indicates that the structure of the educational qualification system was substantially reformed and changed. This led to the formation of the currently used structure which comprises ten different levels of education as shown on the NQF, and illustrated in Table 4.3.

Table 4.3: National Qualifications Framework Bands

Level	Qualification type	Learning routes		
Higher Education				
10	Doctorate	Universities; universities of Technology		
9	Master's degree	Universities; universities of Technology		
8	Post-graduate diploma Honours degree	Universities; universities of Technology		
7	Bachelor's degree Professional qualification	Universities; universities of Technology		
6	Diploma Advanced Certificate	Universities; universities of Technology		
5	Higher Certificate	Universities; public TVET colleges; and private colleges NGO (Non-Government Organisations)		
Further Education and Training Certificate (FETC)				
4	Senior Certificate Adult National Senior Certificate Senior Certificate (Vocational)	Grade 12	Secondary schools, Public and Private TVET colleges, employer/ skills development providers	
3	Occupationally directed qualifications	Grade 11	Secondary schools, Public and Private TVET colleges, employer/ skills development providers	
2	Occupationally directed qualifications	Grade 10	Secondary schools, Public and Private TVET colleges, employer/ skills development providers	
General Education and Training Certificate (GETC)				
	Senior phase	ABET Level 4	Public, private and NGO ABET centres	employer/ skills development providers
	Intermediate phase	ABET Levels 2-3	Public, private and NGO ABET centres	employer/ skills development providers
	Foundation phase	ABET Level 1	Public, private and NGO ABET centres	employer/ skills development providers

Source: Jewison, 2008:17.

1. NQF Level 1 is the General Education and Training (GET) Band of the schooling system up to Grade 9. Adult learners also qualify in this level at AET centres.
2. NQF Levels 2 to 4 resort under the FET Band. These levels consist of education provided at secondary schools, TVET colleges, training providers and by employers. At secondary schools, learners obtain a Senior Certificate on successful completion of Grade 12 at NQF level 4. This is the level where trade and occupational qualifications from TVET colleges are situated and this is also the level of education that is a requirement to pursue higher education and skills based training.
3. NQF Levels 5 to 10 fall under the HET band. Level 7 is a junior degree, whereas levels 8 to 10 are post-graduate degrees.

The qualifications for NQF Levels 1 to 4 are developed and managed by Umalusi. This means that Umalusi administers the qualifications for schools, TVET colleges and AET centres. Qualifications for Higher Education and Training at NQF Levels 5 to 10 fall under the auspices of CHE (CHE, 2009). Table 4.3 shows the different types of qualifications, at different levels and the routes to achieve them in the education system.

The education and training structures, their relationships to one another, are interlinked with Quality Council for Trade Occupations (QCTO) within the NQF landscape. One of the functions of the QCTO is the establishment of a qualifications system which is aligned with the needs of the labour market, in other words, which is occupationally directed. The Occupational Qualification Framework (OQF) is the sub-framework managed by the QTCO. The OQF provides consistency in the development and the implementation of learning programmes tied to occupations and occupational qualifications. The OQF ensures that there is development towards more advanced knowledge and skills and a positive relationship between qualifications on different NQF levels (DoE 2003/DoL, 2003). The NQF directs the movement of learners and students with regard to educational institutions and career paths.

4.3 GROWTH IN LEARNER AND STUDENT ENROLMENT NUMBERS AT INSTITUTIONS OF LEARNING

Human resources is an invaluable resource in any country. The development of intricate organisations and knowledge requirements, including the introduction of sophisticated machinery and technology, shows that welfare improvement and economic growth depend largely on the literacy and educational attainment of the population. The levels and trends in the educational attainment of the labour force provide an indication of the skill structure of those working and available to work (International Labour Organisation [ILO], 2013).

This section will discuss the enrolment of learners and students in the various educational institutions at various levels.

4.3.1 Learner enrolments in public schools

The United Nations Development Programme (UNDP, 1999) state that learners are inputs in the production of human resources in the education system. They are part of the raw materials needed for all the functions that this system needs. This is the reason why any successful education system endeavours to take full advantage of this type of raw material at all levels of education. Figure 4.1 indicates the gross enrolment numbers in primary and secondary education in 1985, 1997, 2000, 2006, 2009 and 2013.

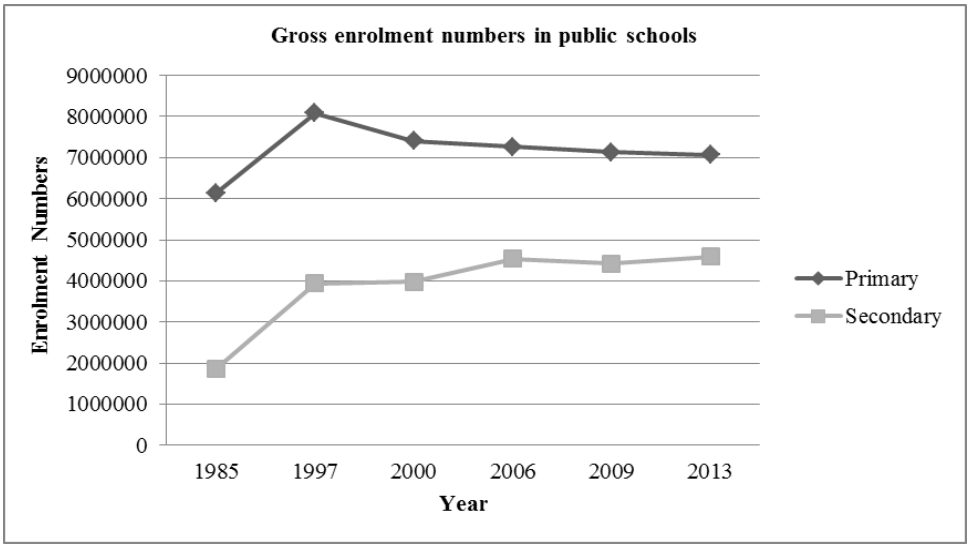


Figure 4.1: Gross enrolment numbers in public schools 1985, 1997, 2000, 2006, 2009 and 2013

Source: HSRC, 2003, DBE, 2013, DBE, 2014 (own calculations)

During these periods, the enrolments for primary education were generally higher than the enrolments for secondary education. Both primary and secondary enrolment numbers increased between 1985 and 1997. The demand for primary education ranged between 7 million and 8 million between 2000 and 2013, while the demand for secondary education ranged between 4 million and 5 million for the same period. The growth in primary education enrolment indicates that government is succeeding in implementing the Bill of Rights (Section 29) and Chapter 2 of the Constitution which emphasise that everyone has a right to basic education (South African Year Book, 2013).

Table 4.4 shows the total percentage of enrolments of 7 to 15 year-olds in the compulsory GET band in 2002, 2007 and 2012, according to provinces.

Table 4.4: Percentage of 7 to 15-year olds in compulsory GET band: 2002, 2007 and 2012

Province	2002	2007	2012
Eastern Cape	95.5	97.7	98.4
Free State	97.5	98.7	99.2
Gauteng	98.1	97.5	99.0
KwaZulu-Natal	94.8	97.5	98.8
Mpumalanga	97.4	98.5	99.2
Northern Cape	97.2	97.9	99.0
Limpopo	95.4	96.9	98.8
North West	93.6	97.5	98.6
Western Cape	97.3	98.2	98.2
Average	96.3	97.8	98.8

Source: DBE (2013:17)

Table 4.4 shows that the coverage of primary schooling in all the provinces has been substantial in the ten-year period between 2002 and 2012. The total participation rates have increased from approximately 96% in 2002 to approximately 99% in 2012. However, the relatively small proportion (about 1%) of children who are not receiving primary education remains a concern.

Table 4.5 shows the gross enrolment ratios for secondary education in the FET band in 2002, 2007 and 2012 according to provinces.

Table 4.5: Gross enrolment ratios for secondary level in the FET band: 2002, 2007 and 2012

Provinces	2002	2007	2012
Eastern Cape	83.0	85.4	85.1
Free State	85.4	90.7	87.2
Gauteng	87.7	82.2	85.7
KwaZulu-Natal	79.3	83.7	85.3
Mpumalanga	88.2	92.1	94.2
Northern Cape	86.2	93.2	85.4
Limpopo	81.2	81.6	81.9
North West	71.0	77.8	80.6
Western Cape	72.6	73.7	80.4
Average	81.6	84.5	85.1

Source: DBE (2013:24)

North West Province and the Western Cape showed the least coverage with 71% and 72.6%, respectively, in 2002. The same provinces showed an improvement in coverage by 2007, with North West recording coverage of approximately 77.8% and Western Cape recording coverage of approximately 73.7%. By 2012, all the provinces recorded an average coverage of about 85%. The total number of enrolments for both primary and secondary education nationwide does not necessarily indicate that learners were in the proper grades in line with their age. It simply indicates the country's ability to provide learning spaces in the form of schools for children (DBE, 2013).

The gross enrolment number for 15/16 to 18-years olds indicates that on average about 15% of learners did not receive secondary education in 2000, 2007 and 2012. Strassburg, Gilbert and Russell (2010) pointed out that a child leaves school as a result of a combination of factors that are intertwined. They found that the socio-economic environment and psycho-social emotional

problems, such as teenage pregnancy, substance abuse, financial constraints, sickness, disability, and dysfunctional family structures, combined with a lack of support at schools, push learners to disengage from their studies and eventually leave school without basic literacy skills.

Table 4.6 shows the total number of students registered for the Senior Certificate Examinations (SCE) and those who passed in 1985, 1993, 2008, 2012 and 2014. The SCE is written at the end of Grade 12 and it marks the end of the FET band in secondary education (DBE, 2010).

