

**“The Status of Technical/Technology Education in the
Ethekwini District in South Africa”**

by

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DECLARATION

I, N K RAMDUTT do hereby declare that this dissertation, which is submitted to the university for the degree of Master of Education, has not been previously submitted by me for a degree at any other university, and all the sources I have used or quoted have been indicated and acknowledged by means of a complete reference.



N.K. Ramdutt (Researcher)



Professor R. Sookrajh

DEDICATION

This study is dedicated to the lotus feet of Bhagwan Shri Satya Sai Baba, who provided me with the necessary faculties to undertake this research study and who has been with me through my trials and tribulations. Aum Sai Ram.



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GLOSSARY

Researcher's note: *For the purpose of this study it is necessary to define certain key terms as listed below. Thereafter I present certain acronyms and abbreviations used in the study.*

Apprentice: An apprentice is a learner of a craft, who is bound to serve, and is entitled to instruction from his employer for a specified term. They are generally beginners or novices willing to learn a trade or craft.

Artisan: They are referred to as artists who create with their hands. Their job entails the practical execution of tasks as they have the ability and practical knowledge to carry out the plans drafted at higher levels.

Status: According to the Oxford dictionary¹, the word status refers to a social position, rank, and relation to others, relative importance, position of affairs, unchanged position or the previous position. However, in this study it will refer to position of affairs, condition, importance and acknowledgement that technical education receives as opposed to the academic subjects.

Technical education: In the context of this research, Technical education will also refer to Vocational, Career or Industrial education and will be used interchangeably. This type of education refers to a form of education that carries the connotation of specific knowledge and understanding of the theory of technical skills, applied sciences and skill. Technical education is also regarded as education to earn a living in an occupation in which success is dependant upon technical information and understanding the laws of science and technology as it is applied to modern designs. Technical education in the past at ordinary school level involved the study of Basic techniques, Industrial arts, Technical Drawing, Woodwork and Metalwork etc, and in some select schools Technika subjects.

¹ The Concise Oxford dictionary of current English, Sixth edition:1976

Technology Education: Technology education integrates the intellectual with practical and cognitive skills and contributes to the development of the individual as informed members of a technological society. The processes of perception (learning to see technology), generation (learning to create and confront), and critical thought (learning to question and challenge) involved in developing technological capability are central. Technology education is also the use of knowledge, skills and resources to meet human needs and wants and to recognise and solve problems by investigating, designing, developing and evaluating products, processes and systems

Technical School: Refers to any educational institution, generally at secondary level that which offers programmes of technical education aimed at training pupils in the knowledge know-how of a particular course, for example motor mechanics, panel beating, electronics and fitting and turning. Certain courses are deemed absolutely necessary in a particular field of study regardless of the specialisation of the interests.

Vocational Education: For this study Vocational education will be regarded as skills-based programme that revolved around instruction and training in commerce, agriculture, and house craft or any trade or industry. This is the type of education, which prepares someone for a trade or profession, although there should be no difference between a trade and a profession, it has been stated that people who work with their hands have a trade and those that think have a profession. For the purpose of this study Vocational Education will be used interchangeably with Technical Education to mean one and the same thing.

Academic Education: A type of education that is scholarly, logical, belonging to a university, abstract, formal or theoretical in nature as opposed to practical. Classical and literary rather than it being technical.

Learning Field: A learning field is a category that serves as a home for cognate subjects, and that facilitates the formulation of rules of combination for the Further Education and Training Certificate (FET) (General). This term is used in the new FET curriculum to denote various disciplines and occupational fields in the world of work and is therefore designed to provide a framework for organising qualifications in a coherent and co-ordinated manner.

A Subject: Historically, a subject has been defined as a specific body of academic knowledge. This understanding of a subject laid emphasis on knowledge at the expense of skills, values and attitudes. Subjects were viewed by some as static and unchanging, with rigid boundaries. In this research study a subject will be used to denote a specific body of academic knowledge, for example; Technical Drawing, Woodwork, Metalwork, etc.

ACRONYMS AND ABBREVIATIONS

AB~ Adult Basic Education and Training

ASGISA- Accelerated and Shared Growth Initiative for South Africa

COLTS- Culture of Learning, Teaching and Service

FET- Further Education and Training

F~C- Further Education and Training Certificate

F~QA- Further Education and Training Quality Assurance Body

H E - Higher Education

HRD - Human Resource Development

ISEN - Learners with Special Education Needs

JIPSA- Joint Initiatives for Priority Skills Acquisition

MEC- Member of the Executive Council

MTEF- Medium-Term Expenditure Framework

NBF~ National Board for Further Education and Training

NCFE- National Committee on Further Education and
Training

NGO- Non-Governmental Organisation

NQF- National Qualifications Framework

RPL- Recognition of Prior Learning

SASA- South African Schools Act, 1996 (Act No. 84 of 1996)

SDAS- Sector Education and Training Authorities as defined in the Skills Development Act

SYSTEM- Students and Youth into Science, Technology, Engineering and Mathematics

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ABSTRACT

Historically, technical education has always been perceived as “inferior education”. It is time for this perception to change. With the high unemployment rate (26%) in the country, and the huge skills shortage, it is imperative for society to take a critical look at the role of technical education in our current curriculum and that the present government looked more closely at the impact that the proper provision of technical education would do to the country as a whole.

This study focuses on the current status of technical education provision in the country and the fostering of technical education at secondary schools in general. It examines the perceptions of principals, educators and learners towards the following:

- The status of Technical education provision in South Africa.
- Fostering of technical subjects at Technical High schools in KZN.
- Gender issues with regard to technical subjects.
- Curriculum appropriateness towards the employability and familiarity with the new FET curriculum
- Value of technical education for South African society
- Pedagogics related to the technical education curriculum

The enquiry was located at technical high schools within the eThekweni region in KwaZulu – Natal. The population consisted of Technical high school principals, educators and learners, together with an interview schedule with the subject advisors for these subjects. The use of the combination of qualitative and quantitative methods resulted in a triangulation effect and enabled a further exploration into the status of technical education in South Africa. Semi-structured questionnaires and interview schedules were used, as it was the most effective way of gathering data concerning the feelings and perceptions of the respondents concerned towards the Status of Technical education in South Africa.

Several important findings that emerged from the data suggests that:

- Technical education is viewed as very positive by the youth of South Africa towards addressing unemployment, skills shortages and for the future growth of the country
- There are gender imbalances with regard to the human resource within the realm of technical education.
- Lack of suitably qualified educators in the new technical field.
- Lack of further training of technical education educators for the future
- Lack of equipment and resources in the workshops.
- Ill preparedness of educators in meeting the requirements to teach the current FET syllabus.

It is imperative for mindset of the general public to change with regard to the perception of the status of technical education in this country, as the youth of today value and respect what technical education has to offer, and for the possibility of what technical education can do for the eradication of the skills shortage dilemma, for addressing the unemployment issue and for the future growth and development of South Africa.

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CHAPTER ONE

Introduction: Context, Objectives and Overview

*Traditional educational systems combined with attitudes on the part of educators and the public, which relegates technical and vocational education and the occupations for which it prepares, to a **low status**, form perhaps the greatest barrier to the development of technical and vocational education as an integral part of a system of lifelong education relating to education and life. Many countries have found that although reforms have been introduced within the education system to render it more flexible, parents and their children prefer courses of study of an academic nature, which may lead to a higher status. (UNESCO, 1979:100-101)*

1.1. Introduction

In my personal involvement as a technical educator as well as my supervisory experience within the KZN Department of Education¹ I often encountered attitudes from academics, other education personnel as well as the community towards technical education that may be deemed to afford technical education an “inferior” or “low” status. Given these attitudes and the crisis of a shortage of technical skills in South Africa, an initial cursory reading of the UNESCO abstract (quoted as header above) further motivated me to undertake research into the reasons why technical education is viewed in this way. Thus this study derives from a personal rationale and research and contextual imperatives to investigate why technical education in South Africa, particularly in the Ethekweni District in South Africa,² is regarded as “*inferior education*” and had a “*low status*” attached to it.

¹ KZN – Kwa Zulu Natal – a province on the east coast of South Africa

² Ethekweni – refers to the metropolitan region of Durban – a major port city on the east coast of South Africa, within the Kwa Zulu Natal province. (see map on page)

As far back as 1980 the De Lange report stated that the schooling system was churning out too many pupils streamed for academic careers. As a result of this type of education system, many pupils would not be able to find appropriate jobs and would not be qualified for technical posts. Mr M. Pillay, Executive Director of the Education and Culture services at the former House of Delegates, quoted in a press report (*Post*, 28 September 1994: 28-29)³ said that “a paradigm shift from academic-based education to vocational and industrial training is required to boost South Africa’s economic status and provide jobs for all school leavers. “

According to Volk (1996:1) a significant amount of work, reports, position papers, and professional pressure in recent years has emerged that expresses the need for technical/technology education in our education system. This need arose around explanations which diminished or ignored the contributions of our existing technical education programs in the country today. This motivated Volk (1996) to ask, “taking into consideration recent trends and mandates toward technical/technology education, have those educators previously initiated into industrial arts been indoctrinated to teach subjects such as woodwork, only to find the subject matter has no contemporary relevance and can no longer exist? He further questioned whether the curriculum, activities and equipment of technical education are worldly in nature and of minimal educational value, or was it simply politically incorrect to discuss or support the subject?

Thus my study examines the status of technical education, and some of the arguments for and against technical education, as presented by proponents of technical/technology education. Within the scope of this discussion, an alternative view of the strength, relevance, and value of traditional technical education is presented.

According to Reddy (1995, 10) “the economic growth of any country is directly proportional to the appropriate education system it receives”. However, the reality of the situation facing schools today in South Africa is that the type of education one receives is still too “academic” whilst marginalizing the technical education which would provide

³ in the article “*Cato Manor tech grows to cope with the needs of the new South Africa*” (*Post*, 28 September 1994: 28-29)

youth with appropriate skills, help to eradicate unemployment and eventually prepare the youth for a world of work.

1.2. The Rationale for the Study

My study is prompted by a personal rationale, as well as research, policy and other contextual imperatives to investigate why technical education in South Africa, particularly in the Ethekeweni District in South Africa,⁴ is regarded as “*inferior education*” and had a “*low status*” attached to it.

My own experiences and observations as a Technical educator for 27 years has indicated that “academic” subjects are given more prominence over Technical Education, the reasons for which have often puzzled me. During the eighteen years that I taught technical education to Indian pupils at mainly Indian secondary schools⁵, I noted that the academic subjects were given precedence over the technical subjects. It also became apparent that because technical education has a stigma of inferiority attached to it, learners were reluctant to opt for the technical courses offered at school level.

Much of the print media and reports generated controversy regarding the status or prominence surrounding technical education. The general public, teachers and learners did not give students attending a Technikon the same status or respect as a student attending a university.⁶

The KwaZulu- Natal Department of Education and Culture Interim Core Syllabus for Technical subjects (September 1995) illustrates that the majority of the technical subjects that are offered at school level, are offered at the standard grade level. It is only Technical Drawing and the Technika subjects (Electrical, Electronic and Mechanical) that has a

⁴ Ethekeweni – refers to the metropolitan region of Durban – a major port city on the east coast of South Africa, within the Kwa Zulu Natal province. (see map on page)

⁵ Readers familiar with SA history will know that most facilities especially education was divided according to race under apartheid.