Table 4.6: Senior Certificate Examination enrolment numbers 1985, 1993, 2008, 2012 and 2014

Year	1985	1993	2008	2012	2014
Number of learners registered	162 175	442 528	600 991	527 572	548 239
Number of learners passed	108 407	226 943	344 791	377 829	403 873
Percentage of learners passed (pass rate)	66.8%	57.3%	57.4%	71.6%	73.7%

Source: HSRC (2003:317), unpublished data from DBE (own calculations)

Table 4.6 shows that the number of learners registered for the SCE increased from 162 175 in 1985 to a high of 600 991 in 2008 (an increase of approximately 270%), before it decreased to just above 500 000 in subsequent years. The pass rate, however, did not follow the same pattern. The [7]pass rate dropped from 66.8% in 1985 to a low of 57.3% in 1993. The drop could be attributed partly to an increase in the learner–teacher ratio in the classroom due to an increase in enrolment numbers during this period. The pass rate then increased from 57.4% in 2008 to a high of 73.7% in 2014. The increase could be attributed to curriculum changes during that period. For example, the pass rate

[7] The pass rate is calculated as a percentage of learners passed out of a total of those registered.

requirements for the SCE were adjusted from a symbol scale (higher grade and standard grade) to a seven-point achievement score (level 1 to level 7).

Table 4.7, presents the number of registered learners enrolled for Grade 12 by race for 1985, 1993, 2008, 2012 and 2014. In all instances, Blacks had a highest number of learners enrolled, while Whites have the lowest numbers. The opposite is true about the pass rates, where Whites had the highest pass rates while Africans had the lowest pass rates. The pass rate trends are clearly revealed in Figure 4.2.

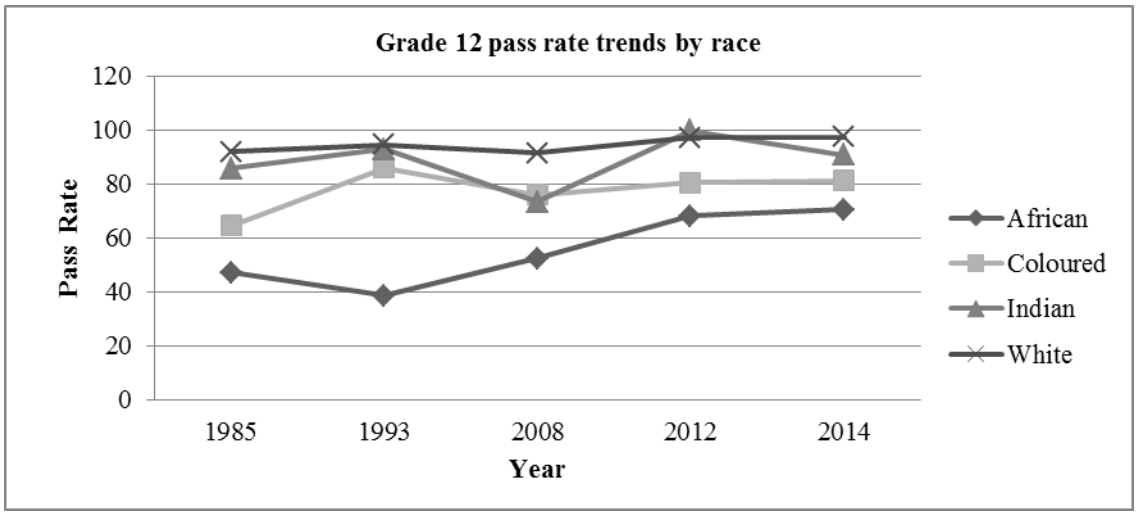


Figure 4.2: Grade 12 pass rate trends by race

Source: HSRC (2003:317), unpublished data from DBE (own calculations)

As seen in Figure 4.2, the pass rate for Africans is generally the lowest, followed by Coloureds and Indians, with Whites consistently having the highest pass rate. The differences in pass rates across races could be due to differences in socio-economic backgrounds, learner–teacher ratio in the classrooms, quality of teachers, and lack of libraries and laboratories in some schools.

Table 4.7: Senior Certificate Examination throughputs by race 1985, 1993, 2008, 2012 and 2014

Race		1985	1993	2008	2012	2014
	Number of learners registered	82 088	337 821	498 719	439 234	455 572
	Number of learners passed	38 590	130 474	260 765	299 019	321 221
	Percentage of learners passed	47.0%	38.6%	52.3%	68.1%	70.5%
	Number of learners registered	11 052	25 735	40 105	37 554	40 660
	Number of learners passed	7 115	22 077	30 387	30 181	32 992
	Percentage of learners passed	64.4%	85.8%	75.8%	80.4%	81.1%
	Number of learners registered	11 071	15 203	17 077	12 840	14 398
	Number of learners passed	9 473	14 111	12 511	11 784	13 054
	Number of learners registered	85.6%	92.8%	73.3%	91.8%	90.7%
	Number of learners registered	57 964	63 769	44 314	37 791	37 348
	Number of learners passed	53 229	60 281	40 450	36 705	36 373
	Percentage of learners passed	91.8%	94.5%	91.3%	97.1%	97.4%

Source: HSRC (2003:317), unpublished data from DBE (own calculations)

The quality of education is often determined by the performance of learners in Mathematics and Science, teacher–learner-ratio, the availability of libraries and science laboratories, and the level of education of teachers. The fact that Blacks consistently achieved the lowest pass rates suggests that most Black schools still lack the required necessities (Perry and Arends, 2003). The government has increased resources aimed at improving and equalising education. Despite these efforts at improvements, human capital development is still uneven by race. Whites have a high rate of educational attainment, followed by Indians, with Coloureds and Africans lagging behind (Moleke, 2005).

The DBE (2013) indicates that the differences in the standard of education provided at schools negatively affect the attainment of education, and this has a negative spill-over effect into the labour market. These effects are clear when progression from school to higher institutions of learning and entry to the labour market are examined. Poor secondary outcomes have a direct effect on the distribution of education. Poor results in the SCE limit the choice of educational institutions and the field of study. Furthermore, poor performance in Mathematics and Science limits the choice of the field of study. As a result, the largest numbers of students, particularly Blacks who do not meet the requirements, are faced with the choice of upgrading their performance or enrolling in fields of study which do not have stringent entry requirements, or to enter the labour market. Despite these factors, the increase in the throughput of all the races indicates the positive ground that has been covered in terms of human capital development at secondary school level (DBE, 2014).

In 2001, the DoE initiated the National Strategy for Mathematics, Science and Technology Education (NSMSTE) with the aim of upgrading the quality of teaching and learning in Mathematics and Science. In 2005, government strongly displayed its dedication and support for the NSMSTE by assessing the Strategy and increasing the number of learners performing well in Mathematics and Physical Science in Grade 12 (DET, 2001).

Figure 4.3 and Figure 4.4 display the pass rates for Mathematics and Physical Science in the SCE in 1997, 1999, 2001, 2003, 2005, 2009, 2011 and 2013, respectively.

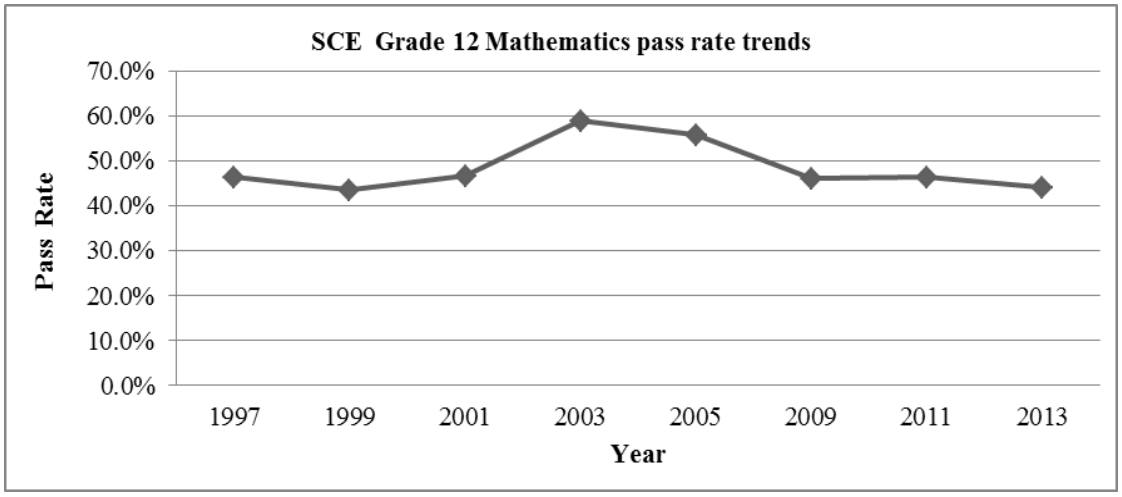


Figure 4.3: SCE Mathematics pass rate trends

Source: HRD Review (2003: 321), DBE (2013:37), DBE (2014:35) (own calculations)

As seen in Figure 4.3, the [8]pass rate for Mathematics ranges between approximately 40% and 50% from 1997 to 2001. It then increased to a high of nearly 60% in 2003, followed by a decline to 57.7% in 2005, before moving back to the 40% - 50% range in 2009 to 2013. The sudden increase from 2001 to 2003 could be due to a decrease in a learner–teacher ratio implied by a decrease in the number of learners who wrote Mathematics in Grade 12 during this period. A decrease in the Mathematics pass rate could be due to the new curriculum called the Curriculum and Assessment Policy Statement (CAPS) which was introduced in 2012 which distinguished between pure Mathematics and introduced Mathematical Literacy. As a result of this, the number of learners doing pure Mathematics declined.

Figure 4.4 shows the pass rates for Physical Science. The pass rate ranged between 60% and 70% from 1997 to 2001 that was better compared to the Mathematics performance (40% and 50%) during the same period. A sudden increase from 2001 to 2003 could be due to a decrease in a learner–teacher ratio implied by a decrease in the number of learners who wrote Physical Science in Grade 12 during this period. Irregular performances were witnessed from 2005 to 2013. This irregularity could be attributed to the introduction of the

[8] The pass rate is calculated as a percentage of learners passed out of a total of those that sat for examinations.

new curriculum, Outcomes-Based Education, which was due to be fully implemented in 2005, and the introduction of the CAPS in 2012. With the introduction of a new curriculum, there needs to be adequate training of the teachers who will have to implement it.

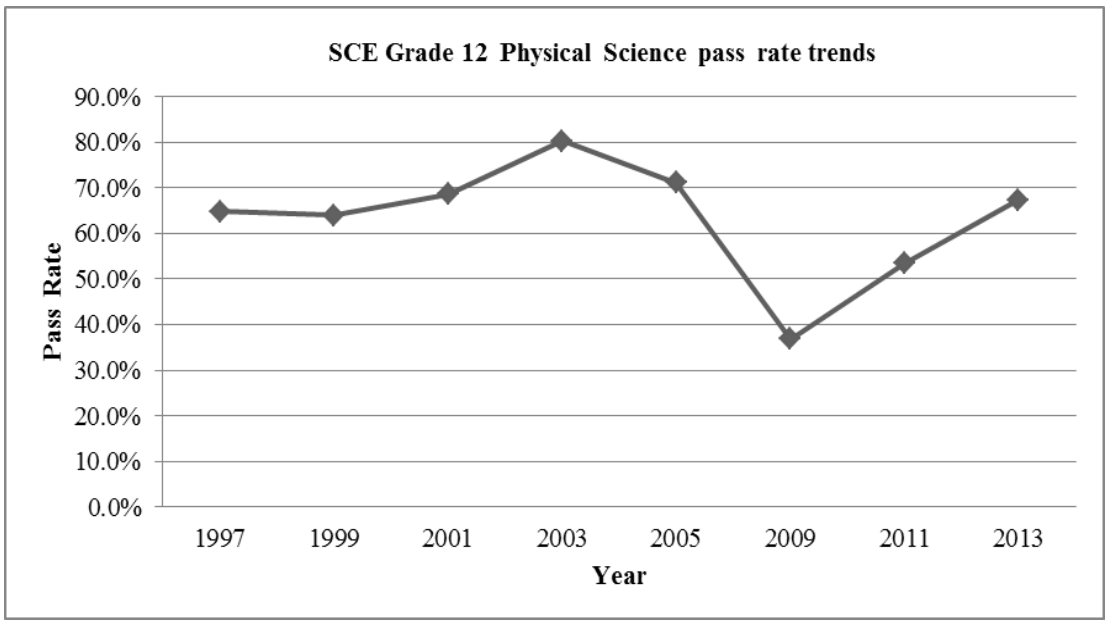


Figure 4.4: SCE Grade 12 Physical Science pass rate trends in 1997, 1999, 2001, 2003, 2005, 2009, 2011 and 2013.

Source: HRD Review (2003: 321), DBE (2013:37), DBE (2014:35) (own calculation)

Adult learners who do not complete their secondary education at school use AET centres to complete their grades, as discussed in the next section.

4.3.2 Student enrolments at AET centres

The AET centres are underpinned by the Adult Basic Education and Training Act No. 52 of 2000. The management of AET centres was transferred from the Provincial Education Departments to the DHET in April 2015. The AET centres cater for adults and the youth who want to complete Grade 12 and acquire other foundational skills. AET centres play an important role in the development of human capital by providing an opportunity for adults and youth who did not complete their primary and secondary education at school level and those who did not complete their secondary education to complete their learning (DHET, 2015).

If people complete their lower and senior grades at school, their literacy levels increase. Improved levels of literacy enhance the individual's capacity to

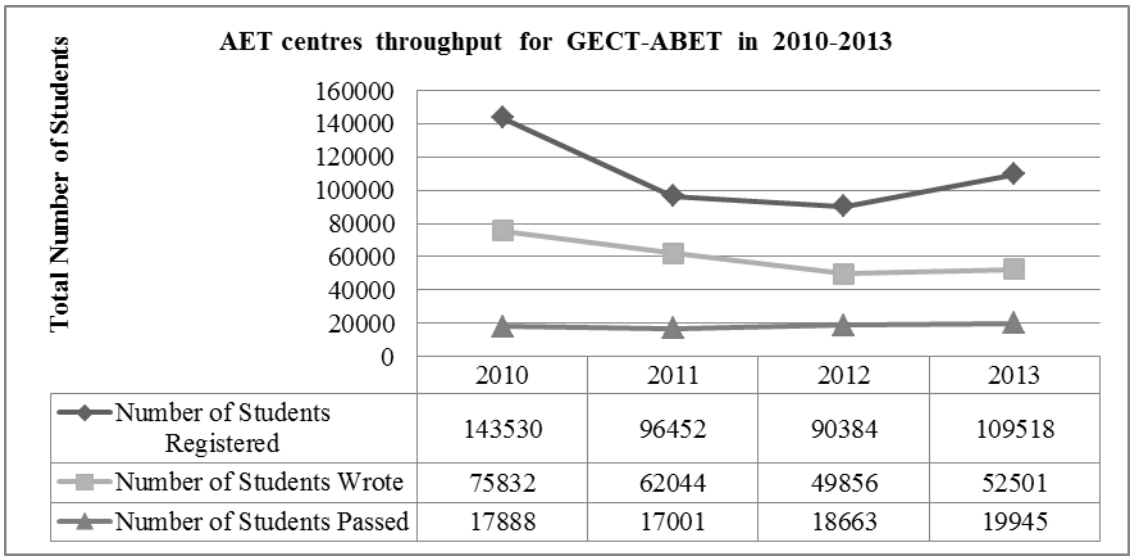
develop other skills, find employment, improve his or her standard of living and participate meaningfully in the labour market. The rapid changes in technology, together with the demand that this places upon workers, require workers who are flexible, creative, independent and able to transfer and apply knowledge to different situations. These demands make foundational skills a necessity (ILO, 2008).

Numeracy-related skills are shown to be a key factor in labour market participation. Adults and youth with high levels of numeracy and literacy skills are likely to be employed. In addition, some numeracy skills are considered to be essential for post-secondary education in areas such as Science, Engineering, and Technology, although they are not limited to these fields. In essence, foundational skills are at the heart of the development of every other type of skill (Organisation for Economic Cooperation and Development (2009). Literacy skills give a worker the opportunity to fit easily into the complex society of the workplace. The ability to read and write enables the worker to understand instructions and regulations. Furthermore, foundational literacy enables domestic workers, underground miners, farm workers and factory workers to do their daily tasks (Prinsloo, 1999).

Figure 4.5 shows the throughput of public AET centres for 2010, 2011, 2012 and 2013. The GETC-ABET qualification is an adult qualification that is registered at NQF Level 1 (DHET, 2013). The total nationwide number of learners registered for GETC-ABET qualifications has decreased from 143 530 in 2010 to 96 452 in 2011 (about 32.8% decrease). This decrease could be due to a National Certificate Vocational (NCV) programme (Level 2-4, equivalent to Grade 10-12), which was introduced in 2007 in TVET colleges and fully implemented in 2009. The NCV has the added advantage of equipping learners with technical skills. From 2011 to 2013, the enrolment numbers were relatively stable.

The number of learners who wrote the examinations includes only those candidates who met the requirements to sit for GETC-ABET which is a Level 4 qualification (equivalent to Grade 9). This number excludes learners who

registered to write individual subjects, wrote individual subjects, and passed individual subjects.



	2010	2011	2012	2013
Number of Students Registered	143530	96452	90384	109518
Number of Students Wrote	75832	62044	49856	52501
Number of Students Passed	17888	17001	18663	19945

Figure 4.5: Public AET centres throughput for GECT-ABET in 2010-2013

Source: DHET (2013:40), DHET (2015:53)

Out of 143 530 learners who registered in 2010, 75 832 (approximately 52.8%) wrote the examinations and only 17 888 passed (implying a [9]pass rate of approximately 23.6% for 2010). From 2011 to 2013 the pass rates have increased to approximately 27.4% in 2011, 37.4% in 2012 and marginally increased to 38% in 2013, while the number of learners who passed was relatively constant at just below 20 000.

Students who do not complete their secondary education do have the opportunity to go to TVET colleges. Furthermore, TVET colleges offer another path to acquire occupation-based skills after the completion of Grade 12.

The DHET set out to establish a new institution to focus on the needs of the youth and adults who do not complete their education and who do not qualify to enrol at TVET colleges and universities. These institutions will be known as community colleges. They will absorb the existing adult learning centres. The

[9] The pass rate is calculated as a percentage of learners passed out of a total of those sat for the examinations.

envisaged institution is provisionally being called Community Education and Training Centres (CETCs) (DHET, 2013).

4.3.3 Student enrolments at TVET colleges

Given the increasing level of unemployment among youth and the significance attached to a formal qualification, TVET colleges have become an important tool to equip learners between the ages of 17 and 25 and above with skills. It is an attractive prospect, particularly to those who did not complete their secondary education in order to improve their labour market prospects. At the age of 25, students are expected to have completed the course, as they will then start to settle into their adult lives. The government introduced measures to raise the skills profile of the EAP through interaction between the education system and the workplace training programmes. There is also a system of funding in the form of bursaries, internships, apprenticeship and learnerships (DHET, 2015).

The TVET colleges play an important role in the development and enhancement of skills, particularly intermediate-level skills in South Africa by offering craft-based skills and apprenticeship training. The government aims to increase the enrolment numbers in TVET colleges to 4 million by 2030 (DHET, 2015). This makes the sector key in achieving the target of a skilled workforce that is able to participate and contribute meaningfully to economic development in the country. The rigorous interventions of the government to improve the poor quality of teaching and learning, poor financial management and poor institutional governance are aimed at ensuring that TVET colleges become institutions of ‘first choice’ in pursuing quality and training (DHET, 2015).

Table 4.8 displays the enrolment numbers for students at public TVET colleges for 2010, 2011, 2012 and 2013. In 2009, when the new Minister of Higher Education took office, one of the strategies that the DHET implemented to alleviate the demand problems faced by South African universities was to encourage learners to consider furthering their education through TVET colleges and not to view them as inferior to university education. Government supported this initiative by providing additional funding to TVET colleges. For

example, R3.8 billion was budgeted for the 2010/11 financial year and this was increased to R 4.3 billion in the 2011/12 financial year.