⁶ The Natal Mercury, May 9, 1996:2; The Natal Witness, 26 June, 1985: 8; The Natal Witness, 5 August, 1982: 9; Department of Education and Training Report, 1983.

higher grade component attached to its curriculum. It concerned me why Technical Subjects were not accorded the same status as the other so called academic subjects.

In the period of transition to democracy from 1994 the National Department of Education have made policy changes to Technical Education in the FET phase with regard to the introduction of OBE in this phase and the marginalizing of Technical subjects. Thirteen subjects have now been reduced to four learning fields. The question that arises from these changes is, “Is this a deliberate action, on whose part and why?” It is yet to be seen how these changes will affect the fostering of Technical education in South Africa in the future.

Given the personal and contextual imperatives that I described, I suggest that my study will produce the following benefits:

- the findings that will emerge from my research will contribute to understanding the current status of technical education in South Africa. The experiences and value of Technical Education for teachers, principals and learners as it is currently fostered in South African schools will be of benefit to National and Provincial policy makers, Education Department Officials, Principals, educators, parents of school going learners, the private sector, the Schools Governing Bodies (SGB's) and researchers interested in finding out about the current Status of Technical Education in South Africa.
- new ideas on the current status of Technical education, its value for teachers, parents and learners, can be incorporated into selection of courses at grade 10 level for learners,
- serve to inform learners who decide to follow a Technical/Technology course at schools
- will inform educators of technical/technology education in ways of improving the status of technical /technology education in South Africa.
- Curriculum development specialists and authors who prepare Technical/Technology material for learners of the FET phase, including

management of effective curriculum courses offered at schools for teachers and the management staff, as well as lecturers offering Technical/technology classes at University in Teacher Education or the Engineering Sciences, and

- relevance of technical subjects on employability for the private sector.

1.3. Outline of Research Topic

Technical Education is an important part of the school curriculum, which is influential on the holistic development of the child, the needs of the learners and the changing demands of the economy and society. Unfortunately, there is still a widespread but erroneous impression of the artisan or technician as a man in dirty overalls who carries a tin lunch box and goes to work by bus.

According to popular youth magazines⁷ it appears that today the youth of our country seem fascinated by technology-orientated careers. According to SAY Magazine (2005):

“who can blame them for being interested in an environment that is innovative, exciting, creative and pushing the boundaries? Nowadays it seems that cell phones and computers have become more like toys, and with our ever changing technological world, who knows what else will be developed in the next few years? As a result of all this innovation and technological advancements taking place all around us, it would take more than an average school leaver to dream of putting on an overall, and choosing a field related to the building of infrastructure like quantity surveying and civil engineering. There are many opportunities in the construction industry, especially with all the planned developments around the country”.

Badroodien (1998:25) noted that in 1994 the new South African government inherited an extremely poor skills establishment, one based on voluntarism, poor quality and narrow,

⁷ SAY Magazine, Sunday Times: Education and Training, 2005:7

employer-led definitions of skill. Attempts to put together a new institutional environment required awareness of the country's history of technical and vocational education provision and the difficult ways in which that history affects the contributions of respective learners who exit the system at the various institutional points. A vital question remains around trying to turn over the extremely low skill levels of African workers and learners within a system that concurrently produced significant levels of skilled white learners.

A similar sentiment is expressed in the National Department of Education's National Curriculum Statement overview document:

“The legacy of apartheid continues to be felt in the education system. Institutions were established along racial lines and saturated with the doctrines of apartheid and entrenched inequality. As a consequence of the of the unequal distribution of resources, historically white schools and colleges tend to be well resourced, while historically black institution tend to be poorly resourced. These impacts negatively on the quality of teaching and learning and presents one of the most daunting challenges for the new democracy. These differences were enforced through legislation and regulations. The Bantu Education act (1953) introduced inferior education unequal distribution of resources, poor teacher training, and unacceptable teacher learner ratios. Two laws the Correspondence College Act (1965) and the Technical College Act (1981) amended in 1989- regulated technical colleges.” (National Curriculum Statements, 2002: 1)

The status of technical education in South Africa has recently attracted the attention of politicians and inevitably the state. As early as 1996 the Democratic Party provincial leader and chairperson of the education portfolio committee Roger Burrows was quoted in the *Natal Mercury* (1996:2), as saying, “Technical education had always had a Cinderella status in the education system in South Africa, but it was time for that status to change”. In the article Burrows further stated that between 90% and 95% of South

African children are trained in an academic direction and for every seven students at university; there are only three at technical institutions.⁸

In a similar light, the political parties like the Inkatha Freedom Party (IFP's) principal goals in education are to:

- Raise levels of literacy and numeracy; and
- Promote technical, vocational and analytical skills.

Moreover they emphasize that “a major shift in emphasis from academic to technical and vocational high schools needs to occur”.⁹ The policy noted that there is currently a terrible shortage of skilled artisans and technicians and too many university graduates enrolled in the Arts and Social Sciences. The policy further deliberates that the government needs to vigorously encourage via the provision of financial incentives to scholars and students to undertake studies in the areas of Maths and Science. A larger percentage of resources have to be channelled into the technical and vocational educational direction. There is a need to build Technical and vocational high schools and to encourage government and private sector bursaries for studies in this direction. A cooperative, concerted effort between the government and private sector needs to be established in this regard.

The Green Paper on Further Education and Training (1998) highlights the need and significance of the provision of Technical Education. In the article *Preparing for the Twenty-First Century through Education, Training and Work* it states that “the FET provision reflects rigid and outmoded distinctions between ‘academic’ education and ‘vocational’ training. Consequently, technical and vocational education lacks parity of esteem with traditional schooling”. It is also noted that new entrants into the labour market generally lack appropriate knowledge and skills. Opportunities that exist for the employed are limited, while the needs of those who do not have formal jobs, and whose

⁸ The Natal Mercury, May 9, 1996: 2

⁹ (IFP's Executive Policy Summaries.Education.htm.2000)

main hope of making a living lies in the informal sector and in small and medium enterprises, are largely neglected.¹⁰

Employers in the private sector as well as in government maintain that many programmes offered by technical colleges and regional training centres are irrelevant and outdated. Equipment is antiquated and tuition is of poor overall quality. (UNESCO, 1979)

The UNESCO report (1979:103) states:

“Looking more specifically at technical and vocational education, several countries reported that programmes were not adequately preparing young people for employment in their occupational fields or were not preparing them in the fields of real employment opportunities. These countries are then faced with the need to develop strategies for adjusting education as a whole, and technical and vocational education in particular, not only to the realities of the current or short term labour market but also projected economic development”.

In the light of the above statement South Africa’s educational system also falls short in this regard.

In short, these views reflect the crisis gripping industrial training and vocational education in South Africa. They reflect a serious malfunctioning of the labour market, which is noticeable, historically, in a set of education and training, employer and governmental departments, which have worked at odds with each other, giving out contradictory signals about the skills needs and shortages, with employers doing very little actual training. These labour market institutions have failed to provide a basis for a coherent and consistent labour market policy and human resource development strategy

¹⁰ The Green Paper on Further Education and Training (1998)

for the medium- to long-term. The need to correct this failure and malfunctioning is more urgent now than ever before.¹¹

Consequently, it becomes apparent that the education system in our country to support a growing economy has to be designed in a way that will benefit all learners who will eventually be trained to fulfil the obligations of the required skills shortages in the country. This was further emphasised by Eurich (1990) and MacKenzie (1983) who stated that “It is both logical and imperative that the preparation of students for an advanced technological world should be of paramount importance in our society.”

With the introduction of Outcomes Based Education (OBE) as the foundation methodology for the implementation of curriculum in South Africa, and its current implementation into the Further Education and Training phase (FET) the previous technical education subjects like Technical Drawing, Woodwork, Metalwork, Motor Mechanics, Bricklaying and Plastering, Electricians Work, Electronics, Fitting and Turning, Technika Electrical, Technika Electronics, Technika Mechanical, Welding and Metalworking, and Woodworking, have been integrated into the learning field of Manufacturing, Engineering and Technology in the FET phase. Thirteen subjects have been condensed into four subjects. By marginalizing the so called technical subjects into Engineering Graphics and Design, Civil Technology, Mechanical Technology and Electrical Technology it is contended that the South African education system still focuses primarily on the academic preparation of the child, gearing him/her for tertiary education and university, at the expense of equipping him/her for meaningful participation in the economic sector.

The literature suggests that in the past, teachers, pupils, parents and the public assumed that technical education was designed for pupils with ‘*learning disabilities*’ and generally ‘*low intelligence levels*’. Technical subjects were considered ‘*easy*’ subjects suited

¹¹ Green Paper On Further Education And Training: *Preparing For The Twenty-First Century Through Education, Training And Work*: 15 April 1998, The Department Of Education, Pretoria

mainly for pupils of average and below average intelligence. It is the view especially amongst members of the South African community, that the above average child and the high flyer are far too superior to waste their intellect in the technical field. My study therefore focuses on the Status of Technical/Technology Education in South Africa.

With the changes in the current education system and the shift from Technical education to Engineering, Manufacturing and Technology education in the FET phase, I decided to investigate the possible reasons for this discrepancy in status that existed between technical education and academic courses at secondary schools in KwaZulu -Natal. I also wanted to find out if this perception still existed despite the current changes in the curriculum in the FET phase.

It is argued that teachers, principals, the general public and pupils seem to perceive technical education as "*inferior education*". Anecdotal evidence suggests that management staff at some schools have been known to make statements about technical education that is derogatory, e.g. "*that 'F' class won't make the grade in the academic stream, let them all do the workshop subjects*". Such remarks have made an indelible mark on me as to why is Technical/Technology Education in South Africa is perceived with such a "low or inferior" status. Are current stakeholders of the same opinion that Technical /Technology education in our education system is "inferior education"? This statement frames the following **critical** questions around how Technical Education is perceived, whether it is being fostered at schools, and how is it being fostered:

- What is the current status of Technical/Technology Education in selected Technical Secondary schools across Kwa-Zulu Natal in South Africa?
- How do principals, educators, and learners' value/perceive Technical/Technology Education as it is currently fostered at schools?

1.4. Overview of Study

In this chapter (*Chapter One*) I described how Technical /Technology education in South Africa has been accorded a low or inferior status by academics, educators, learners and communities. I described my personal and contextual rationale that motivated my investigation into the current status of Technical education in schools and its perception by principals, educators and learners. The chapter provides a brief overview of research and also discusses the rationale, the assumptions of the study, and the critical questions I wish to investigate.

In Chapter Three, I describe the research methodology which includes the research design, the structure of the questionnaires and interview schedule as well as the context, research participants, control mechanisms and ethical considerations, and management of the instruments used.

Chapter Four introduces an analysis of the results from the administered questionnaires and interview schedules. A biographical detail is presented of the respondents in this study together with the analysis of the administered questionnaires and interview schedules. After the analysis of the perceptions of subject advisors, principals, educators and learners, a comparative and combined picture arose about the perceptions of the participants on the status of technical education in technical schools in KwaZulu – Natal. This analysis was presented together with tables and graphs highlighting the respondent's responses to particular questions.

In Chapter Five, I present the research findings. After the research was conducted, a summary of the entire research was provided, together with implications as well as recommendations of this study.

1.5 Conclusion

In Chapter One I have reviewed some of the reasons that have resulted in technical education being perceived as '*inferior education*', while simultaneously suggesting the important need for technical education in the school system. It is suggested that technical

education seems to be the panacea to eradicating the high unemployment rate in the country, to providing skilled labour, and to maintaining and sustaining an economic growth rate of 6%. To achieve this, a major shift in the mindset of all people is necessary. The success of this will be seen when technical education receives the same status as the academic subjects and forms part of the subjects required for entry into universities.

Technical education has traditionally been associated with the preparation of youth for the world of work, and the Further Education and Training Act (FET) requires all students to have access to education. However, technical education has been marginalized in the development of these programs. Training and development professionals are directly responsible for the continuing education and training of employees in their respective organizations, from new employees to experienced workers and thus have a unique perspective on the issues posed in this study.

In the next chapter (*Chapter Two*) I explore the available literature on the history and development of technical education as related to the status of technical education in South Africa. It covers a critical review of literature with regard to the historical and current perceptions based on the status as well as provision of technical education in South Africa.

CHAPTER TWO

Literature Review and Theoretical Framework

2.1 Introduction

This chapter traces the historical development of technical education in South Africa as well as some theories underpinning technical education. At the same time it explores reasons and possible explanations that may have accounted for technical education being regarded as “*inferior education with a low status*”. Reflecting on past and present curricula offered in South African schools, technical education has always been marginalised, in preference to the so-called ‘academic subjects’. This research study was informed by a literature review of past perceptions on the historical development of technical education in South Africa and on reasons that accounted for technical education being regarded as “*inferior education*”

According to Badroodien (1998:2):

“the history of technical/vocational education in South Africa has always been related with issues related to **indigence, social and educational inferiority**, and **mental backwardness**. He explains this preoccupation through the complex ways in which indigence and inferiority issues meshed with social debates about the ‘useful citizen’, social order, and notions of the (presumed) social and work skills that workers (particularly males) needed in urban areas. These debates on the intermeshing of class, race and quality of provision were crucial in the formulation of technical and vocational education programmes in South Africa in the period 1920 to 1970. In that respect, vocational education provision was regarded as critical for the ‘salvation’ of working class, poor and indigent children in urban areas, both in helping regulate and socialise the growing numbers of submerged ‘poor white’, African and coloured urban workers and inhabitants in the cities, and to ensure that impoverished learners in rural areas

developed the skills and knowledge to prosper there – and therefore, not migrate to the cities”. (Badroodien, 1998:2)

2.2 A Brief history of Technical Education in South Africa

This research attempts to examine the history of the origins of technical education in South Africa, as postulated by several writers, e.g. Badroodien (1998), Le Roux (1985), Malherbe (1977), Smuts (1937) Pittendrigh (1988) and Chisholm (1992). References are made to the transformation that technical education had experienced throughout the years of its emergence into the existing school curriculum, as Technology Education in the General Education and Training (GET) phase and as Manufacturing, Engineering and Technology, in the new Further Education and Training (FET) curriculum of today.

As will be demonstrated, the historical context of technical and vocational education provision has shaped the nature and extent of such provision for different social classes and social groups in this country, as highlighted by Snedden and Prosser in Camp (1983).

This section makes four observations as cited in Badroodien (1998:1) that:

- Technical and vocational education provision before 1910 was regarded as suitable only for non-whites.
- After 1910, the Union Government reversed this policy emphasis and sought to limit the provision of technical and vocational education to predominantly white recipients.
- The categories of technical and vocational education came to be distinguished largely on class and race grounds after 1910. Technical education provision was clearly distinguished in policy from industrial/vocational education; the latter being more focused on social welfare concerns.
- With regard to vocational education, provision there was a greater emphasis, historically, on rehabilitative and ameliorative functions, than on a training function. (Badroodien 1998:1)

The history of technical and vocational education provision in South Africa has different origins, and their development was informed by quite different contexts. Malherbe (1932) as cited in Badroodien (1998) has noted that “the origin of industrial education is not identical with that of technical education. Technical education arose out of the needs of the growing industries, while industrial education developed out of the desire to help the poor whites”. (Malherbe 1932: 55). It is an important point to consider if one is looking at the status of technical education in the country, as this statement tends to highlight some of the reasons that account for technical education having a ‘*low or inferior status*’ because of the association of technical education with industrial education. In response to the statement above, South Africa is presently faced with vast contexts of unemployment and skills shortages, and one wonders whether the proper provision of Technical education as it is currently made available at schools in South Africa today will alleviate this problem, as demonstrated historically.

The Stigma of Inferiority

It is notable that even in the period that it was solely provided for white learners, “technical education continued to be stigmatised as ‘kaffir work’ and looked upon by white workers as degrading and unacceptable” (Badroodien 1998:3)¹, thus affecting the status of technical education in South Africa.

The statement above further reinforces the original proposition that technical education has been regarded as “*inferior education with a low status*” and is seen by many as being “*degrading and unacceptable.*”

(Kruger: 1993, 182). Rickett (1971) and Malherbe (1977)² have all emphasised the

“pioneering role of the Churches and the provinces with regard to industrial education at the turn of the century. Rickett (1971: 9–11) cited in

¹ Refer to Badroodien (1998) for further information on the Historical Development of Technical Education in South Africa.

² See Malherbe (1977) for further information on the Historical Development of Technical Education In South Africa.

Badroodien(1998) in particular provides a rich account of the diverse types of industrial schools that evolved at the private, provincial and rural levels in the Cape Colony at the turn of the century. He observes that industrial schools (in the Cape Colony) in the early part of the century were essentially schools for teaching trades to the children of white parents in poor circumstances”.

(Badroodien 1998:3)

Badroodien (1998: 3) further explains that “Four industrial schools (reformatories) were founded between 1913 and 1917 in terms of the Children’s Protection Act, Act 25 of 1913. Until 1917 when their administration was taken over by the Union Education Department, these were under the control of the director of Prisons. This added the **stigma of inferiority** to the existing **stigma of poverty** attached to **industrial education**”.

The status of industrial schools generally improved from the 1930s, even though it was often assumed firstly that children in government industrial schools were of **lower intelligence** than those in provincial industrial schools that focused on trade training, and secondly that instruction at government industrial schools focused predominantly on social order and welfare needs. From the 1930s, the Union Education Department made concerted efforts to change the narrow conception of vocational education at the different points of provision. The department was particularly concerned about the relationship between vocational education, work and society, as well as about the effectiveness of the social reproduction of work discipline within the system of industrial and technical training. This concern was further emphasised by the boom in secondary industry from the middle to late 1930s, which led to more attempts by the educational authorities to re-organise the system of vocational and technical education in South Africa. In fact, the unprecedented industrial expansion that accompanied the start of the Second World War in 1939 drew particular attention to the unsatisfactory state of technical and vocational education in South Africa. By that time, despite attempts to address the growing gulf between the provisions of technical, vocational and industrial education and the availability of trained technical workers, the Union Education Department had been

unable to change learner and employer perceptions of the merits of industrial and vocational provision and so increase learner participation.³ (Malherbe 1977:712)

Technical and vocational education and training have many different meanings, which are shaped by wider social, political, and economic contexts. British roots of the technical education curriculum in South Africa, the demand for technical education to be made available to white youth was an outgrowth of industrial development that happened in the late 1800s. It was linked to mining and the development of railways, harbours, and small engineering workshops in urban centres that developed. Historians note that technical education referred to ‘a type of education which had reference to manufacturing and industrial pursuits and the scientific principles underlying these’ (Smuts, 1937: 97).

As cited in (Smuts, 1937; Pittendrigh, (1988); Chisholm 1992), “the origins of the formation of technical colleges and later, technikons, can be traced back to this era, and to this particular framing and vision of technical education. The general educational system, as well as the system of technical education in South Africa, evolved from British systems”, as we have seen earlier.

Layton (1984: 21–35) examines the relationship between the school science curriculum and industry in England to demonstrate how school science has remained separate from demands for ‘utility’ and ‘application’. “Science had to be justified in the curriculum in the same terms as classics and mathematics was justified, if it hoped to make any inroads’ (Layton, 1984: 24)”. While science was becoming well-established in the school curriculum, an ‘alternative road’ of technical education for artisans was also being developed in England.

Layton argues that the alternative technical education route as constructed in England in the late nineteenth century was, in practice, not greatly different from liberal education as far as science education was concerned. The definition

³ Refer to Malherbe (1977): *Education in South Africa* for more information on the history of technical education in South Africa.

of technical education incorporated in the English Technical Instruction Act of 1889 shows the basis of this argument. Technical education was defined as being 'limited to instruction in the principles of science and art applicable to industry and not to include teaching the practice of any trade or industry or employment' (Layton, 1984: 25, original emphasis). It was this 'scientific' definition of technical education that was adopted in South Africa around the turn of the nineteenth century. A theory-practice combination developed which required technical colleges to provide the 'theory' part of apprenticeship training, while workplaces provided context-specific work experience. From their inception, the educational task of technical colleges was thus framed in terms of concept formation that would strengthen and expand craft and trade practices.

South African Literature

Findings from the literature study illustrates that technical education in South Africa did not enjoy any form of privileged status as compared to the so-called academic subjects had received⁴. Information gleaned from a (1979: 70) report suggests that the majority of countries agree that with the introduction of technical and vocational curriculums in the general education at junior secondary level and in some cases at upper primary it has “the potential of becoming a powerful tool for democratising education”. As such technical studies and the related occupations may turn out to “become a positive option for young people, which was not the case in the past when the highest value was placed on traditional academic studies while technical education were considered appropriate for the less bright.” (, 1979:70)

Some reasons that may have accounted for this portrayal may stem from the following extracts and expositions for the South African scenario.

⁴ McGrath, S; Badroodien, A; Kraak, A and Unwin, L (undated)

According to Kruger (1983:182), findings from local as well as international research papers suggest that from a historical perspective, “the stigma of poverty and juvenile delinquency which clung to industrial education in England also emerged in South Africa, primarily because of the way in which industrial education originated here”.

Most of what was known about technical education at that time in South Africa had its origins from British counterparts, as a result of the industrial revolution that occurred in Britain at that time, which was carried back to South Africa, during the British rule of this colony. British roots of the technical education curriculum in South Africa, and the insistence that technical education be made available to the ‘white’ youth only in this country was as a result of the industrial development that occurred in the late 1800s, especially in the mining and railway industries.

According to Lewis (1984: 24), who states that “It is well known that South Africa’s particular racial history, which involved racially, based job reservation, led to the exclusion of black workers from opportunities for technical education and training” hence the statement above “technical education be made available to the white youth in this country” in the historical development of technical education in this country.

It therefore appears from this statement that as a result of racial segregation in South Africa, the growth and development of technical education came to a standstill amongst certain racial groups in this country. Exclusion of technical education to certain race groups suggested that it may have been one of the major stumbling blocks to the fostering of technical education in South Africa on a large scale, which could have been a viable economic growth factor to the people of this country. It follows that the way in which industrial education or technical education originated in South Africa was a detrimental factor to its negation and down played prominence that affected its status in South Africa today.