Table 4.8: Total number of students enrolled at public TVET colleges

	2010	2011	2012	2013
Number of enrolments	358 393	400 273	657 690	630 618
Percentage increase		12%	64%	-4%

Source: DHET (2010:2), DHET (2011:2), DHET (2012:2) DHET (2013:3) (own calculations)

From Table 4.8 it is evident that government is succeeding in achieving its objective of increasing the number of students receiving education at TVET colleges, since the increased financial support is accompanied by an increase in student enrolments. The number of enrolments increased from just below 360 000 in 2010 to approximately 658 000 in 2012.

In 2009, when the DoE was split, the DHET focused on the strategies to alleviate the demand problem faced by South African universities, by encouraging learners to consider furthering their education through TVET colleges. The DHET emphasised the importance and the role of TVET colleges in skills development. A slight decrease of about 4% in enrolment numbers occurred in 2013 suggesting that the system had reached maximum capacity. The fact that government is considering capacity expansion is a clear sign that the initiatives to increase the demand at TVET colleges were not complemented by capacity considerations. From TVET colleges, students can further their skills and knowledge at universities.

4.3.4 Student enrolments at universities

Universities, play a major role in the creation of skills for the labour market and in the economic development of the country. In 1993, the government created a Provision of Special Funds for Tertiary Education and Training Act No. 121 of 1993 to ensure that those who are willing, able and prepared to further their higher education are assisted financially. Envisaging the growth in the demand for tertiary education, and to extend financial help to all students, particularly those from disadvantaged backgrounds, to further their higher education, the government introduced the National Student Financial Aid Scheme (NSFAS) in

1999 in terms of Act No.56 of 1999. The NSFAS took all the functions of the Tertiary Education Fund of South Africa (TEFSA), which was a funding scheme founded shortly after democracy. TEFSA was terminated in July 2000. In addition, methods were designed to administer and to recover loans given to students at the end of their study period (South African Year Book, 2013).

Table 4.9 shows the total number of students enrolled at universities. The enrolment numbers include students who enrolled for undergraduate and post-graduate studies.

Table 4.9: Higher education enrolment and graduate numbers in 1995, 2002, 2007 and 2012

	1988	1995	2002	2007	2012	Averages
Number of students registered	340 000	569 000	675 128	761 090	953 733	659 790.2
Percentage increase in the number of students registered		67.35%	18.65%	12.73%	25.31%	31.01%
Number of students graduated	50 733	81 764	101 680	126 640	163 778	104 919
Percentage increase in the number of students graduated		61.17%	24.36%	24.55%	29.33%	34.85%
Number of students graduated/ Number of students registered	14.92%	24.05%	29.91%	37.25%	48.17%	30.86%

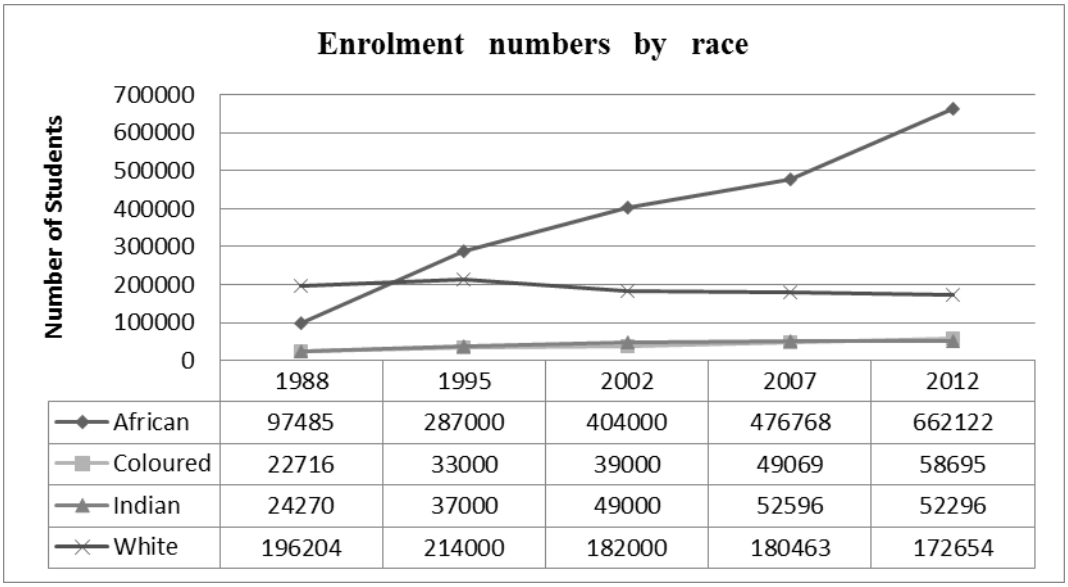
Source: CHE (2004 and 2014) (own calculations)

The higher education average enrolment numbers at universities increased from 340 000 in 1985 to 953 733 in 2012 and averaged at 659 790. The percentage increments in enrolments have been positive (an average percentage increase of approximately 31.01%) indicating that the enrolment numbers have been increasing over these years. It is most likely that the funding from the government, that is the NSFAS, has partly contributed to the increase in the enrolment numbers.

The average number of graduates in higher education at universities increased from 50 733 in 1985 to 163 778 in 2012, and averaged at 104 919. The

percentage increments in graduate numbers have been positive (an average percentage increase of approximately 34.85%) indicating that the graduate numbers have been increasing over these years. The increase in graduates' numbers is due to the increase in enrolment numbers. Increased financial support from government may also affect the graduation rate in a positive way, since students can now afford travelling costs and buy supporting resources like computers, which could eventually improve the students' success rate.

Figure 4.6 shows the public higher education enrolment numbers by race for the years 1988, 1995, 2002, 2007 and 2012.



	1988	1995	2002	2007	2012
African	97485	287000	404000	476768	662122
Coloured	22716	33000	39000	49069	58695
Indian	24270	37000	49000	52596	52296
White	196204	214000	182000	180463	172654

Figure 4.6: Public higher education enrolment numbers by race

Source: CHE (2004, 2014) (own calculations)

Apart from 1988, during the apartheid era, Blacks recorded the highest number of enrolments for the years 1995, 2002, 2007 and 2012, followed by Whites, with Coloureds and Indians with almost the same number of enrolments. Whites are a minority in the South African population that is racially constituted as follows: Black 80.5%, Coloured 8.8%, Indian 2.5% and White 8.3% (Stats SA, 2015). Therefore, the number of enrolment for Whites, which was much greater than that of Coloureds and Indians, is indicative of the socio-economic inequality in South Africa. The enrolment numbers for Blacks at the universities increased substantially from 287 000 in 1995 to 662 122 in 2012.

After the democratic government assumed power in 1994, Blacks had more access to all universities, including the historical White institutions. There has

been a steady decline in the number of enrolments of Whites (214 000 in 1995 to 172 654 in 2012). This decline could be as a result of the rapid increase in the number of private institutions of higher learning (DHET, 2015). The enrolment numbers for Coloureds and Indians had increased at a relatively steady rate, from 33 000 in 1995 to 58 695 in 2012 and from 37 000 in 1995 to 52 296 in 2012, respectively. The enrolment numbers for Indians and Coloureds increased at a lower rate after 1994 when compared to Blacks, indicating that though they were affected by apartheid, the effect was much less than that experienced by Blacks. During this period, the average percentage enrolment for all races was 53%, which comprised of 22% for Africans, 22% for Whites, 20% for Coloured and 5% for Indians.

Figure 4.7 presents the number of graduates in public higher education by race for the years 1995, 2002, 2007 and 2012. The number of Black graduates increased at a relatively higher rate from 31 567 in 1995 to 104 935 in 2012 (an average percentage increase of approximately 50%), while the number of White graduates decreased at a lower rate from 40 754 in 1995 to 38 872 in 2012 (an average decrease of about 0.6%). The graduates numbers for Coloureds and Indians increased at a relatively low rate with Coloureds recording 4 252 graduates in 1995 and 10 625 in 2012 (an average increase of approximately 36%) and Indians graduates increasing from 5 370 in 1995 to 9 346 in 2012 (an average increase of approximately 20.7%).

The proportion of graduates by race was 56%, 32%, 6% and 6% for Africans, Whites, Indians and Coloureds, respectively. These figures are not in proportion with the various races in the population (African 80.5%, White 8.3%, Indian 2.5% and Coloured 8.8%, StatsSA, 2015), which suggest that there are still socio-economic differences within races in South Africa. This occurs despite the changes in the overall structure of the population at universities.

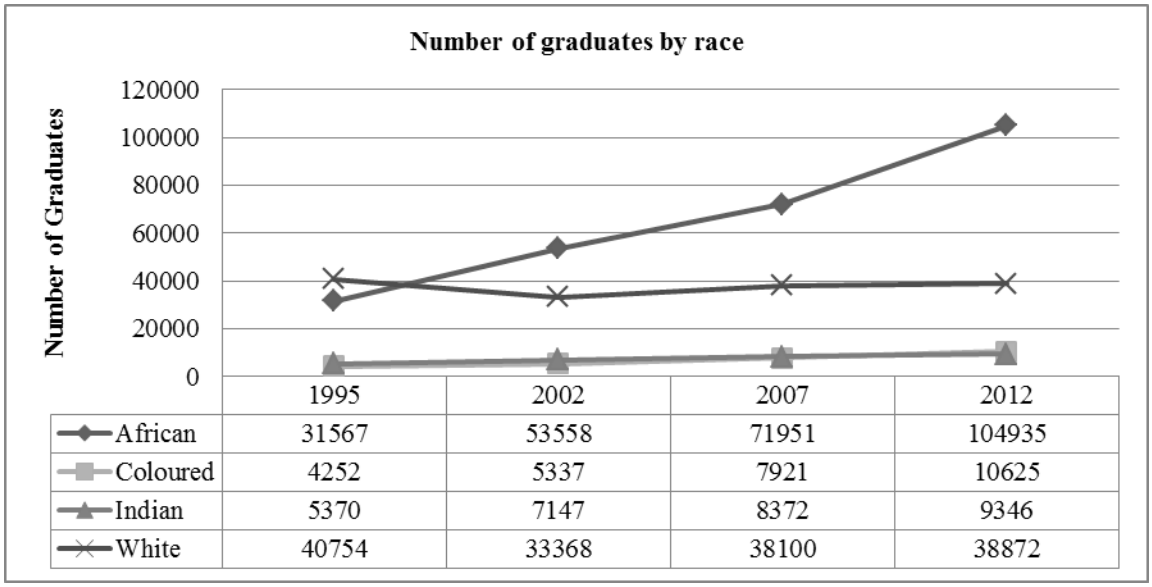


Figure 4.7: Public higher education graduate numbers by race

Source: CHE (2004, 2014) (own calculations)

Table 4.10 presents the output of graduates by major fields of study. Education recorded the lowest number of graduates in 2000 (15 568), followed by Business Management (19 912), Science and Engineering (24 136) and Other Humanities (28 581). By 2013, the numbers had risen to 38 212 Education graduates, followed by Other Humanities with 40 384 graduates, Business Management with 49 042 graduates and Science and Engineering with 51 176 graduates.