Social, Political and Economic reasons for downplaying technical education

The ongoing perception that technical education was for poor people or for people who could not do anything or undertake to do anything else in their lives, hence the term

“poor and indigent children” became associated with technical education. Technical education became associated with a type of education *‘that took pity on people’* that were less fortunate or that came from a *‘poor background’*, and technical education was a way that afforded these less fortunate people an opportunity to redeem themselves in the eyes of society, and to pick themselves from poverty and to prove their self worth in society, as if they were unfit to be part of this society, due to their personal social circumstances. Snedden and Prosser, as cited in Camp (1983: 10-19) highlighted this theory as part of the six theories underpinning technical education that of, “Socio-economic stratification where sociologists believed that in all societies, the growth of social classes was a natural, indeed a necessary phenomenon. Movement between social classes was possible, but a steady social system rightfully made vertical social mobility difficult”.

Among the most devastating consequences of apartheid were its effects on the education system. Black secondary schools bore the brunt of the apartheid assault upon our young people. The discriminatory character of apartheid education was all too visible in the limited range, lack of relevance and poor quality of learning programmes and qualifications. Black technical colleges lacked meaningful linkages with industry and were largely disconnected from the local economy.

A weak labour market is perhaps the most visible legacy of apartheid. While the key social institutions and practices of the past (job reservation, pass laws, influx control, segregated townships and low-wage labour) have been legally abolished, their effects live on. This is particularly evident in the poor articulation between education, training and work, in the phenomena of jobless growth and mass unemployment, in continuing racial obstacles to occupational mobility, in the paradox of continuing skills shortages at a time of declining investments in training, and, most devastatingly, in the collapse of the youth labour market. These problems are made worse by low enrolments in science, engineering and technology - fields essential to the achievement of higher levels of technological innovation and productivity

One of the conflicting features of the South African labour market has been the claim by employers and labour market experts of acute skill shortages in certain fields at exactly

the same time as employers cut back on skills training. These claims have been made ever since the boom years of the late 1960s. They have had some validity in certain specific occupations requiring high-skills and high-tech inputs, for example, in new technological fields such as informatics and biotechnology, and in the demand for high-tech artisans. They also arise because of the general drift to more intermediate and high-skills jobs. However, the generalised claim regarding skill shortages is probably more a reflection of the dissatisfaction among employers regarding the poor outputs of apartheid schooling and the massive illiteracy levels of semi-skilled workers.

2.3 The De Villiers Commission position on Technical and Vocational Education in South Africa

As cited in Badroodien (1998:19) and le Roux (1985:40) the De Villiers Commission of 1948 was commissioned to come up with “a broad framework for a reconstructed system of education and training and indicated the general principles that the Union Government believed ought to govern future growth in South Africa” (Union of South Africa 1949: 1)⁵. The De Villiers Commission focused on the education and training of the youth or teenager, in a positive manner, to see how best he could be trained and utilised to fit ‘the real demands of the nation’. Vocational education⁶ became known as ‘instruction and training in commerce, agriculture, house craft or any trade or industry’ and was introduced into the general primary and secondary education. The commission realised that compulsory education was still not available to the Coloured, Indian and African youths; therefore it decided to introduce technical and industrial education at a limited level to these groups.

It was argued at the time that many such children had also not reached the requisite scholastic level to qualify for entry to trade training examinations and that the only state institutions that provided technical education training for African, Coloured and Indian youths at that time were linked to penal and social

⁵ Union of South Africa, Report of the Commission on Technical and Vocational Education, U.G/1948(Chairman: Dr Francois Jean de Villiers as cited in Le Roux (1985:52)

⁶ The definition of vocational education adopted was contained in section 20 of Act No.29 of 1928. Union of South Africa, Report of the Commission on Technical and Vocational Education, U.G/1948(Chairman: Dr Francois Jean de Villiers as cited in Le Roux (1985:52)

agendas, namely school of industries, reformatories, punishment hostels and army training centres. (Badroodien, 1998: 19).

Significant inequalities in education provision disadvantaged certain segments of the population, as seen in the statements above. Another problem was that the South African segregated education system did not prepare people adequately for an integrated labour market. Segregation has restricted the development of technical education, as facilities for White students were available all over the country whilst the other groups, are both fewer in number as in the case of the Coloured, Black and Indian students, were concentrated in certain regions. This resulted in a variation and quality in the technical education provided in South Africa.

Badroodien (1998.19), further states that the Commission argued that “the provision of technical and industrial training for black children needed to focus very simply on ‘teaching them how to work’. The commission argued that technical education would also address issues of poverty and ‘the overall aimlessness of children of the poor and indigent African, Coloured and Indian groups that had migrated to the cities” (Union of South Africa 1949: 257). From these statements above it can be clearly seen that as a result of the way in which technical education originated for the various race groups in South Africa, that a stigma had established itself in this type of education, based on what it was set out to accomplish. Since technical education was now extended to the black persons of South Africa in a racially divided country, the stigma of inferiority and low status was further reinforced.

Badroodien (1998.19) also stated that the “approach to trade training for black learners remained dominant till the mid-1970s, when ‘apartheid policy in relation to technical education for black people slowly began to be reversed’ as cited in Chisholm (1992: 11). Vervoedian ideology, clearly stated that Black people should be “tillers of soil and hewers of water” that set a trend not to educate the black person beyond a certain capability, hence the implication that technical education was only suitable for the black

person, that assisted to further reinforce the stigma of inferiority that was already attached to technical education in South Africa

However, Le Roux (1985: 149), on the other hand, did not fully agree that technical education should be confined to the poor and indigent or the “*less able*” learners by suggesting that “technical education will never get of the ground if it is confined to the slow learner. It should be demonstrated to be ‘valuable for all’ and given a ‘high status’. It should be accessible to the complete intellectual ability range of boys and girls”.

International Literature

According to Corbett (1992: 44) it appears that the “social status in the United Kingdom was crucially influenced by the nature of the paid work people did”, which ties in with Snedden and Prosser⁷ (theories on social efficiency and socio economic stratification.⁸

Summerfield and Evans (1990:1) on the other hand maintain that “technical education has been regarded by many, as significantly important to economic success”. To reinforce the statement above, Reddy (10) affirms that “The economic growth of any country is directly proportional to its appropriate education system”

Adding to this statement Rautenbach (1989) adds, “In assessing the role of technical education consideration has to be given to the nature and causes of the **crisis**, as well as the **need** for technical education and the **possibilities** it offers for human and economic development” (Rautenbach, 1989: 88). Bearing this in mind, the National Department of Education needs to assess the current education provision (in particular the provision of technical education) in this country, with a view to finding solutions or to solving problems related to unemployment and skills shortages that affect us at present. Consequently, one cannot accede to overlook the role that technical education will play in this function.

⁷ Cited in Camp and Hillison, 1983

⁸ Socio-economic stratification. Sociologists held that in all societies, the development of social classes was a natural, indeed an essential phenomenon. Movement between social classes was possible, but a stable social system rightfully made vertical social mobility difficult.

At present technical education in our country does not enjoy a very high status, and is still looked down upon by many components of our society. However the importance of technical education in our school curriculum cannot be relegated with regard to addressing unemployment, which according to media reports⁹ currently stands at 26%, as well as developing the skills shortages in the country and for the country's economic development and continued sustainability of (6%). The Deputy President of South Africa- Ms Phumzile Mlambo-Ngcuka, was quoted as saying that: "Our country cannot meet its desired target of developing the economy by 4 percent by 2010 and achieving the 6 percent growth rate and reduce poverty and unemployment by 2014, if it does not solve the skills crisis and address the logjams that exist in critical areas of our economy." (JIPSA, 2006)

On other hand the effective development of technical knowledge and skills is critical to the economic development of the country, yet one has to figure out why technical education is still regarded as "inferior education" and is given a "low status" as well as it not been given the prominence it deserves, although it belongs in every facet of our existence. In order to comprehend this phenomenon, a close study of the theories that surround technical education and career education needs to be examined.

As cited in Jansen and Vithal (1997: 17) "a **theory** could be described as a well – developed, coherent explanation for an event e.g. Piaget's theory of child development. Theories also describe a probable explanation for why things happen". In the case of this research study, it is to understand why technical education has a stigma of inferiority attached to it.

⁹ Speech by the Deputy President, Ms Phumzile Mlambo-Ngcuka, at the SASOL Joint Initiative for Priority Skills Acquisition (JIPSA) support initiative, Summerplace , 17 August 2006

2.4 The Technical Education Perspective

As cited in a journal article by Camp and Doolittle (1999):

“Domains of study and practice, such as career and technical education, are founded upon both implicit and explicit theoretical frameworks. Theoretical frameworks allow scholars to organize and synthesize knowledge and conjecture within a field and serve to describe, explain, and predict behaviour and experience. The established theoretical framework that still guides career and technical education is based primarily on the work of David Snedden and Charles Prosser as cited in (Camp & Hillison, 1983; Doty & Weissman, 1984) from the early 1900s. Both Snedden and Prosser were concerned principally with broad political and policy issues and seem to have given little consideration to a learning theory to undergird their vision for career and technical education.”

Camp and Doolittle as cited in Mayer (1992) further emphasise that:

“Since the late 1800s, three learning theory metaphors have dominated education, as a whole: learning as the acquisition of stimulus-response pairs (behaviourism), learning as the processing of information (information processing), and learning as the construction of knowledge (constructivism)

According to Camp (1983) who maintains that from literature reviews it became apparent that the common theory underlying technical education was “behaviourism” and the “so-called social-efficiency doctrine” (Camp, 1982, 1983)

Supporters of the social efficiency theory believed that “only an efficient society could create a positive environment in which the individual could prosper and find satisfaction” (Camp and Doolittle, 1999). The history of technical education in South Africa, however paints a similar picture to that of the social efficiency theory, in that it originated in South

Africa to assist the poor white classes and the indigent (natives) peoples living here, to provide for or to give them a better life and social status. Supporters of the social efficiency theory maintained that because the school was part of a social system, they had a right to add to the good of society by contributing to its effectiveness. Hence technical education in South Africa originated for the 'poor whites' to provide them with a means to find employment at that time and also to make them self supporting so that they could move up the social ladder.

Technical education, as envisaged by Snedden and Prosser¹⁰, "made up one of the bulwarks of social efficiency, in that the preparation of a well-trained, compliant workforce was a sine qua non of an efficient society". According to Snedden and Prosser (as cited in Camp, 1983), six fundamental theories formed the foundation for social efficiency as applied to the principle of career and technical education in the early 1900s . The six theories revolved around Socio –economic stratification, Probable destiny, Psychometrics, Social control, Pedagogy and Behaviourism. However, the most important of the six for technical education has been behaviourism.

Dobbins (1999) maintains that:

behaviourism remains the learning theory under girding current career and technical education thinking. To illustrate his contention, he pointed to the links between behavioural learning theory and the competency-based approach to programmatic decision-making and curriculum structuring, which is still pervasive in career and technical education as cited in Finch & Crunkilton, (1999).