Table 4.10: Graduate outputs by major fields of study 2000-2013

Graduate Ouputs by Major Fields of Study															
	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	Annual Average
Science Engineering,	24136	24995	26630	29546	31443	33449	35555	36429	38820	40973	41156	46100	48848	53176	36518
Business Management	19912	22590	24217	26954	29327	28144	30108	31062	31871	33788	40751	44155	46042	49051	32712
Education	15568	18737	21487	24242	29253	29054	28554	28337	29636	35532	37665	37879	34478	38212	29188
Other Humanities	28581	25236	24955	24988	27060	29355	30404	30788	32844	34517	30015	32484	35618	40384	30516

Source: DHET (2012:38), DHET (2015:15)

According to the annual average percentage increase in graduates by the field of study as presented in Figure 4.8, education recorded the highest average increase (8%) followed by Business Management (7%), Science, Engineering, Technology (6%) and Other Humanities (3%). The 6% increase for Science,

Engineering, and Technology is not sufficient, given that these are regarded as scarce skills.

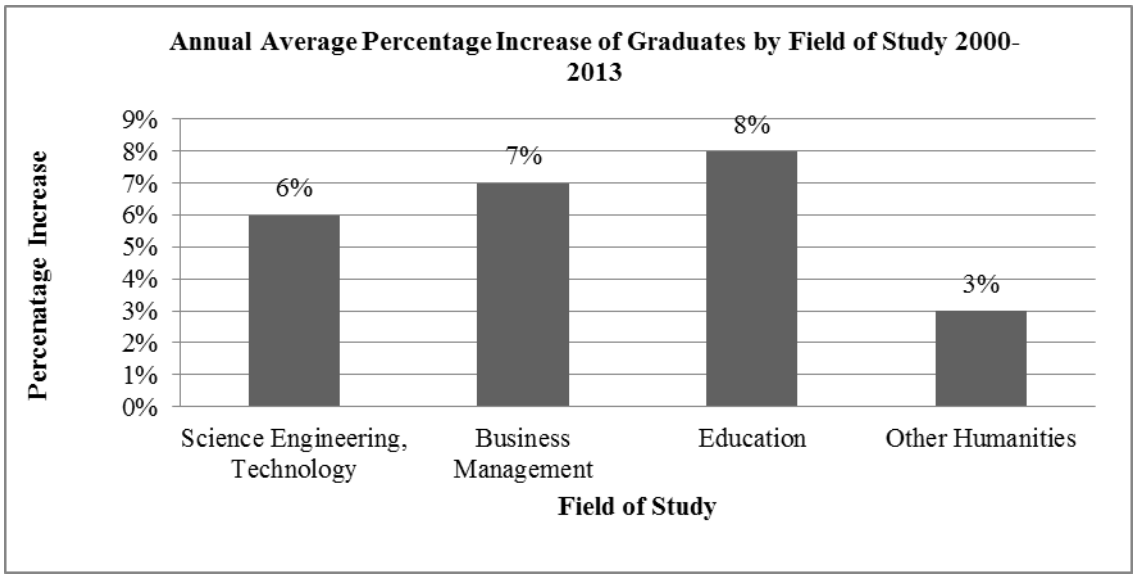


Figure 4.8: Annual average percentage increase of graduates by field of study 2000-2013

Source: DHET (2013:38), DHET (2015:15) (own calculations)

Apart from the tertiary education skills path, people can also acquire skills from SETA-accredited programmes.

4.3.5 Student enrolments at SETAs

Skills development, as established by SDA Act No 37 of 2008, has different structures. The following institutions, namely, the NSA, NSF, the Skills Development levy-grant scheme, the SETAs, Labour Centres and the Skills Development Planning Unit were created in terms of the Act.

In order for the SDA to function and achieve the intended goals, a framework that consists of the National Skills Authority (NSA) was established. The NSA is a body that gives counsel on the principles to be adhered to on the implementation of the National Skills Development Strategy (NSDS) and on a national skills development policy. It gives guidelines on the allocation of subsidies from the NSF, and on any regulation to be made. The NSA interacts with the SETAs on the national skills development policy and the NSDS and gives account to the Minister of Labour on the progress and challenges encountered concerning the implementation of the NSDS (Erasmus *et al.,* 2013).

The NSA guides the Minister of Labour on the national skills development policy and its strategy, sets up guidelines for the implementation of it and distributes subsidies from the NSF. The NSA works closely with the SETAs on policy and strategy. The SETAs are structures responsible for skills development. They were established by government with the aim of increasing the level of investment in education and training in the labour force. There are 21 SETAs that ensure the delivery of an improved industry sector with specific skills in order to contribute to the achievement of the goals of the NSDS.

SETAs facilitate the development of intermediate and high-level skill learning programmes among workers and the unemployed. These programmes include learnerships, bursaries, internships and skills programmes. Skills programmes are unit-based short courses that can be completed and certificated within 12 months. Learnerships, bursaries and internships are aligned to qualification-based programmes that take a year or more to complete. Table 4.11 shows the total number of people who were registered for SETA certified and supported learning programmes. There was an in increase in the number of workers and unemployed people who enrolled for SETA programmes, ranging from just above 116 000 in 2010 to just above 176 000 in 2014. [10]The output for this programme was relatively high with an output of above 85% and an annual average of 90%. This could be due to the fact that SETAs do not pay providers if the learners have not passed. As a result, the service providers re-assess the learners until they get the 80% which is the pass mark.

The training that is offered in workplaces ensures that workers remain competitive, as they are empowered to address basic skill deficiencies, acquire new skills and obtain qualifications which can certify the existing skills or reflect new skills (Hasluck, 2011).

The DHET has set out to establish a South African Institute for Vocational and Continuing Education and Training (SAIVCET) to strengthen the vocational education by giving existing institutions, especially TVET colleges and SETAs

[10] It is the percentage of those who were certificated to those registered.

support (DHET, 2013). Furthermore, it is the responsibility of the Director General in the DHET to set up a National Artisan Moderation Body (NAMB) in the department; and to compile a register for the qualified and practising artisans (Van Rooyen, 2011).

Table 4.11: The total number of workers and unemployed persons registered for and certificated in SETA supported learning programmes 2010/11 to 2012/14

	Registered				Certificated			
Year	**Learnerships**	**Internships**	**Skills Programmes**	**Total registered**	**Learnerships**	**Internships**	**Skills Programme**	**Total certified**
2010/11	47 649	2 675	66 133	116 457	30 864	1 064	75 531	107 459
2011/12	43 871	3 452	87 906	135 229	29 197	878	87 527	117 602
2012/13	50 885	6 127	74 587	131 599	37 158	2 195	86 491	125 844
2013/14	75 782	8 017	92 508	176 298	38 796	2 510	109 547	150 853

Source: DHET, 2013, 2015

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4.4 NATIONAL ARTISANS DEVELOPMENT PROGRAMME

The DHET (2013) reveals that a programme of appropriate artisan training is important in the development of skills in a country. For this programme to expand and yield the intended results, greater involvement of employers and the DHET is critical. The White Paper for Post-School Education and Training, with regard to building an expanded, effective and integrated post-school system, states that areas of work, such as artisan trade and apprenticeship have traditionally been the pathway to qualifications. The development of artisans is an important factor in the development in any country.

Historically, artisan development in South Africa was handled by a single national system. In the early 1980s, the decentralisation of artisan training and trade testing was introduced through Industry Training Boards. In the 2000s, this training was placed within the economic sectors through the SETA system. This led to confusion, which eventually resulted in the duplication of artisans' certificates. The government noticed this problem and initiated a process to re-engineer the former state-owned trade test centre INDLELA that is situated in Olifantsfontein in Gauteng, in order for it to become a fully-fledged Chief Directorate for National Artisan Development, including the NAMB, which is a unit within the DHET that was established in terms of Section 26A (1) of the SDA No 37 of 2008. Since 2010, improvements have been made in this sector, mainly to remove SETAs and the sector-based artisan development system based on the outdated apartheid legacy of the Manpower Training Act, replacing it instead with a National Artisan Development System under the modern, democratic SDA (DHET, 2015).

The National Artisan Development System allows persons with a NCV NQF Level 3, as well as technical high school matric learners and persons with N6 or university of technology engineering qualifications, to have access to trade tests. However, such persons must complete all the practical and workplace artisan-training modules. This access will enable more people to become artisans (DHET, 2013).

4.5 CHALLENGES FACING EDUCATION SYSTEM

However, the current education system is faced with various challenges, ranging from bringing unification between the basic education and the post-school system and between the post-school system and the labour market.

There is a lack of proper organisation between the different levy-grant institutions, namely the SETAs and the NSF. The skills-levy funding has not been used to its full capacity to fund education in public universities and colleges. The existing regulation system for post-school education is administered by a group of legislation and statutory bodies. As a result, there is often a replication and overlapping of information. This creates confusion, lack of order, contradictions and variability. In addition, the qualifications and quality assurance framework is multiplex, and involves a great deal of administration. There are often disputes about the way in which the different quality assurance bodies work. There is still a fragmentation in the provision of post-school education through higher institutions of learning, TVET colleges, adult learning centres, organisations that provide skills and organisations that cater for youth development. AET centres, TVET colleges and universities are faced with low success and throughput rates, and they are unable to accommodate an increase in the number of students who want to study (DHET, 2013).

4.6 EDUCATION AND EMPLOYMENT OPPORTUNITIES

Empirical evidence in Section 2.7 suggested that higher levels of education lead to improved employment opportunities. Table 4.12, illustrates the educational level of the employed for the periods 1996, 2002, 2007, 2012 and 2015.

Table 4.12: Educational level of the employed in the labour market

Level of education	1996	2002	2007	2012	2015
Tertiary	6%	10%	10%	21%	20%
Secondary not completed	34%	34%	36%	36%	34%
Secondary completed	16%	23%	24%	33%	31%
Primary completed	8%	7%	7%	5%	4%
Primary not completed	17%	16%	1%	1%	8%
No schooling	19%	10%	9%	3%	3%

Source: Census 1996, GHS 2007, Census 2011, QLFS 2013, 2015 (own calculations)

The level of educational stock of the labour force is improving. This is shown by the increase in the number of people employed who completed their secondary and tertiary education. However, as shown in Table 4.12 there was an unexpected increase in the number of workers employed with less than secondary education from 2002 and 2012.

The findings of this study are in line with the findings of the study conducted by the CDE on graduate unemployment in South Africa in 2013 (see Section 2.7). Their findings indicated that employment rates are likely to increase with education and that the labour force participation rates of people with high levels of education are higher than that of those without education. The unemployment rates of those with a three-year degree and above are low.

Since 1995, there have been variations in the growth of the number of people employed with tertiary education. In 1996 it was at 6% and between 2007 and 2008, it remained constant at 10%. This was during the recession period when the economy was shedding employment. Between 2012 and 2015, the number of people who were employed with a tertiary qualification, grew with small variations. The number of people who are employed with secondary education has grown steadily from 16% in 1996 to 31% in 2015. This is an indication that a large number of people prefer to complete their secondary education before

joining the labour market. This is likely to provide them with opportunities to pursue their tertiary education through distance education while working.

The number of people with secondary education not completed but who were employed was at about 34% in 2015. The number of people who did not complete secondary education and joined the labour market is still big. According to StatsSA (2013) the government introduced the Expanded Public Works Programme (EPWP) in 2004 aimed at providing income relief for the unemployed. The employment offered in this programme is of temporary nature. The educational qualification level of the largest number of people participating in this programme is below matric. This explains an increase of 36% between 2007 and 2012 in the number of people employed with less than secondary education completed. This number went down to 34% in the first quarter of 2015 because of a slowdown in the economic growth.

The percentage increase in the number of persons employed with less than secondary education is a concern, because even though they are still employable, if they do not upgrade their qualifications, they will be placed at the lower end of the job queue in future. Earl (2010) states that a low level of education, including factors such as age, gender and race are likely to restrict these persons to poorly paid elementary jobs. As the demand for skills increases, the elementary jobs will decrease. Existing skills need reinforcement, because as people acquire more education, elementary jobs that initially required a worker with some secondary education, will require a worker with matric plus other qualifications in the near future. However, there is the possibility of a continuing demand for elementary jobs. This is, however, not a guarantee that people with low skills will be employed in such jobs (Hasluck, 2011).

The challenge facing workers who are employed in low skill jobs is that their employers are usually not keen to offer any job-related training, while at the same time they lack funds to invest in themselves. They become perpetually trapped in this condition and will eventually become unemployed (Hasluck, 2011). As training in the workplace is connected with increased employment

stability and higher earnings, low qualified workers are likely to be excluded from better quality jobs with prospects of career advancement (Moleke, 2005).

There has been a steady decrease in the number of people employed with primary education completed, primary not completed and no schooling at all in the labour market since 1994. Currently the total number of people employed with this level of education is less than 10%. However, there was an unexplained dramatic increase from 1% in 2012 to 8% in the number of people employed with less than primary education in the first quarter of 2015.

South Africa is witnessing a growth in the number of learner/student enrolments in the institutions of learning. The expansion of the education system helps in the development of a large pool of educated members of the population (Tilak, 2002). Educated people are needed because the worth of human capital increases through the acquisition of education, training and improved health care. The educational level of the general population is as important as the amount of human capital embedded in the labour force. The rapid growth in educational opportunities contributes to significant improvement in the educational levels of the workforce (Lin, 1994).

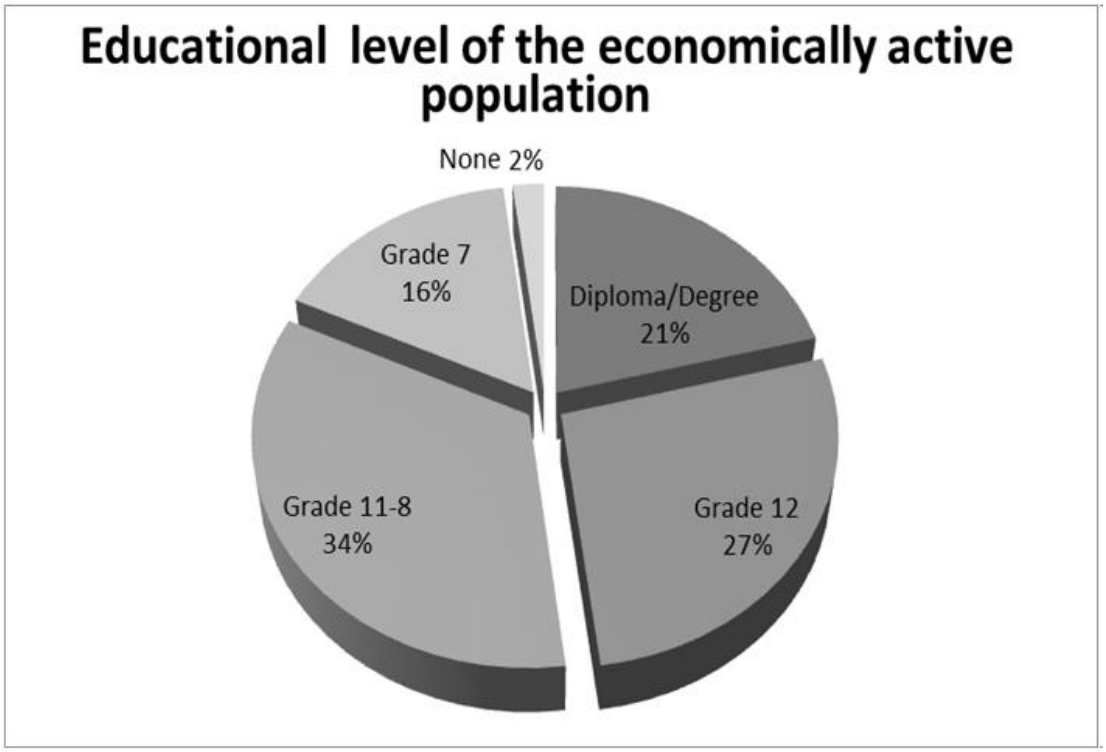


Figure 4.9: Educational level of the economically active population 2013

Source: Barker, 2015:223

Figure 4.9 shows the stock level of the economically active population in South Africa. Figure 4.9 reveals that the level of educational attainment of the population has increased when compared to 1970 (see Figure 3.3 section 3.2). The total number of workers with little or no education has decreased substantially from 53% to 21% in 2013. The proportion of workers with Grade 12, diplomas or degrees has improved from 9% in 1970 to 48% in 2013. This indicates that the literacy level of the population has improved as well.

4.7 EDUCATION AND EARNINGS

As indicated in Section 2.5, education is associated with increased earnings. Those with more human capital receive higher earnings than those with less human capital. Education and training also provide immediate benefits, such as subjective satisfaction and status, in addition to the long-term monetary rewards through higher earnings.

As can be seen in Table 4.13, economic sectors remunerate workers according to occupation levels. The monthly earnings of professionals are higher than that of elementary workers and workers employed in low-skilled categories earn less than those employed in skilled occupations. The elementary and domestic workers and skilled agricultural workers earn below R3000 per month, while professionals and managers earn above R10 000 per month. According to Altman (2006), workers who are employed in the formal or informal sector, with earnings less than R3 000 per month, are referred to as the 'working poor'

Table 4.13 further indicates that the earnings of persons employed in skilled occupations are higher than those employed in semi-skilled and unskilled positions. Professionals, managers and technicians, as skilled employees, earn more than other occupations. The earnings from each occupation increased steadily from 2011 to 2015 (StatsSA, 2015). This is an indication that employers are likely to pay increased earnings to skilled workers because they view their productivity and skills as being greater than those of unskilled workers (Mincer, 1993). The availability of employment opportunities gives an indication of the earnings per occupation and the level of education required to fill the vacancy.

In 2010, the total median monthly earnings for the skilled, was three times more than that of the semi-skilled (9000/300) and six times more than the low skilled,

and the semi-skilled median income is double that of the lower skilled. This ratio is similar for the 2015 total monthly incomes. Between 2010 and 2015, the total monthly income increased by 37.8% for skilled, 16.7% for semi-skilled and 42.9% for the low skilled. From Table 4.13 it is evident that the skilled occupations paid more than the semi-skilled and lower skilled. A low-skilled person will increase their chance of earning more by acquiring some semi-skills, while in the same way; a semi-skilled person can increase their chances of earning more by acquiring more skills.