According to Dobbins, cited in Camp and Doolittle, (1999):

the use of performance objectives to provide structure for lesson plans, criterion-referenced measures to measure task completion (Newcomb, McCracken, &

¹⁰ Cited in Wirth, 1972

Warmbrod, 1993), and reliance on incumbent worker task lists for the primary source of curriculum (Finch & Crunkilton, 1999), derive directly from behavioural learning theory. Following that logic, it seems clear that a curriculum designed to provide specific, pre-determined skills demonstrated to industry standards do not represent knowledge constructed internally by the student, but rather knowledge and skills externally imposed on the student. (Doolittle and Camp, 1999)

Finch & Crunkilton, (1999) cited in Camp and Doolittle (1999) state that:

Career and technical education at the local level remains oriented toward a competency-based curriculum, structured from the perspective of industry needs and standards, and delivered using a pedagogy that relies on pre-determined performance objectives that include condition, task, and standard.

Where then is the room for the creative, innovative and entrepreneurial learner that is envisaged by the guidelines in the New FET Curriculum Statements.

It will be interesting to know whether the current changes taking place in the new FET curriculum in South Africa, in the context of unemployment, skills shortages and sustainable economic growth and development, has taken cognisance of the role of technical education in these paradigms. This will be established by looking at the perceptions of educators, principals and learners.

2.5 The Stigma of Technical Education

Although technical education and vocational education are usually **linked** together, vocational education has a different origin to technical education. It is historically linked to education for the **poor**, or **indigent**, and the **'less able'** in many countries. This further reinforces the stigma of inferiority attached to technical education.

In South Africa, the early beginnings of vocational or trade education for adolescents were linked to the 'relief of indigency'. The Dutch Reformed Church established the first trade schools in the 1890s, the purpose of which was to train poor white boys in rural areas in basic trade work and to prepare the girls for domestic work. In their efforts to bring all white children within the scope of the law on compulsory education for white youth, the South African government audits provincial administrations created 'certain special types of education to meet the special needs of special children who, through indigency, delinquency, or some other cause, could not be suitably dealt with in ordinary schools' (Smuts, 1937:77–78).

Badroodien (2001)¹¹ extends this theme in his analysis of how:

trade schools were utilised as a solution for the problem of indigent and delinquent coloured boys. In this tradition, vocational education was considered a suitable track for making 'difficult' young people useful to society, by preparing them for some form of productive work. Sultana describes the social control function of vocational education and training in most countries in harsh terms. Mainstream teachers, who use them as convenient 'dumping' sites for students they find difficult to control, often appropriate the creation of separate educational spaces. Thus, while the official discourse around vocational schools highlights their utility to the economy, their real value to the educational system is their function as holding pens for the unmotivated and resistant students.

In South Africa, vocational education developed along racial implications, however the social function of this form of education is also a common phenomenon.

¹¹ as cited in Sultana, (1997: 344)

2.6. Industrial education as a form of technical education

According to Chisholm, (1992:3) “the term ‘industrial education’ was strongly associated with preparation for an industrious rather than an industrial life and was mostly used to refer to the transmission of handcraft skill”.

“Even as late as the 1960s, terms like ‘industrial’ and ‘vocational’ (rather than ‘technical’) were used to describe education for black people. Technical education ‘would have suggested a level of training and skill that was not intended’ (1987, in Millar, Raynham & Schaffer, 1991: 119). The practical focus of industrial education, as well, once included into the college system, took on a racial bias. Chisholm (1992: 4–5) cites the example of two technical colleges. “In the historically white college, technical education encompassed both theoretical and practical training in workshops and on-job. In the historically black college, the focus was on the acquisition of practical manual skill, aimed at the unskilled and semi-skilled end of the informal labour market”.

2.7 The Need for Technical Education

The work of Mr M. L. Sultan to highlight the need and significance for technical education in South Africa, especially for the Indian community, pushed for Technical education to be provided for Indian pupils in South Africa. His contribution to building the M.L. Sultan College explains the need and importance for the role of technical education in early historical educational establishments. Numerous reports and articles, pertaining to the crisis in the labour market as a result of the education system, and the need for technical education at all levels together with the restructuring of the education system which incorporates a differentiated system, can be found in many journal articles and unpublished dissertations.

Monica Bot, (1991: 16) in her study on the provision of technical education, reflects on the South African education system, which she believed focused primarily on the ‘academic’ preparation of the child, gearing him for tertiary education and university. There was however, very little emphasis on the teaching and learning of technical

education that she felt will eventually prepare the child adequately for a world of work in a technological world.

On the other hand, Malherbe (1977: 712) found that this was not always the case, because employers placed little value on the training provided by technical education and preferred to employ cheaper black labour.

Searle (1988: 26) in his review and research on Technical Education stresses that “it is a well-known fact in both the educational and industrial circles that our present education system is following an academically-orientated curricula while industry is crying out for people with technical skills, to the extent that many industries are forced to recruit employees from outside the country, and this in the face of massive unemployment at home.”

Most of the studies have focused their attention to the need for Technical Education at schools and tertiary institutions, and for highlighting that Technical Education may be a panacea for the government for the eradication of the high rate of unemployment and skills shortages in our country. There has been little or no research on the value and current status that technical education has for teachers and learners in our country.

Needhi (2002) in his research looked at the impact of technical education on learners and the preparation that it provides for them to find jobs after leaving an education system, doing a Technical Education course. His findings reveal that the learners are “ill equipped with relevant skills and knowledge to find suitable employment according to their ability after pursuing a technical education course”; the same was applicable to learners that had followed an academic course at school. This study reveals that the school curriculum both academic and technical needs to be revisited, in terms of status and value for learners, and also the impact it serves in employment for the youth of our country.

I am of the opinion that no known study or record has ever been done on the status of technical education in South Africa. The purpose of this study therefore, is to investigate the present status of technical education in South Africa amongst teachers, parents and learners. I am of the opinion that the themes and problems touched on are pertinent to the struggle we face in the contemporary South African situation where the status and relevance of technical education in the educational system is of significance to the child in the classroom situation and later as a member of the workforce of our country. How will a purely academic or technical curriculum followed by a school pupil, affect his /her opportunity to find suitable employment in South Africa?

The ultimate findings of this study ought to suggest what learners, principals and teachers think about technical education from a variety of perspectives. How do different race groups and different genders feel about technical education, and why are there different perspectives about Technical Education from one country? Why is it that at ex-Indian schools, Technical education is downplayed, and on the other hand, at predominantly African or White schools there is an influx of students in the Technical Education department? In the light of the above, it will be relevant to find out why certain communities frown upon technical education while other communities place a high regard on technical education. These are just some of the views I hope to elucidate from this study.

2.8 The FET curriculum - A historical perspective

2.8.1 Introduction

Analysis of curriculum change may suggest that one should break with the past. On the other hand an analysis of the past should be adopted as a basis for curriculum change. In light of our technical education system in South Africa, what are some of the factors that may have contributed to this change? Two views unfold in this deliberation, one that outlines the birth of technical education and the other that outlines the origins of industrial or vocational education. South Africa's racial past of segregation had a lot to

do with this change. Considering the fact, that history may repeat itself, but this time the influential factor no longer being race, as it was in the past, but rather the ability of the current curriculum to get the theory-practice combination right. At present due to shortages of resources in schools the majority of learners study only theoretical courses, without access to practical training and on-job experience, which becomes just as problematic from an educational point of view. Due to unequal provision based on race, in the past, basic physical resources in schools still remains a grey area, more so than ever in terms of equipping workshops to adequately teach technical education. If race was the issue that accounted for our past curriculum, what is the cause that determines our current provision especially in the technical field?¹² (Gamble, 2003)

2.8.2 The impact of change on Status

Below is an example taken from a recent South African publication on further education and training: “Curriculum change is depicted as a decisive break with the past in order to establish new ways of presenting the curricula, which support an integrated approach to education and training. The call is for a closer ‘fit’ between the everyday world of practical knowledge and the changing demands of the workplace.” (Angelis & Marock, 2001: 90). Angelis and Marock (2001) maintain that “curriculum changes as a break with the past taking into cognisance the curriculum of the past and the curriculum of the future”. Curriculum focuses on transmitting current knowledge, and creating new knowledge as well. Additionally, it is used for transformation.¹³ (Gamble, 2003)

To establish whether South Africa is on track with its curriculum design let us consider Howieson, Raffe, Spours and Young (1997) exposition on how Scotland and England:

in the attempt to achieve a unified system of academic and vocational learning, demonstrate, how England drew on a radical and ambitious concept of

¹²http://www.hsrcpublishers.co.za/user_uploads/tblpdf/1945_01_Curriculum_Responsiveness_in_Fet_colleges~15122004110315am.pdf.

¹³http://www.hsrcpublishers.co.za/user_uploads/tblpdf/1945_01_Curriculum_Responsiveness_in_Fet_Colleges~15122004110315am.pdf.

unification that was related to a view of the changing global order. The focus was more on critiques of existing arrangements, than on the design of a new, unified system or the process of implementing such a system. Scotland proceeded in a more low profile manner by using an analysis of their present system's weaknesses to work out a more fully specified concept of a unified system. They benefited from an evolutionary, consensual, agreed-upon, and consultative tradition of policy development. In this view of curriculum change, the past is not viewed as 'bad practice', which needs to be done away with. It is rather viewed as a complex interweaving of strengths and weaknesses.

2.8.3 South Africa's racial impact on apprenticeships

According to Lewis (1984: 24), "It is well known that South Africa's particular racial history, which involved racially, based job reservation, led to the exclusion of black workers from opportunities for technical education and training." Lewis (1984: 24) explains that the 1922 Apprenticeship Act did not directly exclude black apprentices. Rather, it was, the high educational requirements laid down in the Act and the obligation to attend a trade school, when few existed for black apprentices, which excluded and disallowed black youths from entering apprenticeships:

Job reservation and low levels of skilled black workers became an obstacle to economic growth in the late 1960s and early 1970s. As a result of this, policies of industrial decentralisation were actively pursued and employers were encouraged, through incentives, to move their businesses to the 'homelands' or to adjoining' border areas'. Black workers were increasingly recruited to undertake work, which had previously been reserved for white workers, yet they were still given only limited access to vocational education and training. With the promulgation of the Manpower Training Act in 1981, access to training by all workers became an established right and many of the newer technical colleges date back to around this time. (DoE, 2001: 3–4).

2.8.4. The end of work-based educational routes (apprenticeships)

According to (Howieson et al., 1997; Maguire, 1999; Huddleston, 1999; Wolf, 2002) the deracialisation by statute of apprenticeships which happened in 1981, coincided with dramatic changes in the social conditions that underpinned apprenticeships. Originally, the system was one in which almost all apprentices were sponsored by industry, and in which apprentices had the status of employees. Day-or block-release allowed them to attend off-job instruction at a college. This system changed to one where most students now study full-time with no employer sponsorship and therefore, little or no opportunity available for practical, on-job training. The trend towards longer participation in full-time study and a decline in work-based educational routes is also evident in other countries. The difference in South Africa is that this move towards longer full-time study has coincided with the deracialisation of the college system (after 1994). Young black people now have greater access to opportunities to prepare for intermediate and higher level occupational categories, and yet they do not have access to the practical on-job training, which is deemed so necessary for occupational preparation (Mosdell, 1995).