Table 4.13: Distribution of annual earnings of employees by occupation

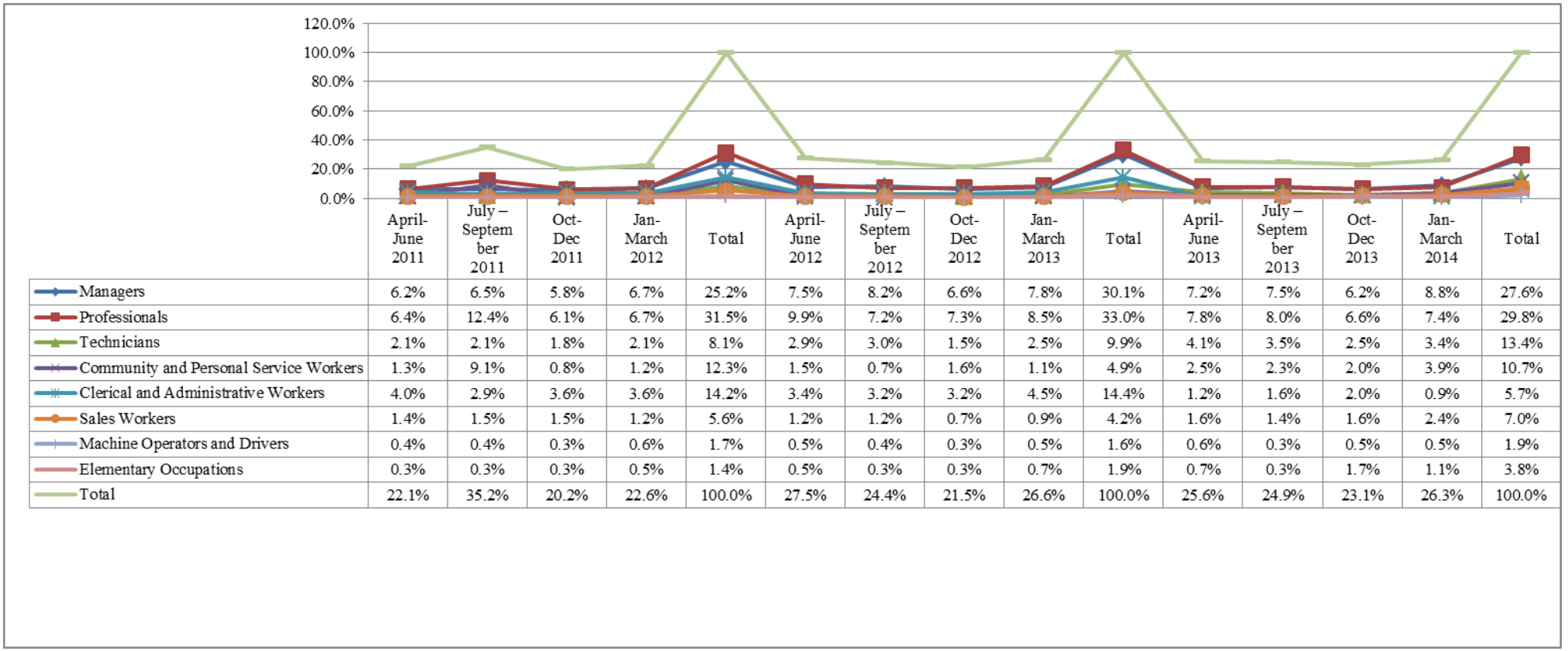
	2010	2011	2012	2013	2014	2015
Rand						
Manager	11 000	13 000	12 800	14 083	16 000	17 000
Professional	10 600	13 000	13 000	15 000	15 000	18 000
Technician	7 900	8 000	8 000	8 400	6 000	6 000
Total Skilled	9 000	10 000	10 200	11 478	11 000	12 400
Clerk	4 500	4 800	5 000	4 700	4 800	4 500
Sales	2 500	2 600	2 800	2 860	3 000	3 080
Skilled Agriculture	1 950	1 200	1 500	1920	2 200	1 950
Craft	3 000	3 033	3 466	3 300	3 466	3 500
Operator	3 000	3 000	3 100	3 466	3 500	3 500
Total semi-skilled	3 000	3 200	3 466	3 466	3 500	3 500
Elementary	1 516	1 600	1 750	1 900	2 100	2 200
Domestic worker	1 000	1 200	1 200	1 300	1 400	1 500
Total Low-skilled	1 400	1 500	1 516	1 700	1 841	2 000
All occupations	2 900	3 000	3 115	3 033	3 033	3 100

Source: Stats 2015; 4-27

4.8 OCCUPATION VACANCY LIST

The vacancy list gives an indication of the pattern of changes of occupations in the labour market. It shows the skills in demand in the labour market. It can be used as a guide in the development of skills at the institutions of learning.

Figure 4.10 shows that the number of vacancies (percentages) that were available from April-June 2011 to Jan-March 2014 was mostly for professionals and managers. Figure 4.10 further indicates that the occupation vacancy list demonstrates that there is a growing demand for skilled workers in the labour market. The largest increase is seen in the categories for professionals, managers, clerical and administrative, technicians and trade, community, social and personal service workers when compared to elementary workers.



	April-June 2011	July – September 2011	Oct-Dec 2011	Jan-March 2012	Total	April-June 2012	July – September 2012	Oct-Dec 2012	Jan-March 2013	Total	April-June 2013	July – September 2013	Oct-Dec 2013	Jan-March 2014	Total
Managers	6.2%	6.5%	5.8%	6.7%	25.2%	7.5%	8.2%	6.6%	7.8%	30.1%	7.2%	7.5%	6.2%	8.8%	27.6%
Professionals	6.4%	12.4%	6.1%	6.7%	31.5%	9.9%	7.2%	7.3%	8.5%	33.0%	7.8%	8.0%	6.6%	7.4%	29.8%
Technicians	2.1%	2.1%	1.8%	2.1%	8.1%	2.9%	3.0%	1.5%	2.5%	9.9%	4.1%	3.5%	2.5%	3.4%	13.4%
Community and Personal Service Workers	1.3%	9.1%	0.8%	1.2%	12.3%	1.5%	0.7%	1.6%	1.1%	4.9%	2.5%	2.3%	2.0%	3.9%	10.7%
Clerical and Administrative Workers	4.0%	2.9%	3.6%	3.6%	14.2%	3.4%	3.2%	3.2%	4.5%	14.4%	1.2%	1.6%	2.0%	0.9%	5.7%
Sales Workers	1.4%	1.5%	1.5%	1.2%	5.6%	1.2%	1.2%	0.7%	0.9%	4.2%	1.6%	1.4%	1.6%	2.4%	7.0%
Machine Operators and Drivers	0.4%	0.4%	0.3%	0.6%	1.7%	0.5%	0.4%	0.3%	0.5%	1.6%	0.6%	0.3%	0.5%	0.5%	1.9%
Elementary Occupations	0.3%	0.3%	0.3%	0.5%	1.4%	0.5%	0.3%	0.3%	0.7%	1.9%	0.7%	0.3%	1.7%	1.1%	3.8%
Total	22.1%	35.2%	20.2%	22.6%	100.0%	27.5%	24.4%	21.5%	26.6%	100.0%	25.6%	24.9%	23.1%	26.3%	100.0%

Figure 4.10.: Quarterly numbers of vacancies by occupational group from April 2012 to March 2013

Source: Department of Labour, 2013:11

The percentages of vacancies are for the three-year period between April to June 2011 and January to March 2014. There was an increase in number of vacancies between the period April-June 2011 and Jan-March 2013 for Managers, Professionals, Technicians and Elementary occupations, while there was a decline in the same period for the following vacancies: Community and Personal service workers, sales workers and machine operators.

For the period between April-June 2012 and Jan-March 2014 there was an increase in the number of vacancies for the following: Technicians, Community and Personal service workers, Operators, Sales workers, Machine Operators and Elementary Occupations and a decline in the demand for Managers, Professionals, Clerical and administrative workers. The vacancy helps to identify the kind of skills needed during a certain period.

4.9 CONCLUSION

After 1994, the government engaged in a wide consultative drive with trade unions, business, providers of education and training, and stakeholders in the education and training system. The main aim was to come up with a workable plan to transform the education and training system of the country. The consultations and extensive research led to the development and adoption of various Acts, such as the SDA, SAQA and the NQF, which assisted the government in formulating a unified education and training system. These enabled the government to expand the coverage of education at all levels of education. Acts were designed with the aim of bringing about integration between the education and training system and to develop skills. The policies and Acts have been amended a number of times to bring about effectiveness in the implementation of government programmes. The transformation of the education and training came with the challenges of addressing the backlogs due to the historical unequal distribution of educational resources.

The government separated the DoE into two departments, namely, the DBE and the DHET in 2009. The main reason was to bring about efficiency and effectiveness in the provision of education. The DBE is responsible for ECD and Grade 1 to 12 schooling and the DHET is responsible for the management of higher institutions of learning such as universities and colleges. In 2015, the

management of AET was transferred to the DHET. The DHET is also responsible for the SETAs and Artisan programmes.

The total schooling system has seen growth in the number of learners and student enrolments at institution of learning. In 2014 more than 2 million learners/students received education. During the period 2010-2013, the SETAs have also seen growth in the number of workers and unemployed people registered with the aim of acquiring new skills.

In the DBE, growth is also seen in the number of learners who are completing Grade 12 with Mathematics and Physical Science. This opens the doors for learners to choose fields that require Mathematics and Physical Science at universities. This is evidenced by an increase in the number of students who are graduating in the field of Science, Engineering and Technology. The fast growth in the educational opportunities has added to an enormous improvement in the educational levels of the work force.

Notwithstanding the strides the government has made in the provision of access and equal education for all, there are still challenges that should be conquered. The DBE is faced with the challenge of drop-outs, particularly in secondary education. This is coupled by low improvements in the performance of learners who complete Grade 12 with Mathematics and Physical Science as subjects. On the other hand, the DHET is faced with a challenge of low output. There is a large number of students enrolled in the higher institutions of learning, but there is a low percentage pass at the end of the study period.

Notwithstanding the challenges faced by the government with the current education system, the improvement in the development of human capital has led to increased stock of human capital in the population, better employment opportunities and higher earnings.