2.8.5 Curriculum for the Future

According to McKerron, quoted in Chisholm (1992), it has been argued that a

‘curriculum of the future’ in further education and training (FET) needs to be informed by an adequate perspective on a ‘curriculum of the past’. A historical perspective shows that, from its earliest beginnings, technical and vocational education has included three forms of educational provision. Firstly, technical education referred to science instruction as found in general education, where it functioned as a foundation for practical knowledge (instructional education). Secondly, vocational education referred to forms of compensatory education, with a practical aim (inferior education). Finally, industrial education focused on

the imparting of skill in some form of handcraft, as well as the inculcation of discipline, obedience and regular work habits (behaviourism).

These traditions have converged, or combined, to set up two pathways in the technical and vocational curriculum: the one that keeps knowledge and skills together, and the other that separates skill from its formal knowledge base. The intermediate level itself is thus characterised by a division between high skill and low skill. This separation and demarcation figures prominently in the debates explored in the following chapters, but here, it needs to be interpreted in relation to the past, in order to serve as a warning that an integrated approach to education and training may not be as easily attainable. What may result, in the quest for a closer 'fit' between formal knowledge and everyday problems and the increased emphasis on application and use, is that the practical curriculum is privileged over the theory-practice curriculum, in the sense of being rated more highly. We need to eradicate the racial inequities of the past but a complete break with the past may well lead to the erosion of the historically central place of concept formation in the college curriculum. (Chisholm, 1984:24).

2.9 Current Changes in Technology /Technical Education in South Africa

According to UNESCO (1979: 9) "Countries undertaking the enormous task of restructuring, reorienting and expanding their educational systems to meet development needs are devoting more and more attention to the role of technical and vocation education. Indeed, political leaders' economic planners and educators in many countries consider the development of technical and vocational education as the keystone of an educational system." In South Africa, the development of the new curriculum for both the GET and FET phases, has only a small aspect of technical education, in the form of Technology in the GET phase, and Manufacturing, Engineering and Technology in the FET phase.

In the current system in the GET phase, Technology is included as part of the compulsory learning in the GET band, which replaces subjects like Basic Techniques and Industrial Arts while Manufacturing, Engineering and Technology replaces all the technical and technika subjects in the FET phase. The curriculum that we choose to design and implement will need to consider how such a curriculum will contribute to a social, economic and political development of our country and its people. A central role of education is to offer a curriculum that enables its learners to obtain a basic understanding of the society in which we live. From this premise, it is logical to assume that the South African curriculum should reflect strong characteristics of a democratic, scientific, technological and literate society. As South Africa has elected to set upon this road, the curriculum for technology warrants careful thought. This requires us to first locate ourselves in a particular stage of technological development.¹⁴ “The issue of Science and Technology is crucial for the future of the African continent, since all provisions indicate that science and technology will play a major role in the 21st century “(Kwende, cited (Sadeck, 2001: 1).

According to Kahn (1995), “future economic growth in South Africa will depend on the ability of local people to master a technologically driven manufacturing industry with internationally competitive expert capability. Wealth distribution can now only be achieved through skills distribution, developing practical skills, which contribute to technical proficiency and creative expressiveness in dramatic practices processes and products”

2.10. The Legacy Of Apartheid Education

An article by Kathy Kowalenco (2001) reveals that since the demise of apartheid in South Africa, the leaders of our country still face a number of challenges. “One of the most

¹⁴ Revised National Curriculum Statement Grades R-9 (schools) Policy – Overview: Department of Education. Pytlik (1983) identifies five levels of technological development of a country, viz. Indigenous, Emerging, Developing, Industrialized and Cybernetic.

important is how best to structure the education and training systems so that its citizens have an opportunity to participate in the country's economic development”.

The legacy of apartheid thirteen years after democracy continues to be felt in the education system. Educational institutions in the past were developed along racial lines and covered with the principles of apartheid and deep-rooted inequality. Because of the unequal distribution of resources, imposed through laws and regulations, historically ex-white schools and colleges tend to be well resourced, while historically black institutions still tend to be poorly resourced. This phenomenon has a negative impact on the quality of teaching and learning, and presents a huge crisis in education for the new democracy. The *Bantu Education Act (1953)* introduced inferior education, unequal distribution of resources, poor teacher training, and unacceptable teacher: learner ratios. Two laws – the *Correspondence College Act (1965)* and the *Technical College Act (1981, amended in 1989)* – regulated technical colleges. This fragmentation is further evident in the subjects and programmes offered by schools and colleges, both public and private. There is no portability of learning achieved between these institutions. The negative effects of this fragmentation are evident in the nature and quality of programmes and subject offerings. Employers and the Higher Education sector have little confidence in the programmes offered at various types of Further Education and Training (FET) institutions. The following problems are also evident in programmes and curricula:

- There are no clear educational outcomes for curricula.
- There is a plethora of subjects that hardly relate to one another.
- Curricula are unresponsive to the needs of learners and the country.
- There is limited mobility across pathways and institutions in the Further Education and Training band.

Over and above these problems, the Department of Education inherited a cumbersome Senior Certificate Curriculum comprising 124 subjects. The multiplier effect of Higher, Standard and Lower Grades increased the number to a total of 264 subject offerings. Of the 124 subjects, only ten are offered by 90% of the candidates at any single sitting of the Senior Certificate. In addition, there are a large number of obsolete subjects, with some being regarded as ‘exotic’ subjects (that is, subjects offered by less than ten candidates in

the Senior Certificate). The cost of developing appropriate learning support materials, providing suitably qualified teachers and examining these subjects is not commensurate with their *status*. Continued provisioning for these subjects compromises quality and is not economically viable. The situation in the college sector is not different to the one described here.¹⁵

The Education White Paper 6 states that, “The responsibility of the education system to develop and sustain learning is premised on the recognition that education is a fundamental right, which extends equally to all learners. Exercising this responsibility involves ensuring that the education system creates equal opportunities for effective learning by all learners. The Further Education and Training band is particularly¹⁶ crucial in terms of providing opportunities for all learners to develop their full potential along the most appropriate pathway. All learners must be supported in realising their expectations to enter Higher Education or the world of work. The way in which the past system organised secondary schooling made it very difficult for poor youth to realise these expectations”. It appears that the result of this can be seen clearly in our country today, with high unemployment rates, shortage of skills and a weak economy. (*Education White Paper 6 on Special Needs Education: Building an Inclusive Education and Training System 2001*)

2.11. The New FET Curriculum

Breaking away with the past and trying to come up with a curriculum that is in keeping with the needs of the country as a whole is no easy task. “The primary purpose of the Further Education and Training Certificate (General) is to equip learners with knowledge, skills, values and attitudes that will enable learners to participate meaningfully in society.” (The White Paper on Education and Training, 1995). The National Curriculum Statement broadly and the FETC (General) in particular aim to provide a basis for continuing learning in Higher Education, to lay a foundation for future careers, and to

¹⁵ Revised National Curriculum Statement Grades R-9 (schools) Policy – Overview: Department of Education; National Curriculum Framework for Further Education and Training May 2000, Department of Education.

¹⁶

develop learners to be productive and responsible citizens and lifelong learners. (The White Paper on Education and Training, 1995)

It therefore appears that the new FET curriculum has taken into consideration the effects of the past and considered the needs of the future by redesigning the curriculum accordingly. However, has this consideration also been extended to the field of technical education in the country. Fourteen technical/technika subjects have been regrouped into a learning field. A learning field is: “ a category that serves as a home for cognate subjects, and that facilitates the formulation of rules of combination for the Further Education and Training Certificate (General)”.¹⁷ In Technical/Technology Education, they are Manufacturing, Engineering and Technology, Electrical Technology, Engineering Graphics and Design, Mechanical Technology and Civil Technology. These will replace the other subjects like Technical Drawing, Woodwork, Metalwork, Electricians Work, Technika electrical etc.

Wakeford (2001)¹⁸ states that “because of our apartheid legacy many in our current workforce are not at the desired skill level to enhance our international competitiveness in the global economy. There has been a low emphasis placed on math, science and physics, and obviously the sub grouping of specialized skills of those disciplines. Therefore, the challenge for us is to convince young people to specialize in information technology and engineering across all fields: mechanical and industrial, as well as civil. And, of course, in more specialized disciplines such as biochemistry and food technology fields as well.”

2.12. Conclusion

In this chapter I examined the historical development of technical education in South Africa. The literature review reveals that throughout history there have been postulations

¹⁷ The White Paper on Education and Training, 1995

¹⁸ *Education White Paper 6 on Special Needs Education: Building an Inclusive Education and Training System 2001*)

that technical education was regarded as inferior education. Findings from local as well as international literature revealed that technical education has always been downplayed in favor of academic education. Certain words like *indigence*, *social* and *educational inferiority*, and *mental backwardness* became associated with technical education. The history of technical education in South Africa also revealed that the education was exclusive to the white community as a result blacks were not given an opportunity to participate in such an education. With this background in mind the researcher embarked on the study to ascertain whether this kind of thinking still prevails in our society today with regard to technical education or is there a change of mind set with regard to technical education. In the next chapter the research methodology is described from the research design and an empirical investigation is given.

CHAPTER 3

Research Design and Methodology

3.1 Introduction

The literature study in Chapter two formed the framework for the empirical study. In this chapter the reader is introduced to the research design and methodology that was used to elicit the data. The aim was to explore these attitudes and perceptions and to assess the current status of technical education provision in selected technical secondary schools in KwaZulu Natal, South Africa.

In order to investigate the status of technical education in South Africa, both the qualitative and quantitative approach methodology was used to collect data. Three schools were used because of its composition (multiracial) of learners at these schools and the emphasis the schools placed on technical education. The schools selected were the M. L. Sultan Technical High in KwaDukusa, Meadowlands (a normal secondary school that offers technical courses) and Phoenix Technical High school in Durban. The sample consisted of one hundred and fifty secondary school pupils, fifty educators at technical secondary schools, three principals of these schools and two subject advisors for technical subjects. The sample included both male and female educators and learners from both the academic as well as the technical fields. As a Subject Adviser for technical subjects I have visited many schools in the province, but what struck me as unusual was that at Pioneer Hoër Skool in Vryheid and Umlazi Comtech in Umlazi in Durban, learners opted for a more technically orientated curriculum, but at the schools in Durban, learners preferred an academic curriculum, unless forced by management to choose otherwise.

The use of the combination of qualitative and quantitative methods resulted in a triangulation effect and enabled a further exploration into the status of technical education in South Africa. Furthermore it assisted in generating a more comprehensive account of the value of technical education for teachers and learners.

In order to establish my credibility as a researcher and gain access to respondents, I first gained permission from the Regional Chief Director in the Department of Education to conduct this research at the selected schools.(see attached letter – appendix)

The research strategy also included critical analysis of documents on technical education, policy documents (pertaining to the administration of technical education for secondary schools and technical schools), syllabi (for all technical education subjects), etc.