CHAPTER 5: CONCLUSIONS AND RECOMMENDATIONS

5.1 INTRODUCTION

Chapter 4 consisted of a critical analysis of the human capital development after 1994 in which the different perspectives on education in the post-apartheid era under the democratic government were explored. This chapter is a conclusion of the entire study. It is structured into two sections. Section 1 entails the conclusions that have been reached and Section 2 entails the recommendations derived from the study. Furthermore, the section also highlights possible challenges found in the study and explains the way forward to deal with them in order to promote human capital that will lead to inclusive growth in the country.

5.2 CONCLUSION

Education is vital for many of the things that citizens, politicians and government care about in society. It is important to elevate individual earnings and for national prosperity, and thus for human capital development. South Africa started to achieve good academic enrolment in education after 1994. The study has shown that in a country with an emerging economy, such as South Africa, education plays an important role in human capital development. The study admits therefore that education is a driving force that promotes and sustains human capital development. It is also an important factor for the growth of the national economy.

The study found that human capital is an investment in human beings in the form of formal education, informal education, non-formal education and job-related in-service training. It was presented that through education, a person acquires the relevant communication skills, interpersonal skills to negotiate, delegate and plan, and problem solving skills, which are essential at work and in the day-to-day life. Therefore, to be effective and productive, human capital needs to gain constant attention. The proper development of human capital

brings change to an individual, the various business sectors and to a society at large.

According to the human capital theory, a person chooses to invest in education with the hope of getting rewards later in the form of meaningful employment, receiving a better salary and contributing positively to the economy. However, there is no guarantee that more years of education will result in greater lifetime earnings. An individual can rely on the fact that between two categories of individuals of the same age and gender, who are employed in the same occupational division, the one who possesses more formal education has the advantage of receiving higher average earnings than the one with less formal education (Blaug, 1976). Although the study found that there seems to be a positive correlation between the level of education and salary/wage, together with an improved standard of living and productivity at work, it still remains difficult to measure this relationship. As a result, human capital theory is subject to different interpretations. The study has empirically shown that equal access to educational opportunities is likely to lead to educated and trained workers, employability and better earnings

The study showed that in the post-apartheid era, it is difficult to obtain the most fruitful harvest from education if human capital is misdirected. The study presented that apartheid was characterised by misguided policies that could not enable citizens to access equal education, hence, the post-apartheid government had the obligation to establish all-inclusive policies in the county.

The study revealed that when the democratic government took over, the management of education from primary, secondary and tertiary education was in the hands of five different bodies representing the different racial groups and self-governing states. This prompted government to have discussions with bodies such as the Centre for Education Policy Development, the National Training Strategy Initiative and the ANC Education Desk and other stakeholders, such as business, for the establishment of the new system of education and training. The consultations resulted in the formulation of the Implementation Plan for Education and Training, the National Training Strategy Initiative and the Policy Framework for Education and Training documents.

Furthermore, the consultation resulted in the formation of the SANQF that was underpinned by the SAQA Act No. 58 of 1995, the NQF Act No. 67 of 2008, the SDA No. 97 of 1998 and the education and skills bodies such as NSA and SETAs. SAQA is an independent body that administers and verifies the qualifications against the set norms and standards. It works in conjunction with the CHE, Umalusi and the QCTO councils that are responsible for the different sections of the South African education and training system.

One can argue that the institutional landscape of the South African education system reflects major changes. The education qualification route was restructured into three bands namely; GET, FET and HET. The study found that after 1994, the public universities were merged and reduced to 23 and self-governing states education structures were absorbed into the DET. The creation of a single system of education opened doors for every race. That led to an increase in the coverage of education from basic, through secondary to tertiary education. For example, the increase in enrolment numbers is an indication that the government is succeeding in making primary and secondary education accessible to all. The government has established avenues that enable students to access quality education. Among them is the availability of the NASFAS, which provides financial aid to poor students through student loans. The study argues that the government has moved on from the apartheid-style human capital development to equal human capital development. It has moved away from the provision of a fragmented system of a racial and exclusive education and training system to a non-racial and inclusive education and training system that created equal opportunities for learning for all races. It can be argued that in the post-apartheid era, education enabled citizens to translate the accumulated knowledge into ideas, innovations and new productive activities. This has by and large promoted human capital development in the country. The study found that equal access to education in the country remains the key component in the creation of human capital.

The study has shown that education is now accessible to all races. This has been demonstrated by the large number of learners and students who are in the education system at all levels of education. The study further demonstrated the likely relationship between education and employability. There is an

increase in the number of people with tertiary education that are employed. Furthermore, there is also an increase in the number of workers employed with less than secondary education completed. This increase is attributed to the EPWP that is aimed at providing income relief for the unemployed. Therefore, it is justifiable to argue that economic sectors tend to remunerate workers according to the level of education that they possess.

5.3 CHALLENGES

The findings of the study proved that the current educational system under the post-apartheid government is faced with challenges that humper the human capital development. These challenges are:

1. various bodies administering the post-school system. This causes the overlapping of functions from one body to another, and ends up creating confusion (DHET 2015).
2. low throughput in the number of learners passing Grade 12 with Mathematics and Physical Science.
3. large number of learners dropping out before completing the AET courses and secondary education, and a large number of learners that complete secondary education with poor grades. These learners are in the 'middle' since the former do not possess the adequate skills to enter the labour market and the latter are poorly prepared for further education (Gouvias:1998).
4. the large number of student dropouts before completing tertiary education; and the TVET colleges are still viewed as low-prestige institutions of learning when compared to universities.
5. there are no clear pathway relations between TVET colleges and industries; low graduate output at TVET colleges and universities; and the relatively few people receiving training for skills development in SETAs.

5.4 RECOMMENDATIONS

Having understood the human capital development in post-apartheid South Africa, there is need for the democratic government to create clear working

relations between various bodies administering the post-school system. This may help to solve the problem of the overlapping of the functions and responsibilities from one body to another.

Despite doing much to ensure human capital development, the post-apartheid government can also give attention to the following:

1. to invest more in improving the level of education of Mathematics and Physical Science teachers by providing specialised training for them and by providing more laboratories in schools;
2. to improve the provision of teaching and learning materials;
3. to encourage parent-child partnerships in learning;
4. to provide a support system that encourages adult learners to complete their primary education and to pursue secondary education from AET centres; and
5. to create a clear pathway of working relations between the industries and TVET colleges for practical training.

Furthermore, there is a need for the democratic government to create a system that will monitor the progress of a student from entry level to completion and the placement of students in relevant occupations, particularly those from TVET colleges. There is need to improve and expand the role of SETAs in human capital development, particularly, in skills development. Finally, the democratic government should encourage SETAs to have databases of unemployed people who attended their training for job placement opportunities, to avoid the loss of the skills gained; and to advertise and market SETAs opportunities to both rural and urban areas.

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APPENDIX A: ETHICAL CLEARANCE CERTIFICATE

UNISA university of south africa

29 October 2014

Ref #: 2014_CEMS_SES_010

SCHOOL OF ECONOMIC SCIENCES
RESEARCH ETHICS REVIEW COMMITTEE

This is to certify that the application for ethics clearance submitted by

Ms NW Gamede (staff # 90118146, gamednw@unisa.ac.za)

The role of human capital development in the South African labour market **received Ethics Approval**

The revised application for ethics clearance for the above mentioned research was reviewed by the School of Economic Sciences on 28 October 2014 in compliance with the Unisa Policy on Research Ethics. Ethical Clearance is granted.

You may proceed with the research project on condition that all participants are provided with Informed Consent forms prior to any fieldwork. Participation is strictly voluntary. The research ethics principles outlined by the Unisa Policy on Research Ethics must be adhered to throughout the project. Please be advised that the committee needs to be informed should any part of the research methodology as outlined in the Ethics application (Ref # 2014_CEMS_SES_010) change in any way or in case of adverse events. This certificate is valid for the duration of the project. The SES Research Ethics Review Committee wishes you all the best with this research undertaking.

Kind regards,

Loedolff

Ms C Loedolff
Chairperson

Executive Dean: CEMS

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APPENDIX B: DHET DATA REQUEST FORM

higher education & training

Department:
Higher Education and Training
REPUBLIC OF SOUTH AFRICA

DATA REQUEST FORM

1. Details of requester	
Surname and Initials:	
First Name:	
Title (Prof/Dr/Mr/Mrs/Ms):	
Institution:	
Designation at the Institution	
Tel:	
Fax:	
Email Address:	
Postal Address:	

2.	Please indicate your data user category:
	Researcher/Policy Maker
	Other Government Department Official [Specify]
	Post-school Education and Training Institution Official
	DHET Entity Official
	Media/Press (via Communication)
	Other [Specify]

3.	Title of project

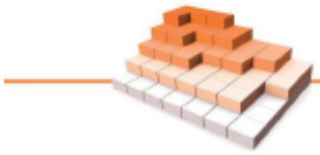
4.	Data request rationale/purposes for which data will be used

5.	Table fields required (Indicators for the data)

6.	**The period for which the dataset is required (e.g. 2008, 2009-2011)**
7.	**The date that the information is needed from DHET**
8.	**Additional information that could assist in dealing with the request**

SIGNATURE	
DATE	

APPENDIX C: DECLARATION OF PROFESSIONAL EDIT



Retha Burger
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Independent Skills Development Facilitator

Dear Ms NW Gamede

This letter is to record that I have completed a language edit of your dissertation entitled '**HUMAN CAPITAL DEVELOPMENT IN SOUTH AFRICA: PERSPECTIVES ON EDUCATION IN THE POST-APARTHEID ERA**'.

The edit that I carried out included the following:

-Spelling	-Grammar
-Vocabulary	-Punctuation
-Pronoun matches	-Word usage
-Sentence structure	-Correct acronyms (matching your supplied list)
-Formatting	-Captions and labels for figures and tables

-Spot checking of ten in-text references
-Generation of Table of Contents, Lists of Figures and Tables

The edit that I carried out excluded the following:

-Content
-Correctness or truth of information (unless obvious)
-Correctness/spelling of specific technical terms and words (unless obvious)
-Correctness/spelling of unfamiliar names and proper nouns (unless obvious)
-Correctness of specific formulae or symbols, or illustrations.

Yours sincerely

Retha Burger

16 February 2017