Interviews were conducted included both semi - structured interviews schedules, which were recorded, transcribed and analysed. Semi-structured interviews were conducted with technical education subject advisors involved in technical education in secondary schools. The semi-structured interview provided direct evidence of the status and value of technical education and allowed me to probe the initial responses of the participants. The time and place where the interviews were conducted was negotiated with the participants who indicated a willingness to participate in the research. The interviews were recorded and a follow up was set up to help eradicate misunderstandings. This provided a detailed description of the status and value of technical education as portrayed by the respondents that were interviewed.

This research design focuses on the following features:

- the purpose of qualitative and quantitative research
- the questionnaire as a design instrument
- the population and the sampling procedure, and
- discussion of the questionnaire used by the researcher.

3.2 Research Paradigms used in the study

According to Patton (1990)¹ “researchers have long debated the relative value of qualitative and quantitative inquiry. Qualitative research makes use of a naturalistic approach that seeks to understand phenomena in context-specific settings. Logical positivism, or quantitative research, uses experimental methods and quantitative measures to test hypothetical generalizations. Each represents a basically different investigation paradigm, and researcher actions are based on the original assumptions of each paradigm”. For the purpose of this study both methods of research was used, qualitative for its natural setting (technical schools – why and what are people saying about technical education) and quantitative, to test the hypothesis (why is technical education perceived as inferior education and also what percentage of the sampled population have to say about the status of Technical education in the province)

Strauss and Corbin (1990: 17)² defines qualitative research, as "any kind of research that produces findings not arrived at by means of statistical procedures or other means of quantification". Quantitative researchers seek causal determination, prediction, and generalization of findings; qualitative researchers on the other hand, seek instead illumination, understanding, and analysis to similar situations. As a researcher employing qualitative methods, my purpose is to seek “illumination and understanding” of the perceptions towards the status of Technical Education in South Africa. Qualitative analysis results in a different type of knowledge than does quantitative inquiry.

According to Vidich & Lyman (1994) “Qualitative methods were first brought into education via the use of anthropological and sociological methods for the study of educational settings and systems. The first crossroad in qualitative research in education involved the importing of non-experimental and observational procedures and field-oriented and data-driven theories from other disciplines in social research. Early proponents of this effort included Spindler (1955), Jackson (1968), Erickson (1973), and Wolcott (1973). Early theoretical positions centred on grounded theory

¹ cited by Marie C Hoepfl, in the journal article *Choosing Qualitative Research: A Primer for Technology Education Researchers (1997)*

² cited by Marie C Hoepfl (1997), in the journal article *Choosing Qualitative Research: A Primer for Technology Education Researchers, Vol. 9, 1*

(Glaser & Strauss, 1967) and socially constructed models of reality (Berger & Luckmann, 1966).

Glaser and Strauss (1967:237) in *Discovery of Grounded Theory*, explain the main goal of qualitative research that is in the generation of a theory, in opposition to theory testing or mere description. Glaser and Strauss declare that a necessary property of grounded theory is that it ought to be “sufficiently general to be applicable to a multitude of diverse situations within the substantive area”

There are several matters to consider when deciding to implement a qualitative research methodology. Strauss and Corbin (1990) claim that “qualitative methods can be used to better understand any phenomenon about which little is known”. This is one of the reasons why I selected this methodology to study a phenomenon that I knew little about, that is, the current perceptions on the status of technical education in South Africa. Findings from this study can also be used to gain new perspectives on things about which much is already known, or to gain more in-depth information that may be difficult to convey quantitatively. Thus, qualitative methods are appropriate in situations where one needs to first identify the variables that might later be tested quantitatively, or where the researcher has determined that quantitative measures cannot adequately describe or interpret a situation. Research problems tend to be framed as open-ended questions that will support discovery of new information. Strauss and Corbin, (1990).

The ability of qualitative data to fully describe a phenomenon is an important consideration not only from the researcher’s perspective, but from the reader’s perspective as well. “If you want people to understand better, than they otherwise might, provide them information in the form in which they usually experience it” (Lincoln and Guba, 1985: 120). Qualitative research reports, typically rich with detail and insights into participants’ experiences of the world, “may be epistemologically in harmony with the reader’s experience” (Stake, 1978: 5) and thus more meaningful. In respect of the statement above direct quotes were taken from respondents’ questionnaires and interview schedules to add meaning and perceptions of respondents views on the current topic in this research study.

In order to probe further into the research topic, interviews were conducted with the subject advisors of technical subjects in the province as they are the most qualified to do so as they are exposed to all the technical schools in the province. A semi-structured open ended interview schedule was used in the collection of data from the subject advisors. The reason for the use of this was that it was to be used in conjunction with the questionnaires and it also allowed me to probe further into reasons why certain responses were attributed to certain questions and to understand the reason behind the responses.

Qualitative interviews may be used either as the primary strategy for data collection, or in conjunction with observation, document analysis, or other techniques (Bogdan and Biklen, 1982, cited in Hoepfl (1997). Qualitative interviewing utilizes open-ended questions that allow for individual variations. Patton (1990) writes about three types of qualitative interviewing: 1) informal, conversational interviews; 2) semi-structured interviews; and 3) standardized, open-ended interviews.

An interview guide or "schedule" is a list of questions or general topics that the interviewer wants to explore during each interview. Although it is prepared to insure that, basically, the same information is obtained from each person, there are no predetermined responses, and in semi-structured interviews, the interviewer is free to probe and explore within these predetermined inquiry areas. Interview guides ensure good use of limited interview time; they make interviewing multiple subjects more systematic and comprehensive; and they help to keep interactions focused. In keeping with the flexible nature of qualitative research designs, interview guides can be modified over time to focus attention on areas of particular importance, or to exclude questions the researcher has found to be unproductive for the goals of the research (Lofland and Lofland, 1984).

3.3 Characteristics of Qualitative Research

A number of writers have identified what they believe to be the prominent characteristics of qualitative, or naturalistic research (Bogdan and Biklen, 1982; Lincoln and Guba, 1985; Patton, 1990; Eisner, 1991, Hoepfl;1997). The following list is a summary of these authors' descriptions of qualitative research:

- Qualitative research uses the natural setting as the source of data. The researcher attempts to observe, describe and interpret settings as they are, maintaining what Patton (1990) calls an "empathic neutrality"
- The researcher acts as the "human instrument" of data collection.
- Qualitative researchers predominantly use inductive data analysis.
- Qualitative research reports are descriptive, incorporating expressive language and the "presence of voice in the text" (Eisner, 1991, 36).
- Qualitative research has an interpretive character, aimed at discovering the meaning events have for the individuals who experience them and the interpretations of those meanings by the researcher.
- Qualitative researchers pay attention to the idiosyncratic as well as the pervasive, seeking the uniqueness of each case.
- Qualitative research has an emergent (as opposed to predetermined) design, and researchers focus on this emerging process as well as the outcomes or product of the research.
- Qualitative research is judged using special criteria for trustworthiness.

Patton (1990) on the other hand points out that these are not "absolute characteristics of qualitative inquiry, but rather strategic ideals that provide a direction and a framework for developing specific designs and concrete data collection tactics" (p. 59). These characteristics are considered "interconnected" Patton, 1990, p. 40 and "mutually reinforcing" (Lincoln and Guba, 1985, p. 39).

It is imperative to highlight the developing nature of qualitative research design. Because the researcher seeks to observe and interpret meanings in context, it is neither possible nor appropriate to finalize research strategies before data collection has begun (Patton, 1990). Qualitative research proposals should, however, specify primary questions to be explored and plans for data collection strategies. The particular design of a qualitative study depends on the purpose of the inquiry, what information will be most useful, and what information will have the most credibility. There are no strict criteria for sample size (Patton, 1990). "Qualitative studies typically employ multiple forms of evidence. [and] there is no statistical test of significance to determine if results 'count'" (Eisner, 1991, p. 39). Judgments about

usefulness and credibility are left to the researcher and the reader as cited by Marie C Hoepfl (1997)

3.4. The Researchers Role In Qualitative Inquiry

Prior to conducting a qualitative study, a researcher ought to do three things:

- First, the researcher should adopt the position suggested by the characteristics of the naturalist paradigm.
- Second, the researcher ought to develop the level of skill suitable for a human instrument, or the vehicle through which data will be collected and interpreted.
- Finally, the researcher should prepare a research design that utilizes accepted strategies for naturalistic inquiry (Lincoln and Guba, 1985).

Glaser and Strauss (1967) and Strauss and Corbin (1990) refer to what they call the "theoretical sensitivity" of the researcher. This is a valuable perception with which to evaluate a researcher's skill and readiness to attempt a qualitative inquiry. Theoretical sensitivity refers to a personal quality of the researcher. It indicates an awareness of the subtleties of meaning of data. [It] refers to the attribute of having insight, the ability to give meaning to data, the capacity to understand, and capability to separate the pertinent from that, which is not. (Strauss and Corbin, 1990: 42).

Strauss and Corbin believe that theoretical sensitivity comes from a number of sources, including professional literature, professional experiences, and personal experiences. The credibility of a qualitative research report relies heavily on the confidence readers have in the researcher's ability to be sensitive to the data and to make appropriate decisions in the field (Eisner, 1991; Patton, 1990). Thus in my study, valuable data was obtained from the responses in the questionnaires and the interview schedules, which was utilized to support underlying assumptions made in this study, and was inserted as direct quotes; the researcher was aware of the need to remain unbiased to the topic.

Lincoln and Guba (1985), identify the characteristics that make humans the "instrument of choice" for naturalistic inquiry. Humans are responsive to

environmental cues, and able to interact with the situation; they have the ability to collect information at multiple levels simultaneously; they are able to perceive situations holistically; they are able to process data as soon as they become available; they can provide immediate feedback and request verification of data; and they can explore atypical or unexpected responses.

One of the reasons why I chose sample subject advisors, school principals, educators and learners as my research sample, was because of their respective relevance to the suitability of finding out more about the particular topic in an environment that was familiar to all respondents, namely, technical secondary schools that offered technical subjects and people that were directly involved in technical education.

3.5 Quantitative Research

Quantitative research was also used in this research methodology. The function of research is to collect information that will investigate a research problem or question. This function is attained only if the research is conceived and executed in such a manner that the data collected is accurate and directly relevant to the question posed. The quantitative research method involves choosing subjects, data collection techniques such as a questionnaire and procedures for gathering data (Schumacher & McMillan, 1993:157). This data gathering enables a researcher to generalize the findings from a sample of responses to a larger population (Babbie 1989: 237; Creswell 1994:117)

3.5.1 The Purpose Of Quantitative Research

Since research design is governed by the idea of “fitness for the purpose”, the purpose of research determines the methodology and design of the research (Cohen, Manion & Morrison, 2000: 73). Quantitative research is used to gather information about people’s attitudes, opinions, perceptions, beliefs, demographics and behaviour. Information gathered from a sample of respondents can be generalized to a population.

Another purpose of quantitative research is to describe the frequency, incidence, and the distribution of the characteristics of an identified population and to explore relationships between variables (Schumacher & McMillan 1993:279; Creswell, 1994:118). Importance is placed on accurate measurement and control of possible extraneous sources of error. A more significant view to be noted with quantitative research is that questionnaires can be used to ensure that the researcher remains as objective as possible.

As a researcher I chose to make use of both the quantitative approach as well as the qualitative methods, as it is the most appropriate instrument for gathering information from a sample of subject advisors, principals, educators and learners representative of a large population of KwaZulu-Natal technical secondary schools. In the next section I explain how I employed the quantitative methods and the data derived therefrom.

3.5.2 Data Collection

Different techniques for gathering data are used in quantitative research as stated by Shumacher and McMillan (1993:223). A particular technique or instrument is chosen to fit the research design. For this particular research study, the researcher made use of the structured questionnaire and a semi-structured interview schedule.

3.5.3 The structured questionnaire

The design of the empirical investigation included a structured questionnaire consisting of several biographical details as well as themed questions based on perceptions, value, gender, and curriculum issues related to the status and fostering of technical education at secondary schools. The above findings were explored in the context of the current status of technical/technology education provision at secondary schools. The questionnaire as a research tool consisted of three sections, namely: Biographical Data, Scaled responses and Open-ended questions. A Likert type scale was used in drawing up scaled responses. I felt that this type of scale would work well in capturing the opinions, views and attitudes of respondents. It was easier to respond to and the analysis was not so difficult to interpret. The Likert scale was used in order to analyse and determine the extent to which the participants agreed or disagreed with

a particular inference to technical education. The open-ended questions assisted in gathering information on the participant's personal experiences and opinions of the value and status of technical education.

The current technical/technology skills training curriculum displays no relationship to the proper fostering of these subjects at secondary school level. In coming up with the instrument for this study, both the critical questions as well as the inadequacy of the existing curriculum was always kept at the centre of attention signifying that there is a need for a better provision of technical /technology education in co- operation with all stakeholders e.g. Department of Labour, Businesses and the Department of Education to address the needs of proper fostering of these subjects at secondary school level.

3.5.4. The Sample

The questionnaire was administered to one hundred and fifty secondary school pupils, fifty questionnaires to educators at technical secondary schools and one to each of the principals of these three schools. Two subject advisors for technical subjects were interviewed using the semi-structured interview schedule and data was recorded. Of the one hundred and fifty questionnaires to the learners, one hundred and twenty was returned, of the fifty questionnaires to the educators, thirty was returned and all three principals completed their questionnaires. The method of data collection followed this procedure:

STEP 1- Schools were identified and selected according to their significance to technical education, in that these were technical secondary schools that offered mainly technical subjects to multiracial learners and had technical workshops attached to these schools, and comprised of technical educators who taught mainly technical subjects at these schools. From the schools selected, twenty questionnaires per school were given to both male and female educators at these schools teaching both academic and technical subjects in each of the sampled technical schools. Added to these were fifty questionnaires per school, administered to the learners selected randomly both boys and girls, from grades 10, 11 and 12 respectively. Ten questionnaires per school were administered to grade 10 learners, 20 to grade 11

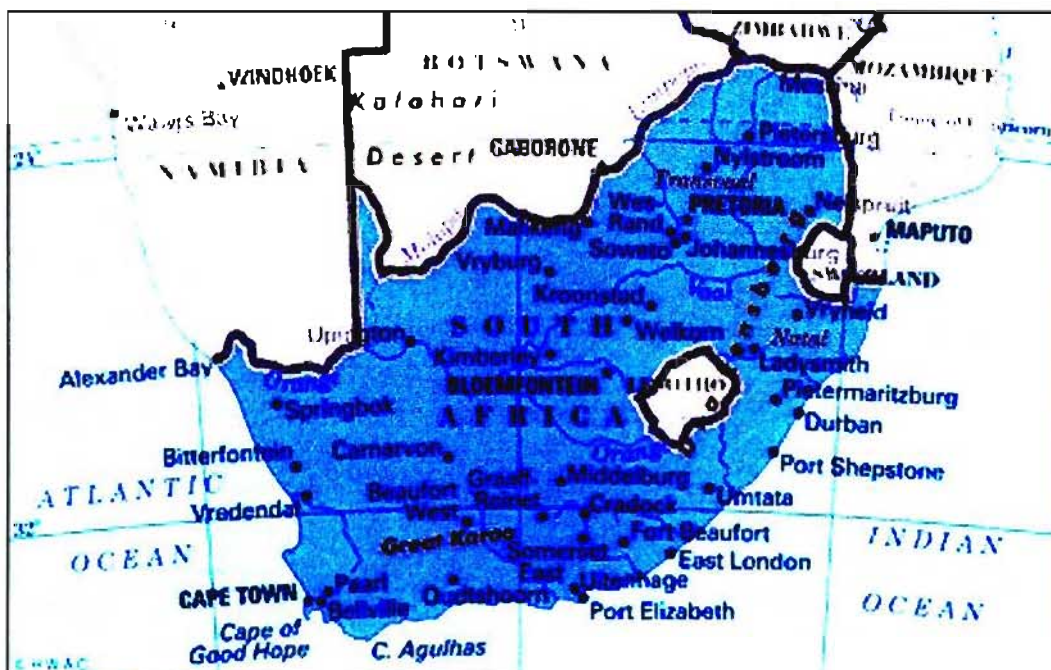
and return by the due date. The questionnaires returned represented a 50% retrieval rate. This return rate added validity to the research.

STEP 2 – By the due date, which was a week from the date when the questionnaires was administered, questionnaires were collected from the schools. All three principals of the selected sample technical school returned their questionnaires completed. Only thirty of the sixty questionnaires administered to the educators were returned completed. Of the one hundred and fifty questionnaires administered to the learners only 120 was returned completed. Appointments were set up with the subject advisors and the interview schedule was duly conducted. Subject advisors were asked about their biographical details which was filled in on data sheets , which was followed by themed questions pertaining to status, value , gender, pedagogy and curriculum pertaining to technical education in the province. Responses to these questions were recorded on the data sheets. (Refer to appendix). The questionnaire as a research tool consisted of three sections namely: biographical Data, Scaled responses and open-ended questions. A Likert type scale was used in drawing up scaled responses. I have already discussed the rationale behind the use of the Likert scale in 3.5.3 above

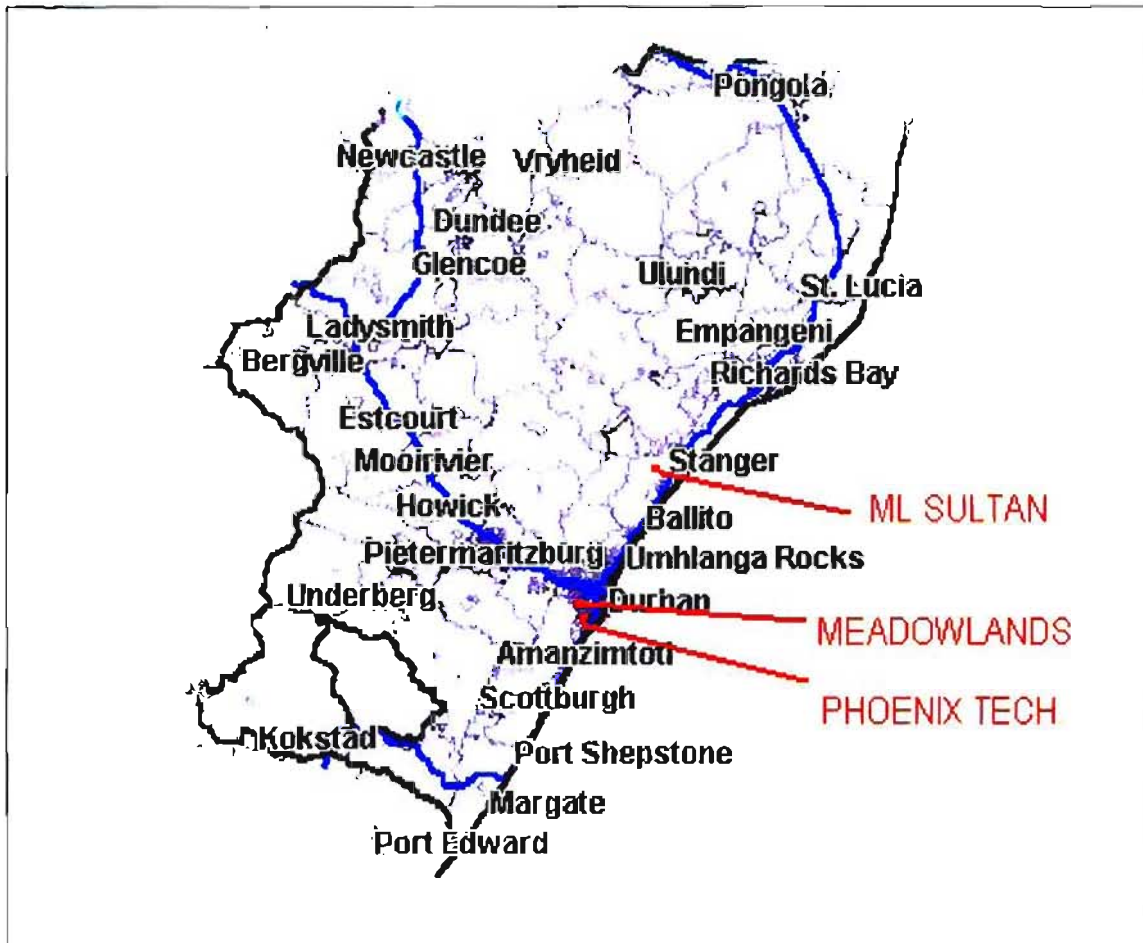
3.6 Explanation Of The Research Context

This study was conducted in schools that fell under the jurisdiction of the Ethekwini and Ilembe districts of the KwaZulu-Natal's Provincial Department of Education. A map of Kwa Zulu Natal is included on the next page showing the location of the schools selected.

**Map of
South Africa**



MAP OF KWAZULU-NATAL DEPICTING THE SCHOOLS USED IN THE SURVEY



These schools have become fully racially integrated since 1994, catering for all learners who wish to study skills in the technical fields. The schools used in the sample were Meadowlands Secondary in Chatsworth, Phoenix Technical Secondary in Phoenix and M.L. Sultan Technical Secondary School in KwaDukusa (Stanger)

3.7 Sampling Information

Sampling may be understood as a process of systematically selecting cases for inclusion in a research project (Neuman, 1997). The population sample consisted of subject advisors, principals, educators and grade 10, 11 and 12 learners, which are made up of a non-probability sample, which includes the whole population of subject advisors, principals, educators and learners from technical secondary schools was

subject advisors, principals, educators and grade 10, 11 and 12 learners, which are made up of a non-probability sample, which includes the whole population of subject advisors, principals, educators and learners from technical secondary schools was used in this study. The population may be defined as the broader pool of subjects from which certain elements are extracted for the purpose of a sample (Neumann, 1997). For the purpose of this study, the population is the same as the sample. This is called a non-probability sample (McMillan, 2000.)

The sampling procedure consisted of the following steps, which are listed as follows:

- Step one was to apply for permission from the KwaZulu-Natal Department of Education to conduct research at public secondary schools within the Ethekewini Region. (Appendix)
- The second step was to establish and choose technical secondary schools in the KwaZulu-Natal Region This was done via the assistance of the Technical Subject Advisors in the Ethekewini Region.
- The third step was to phone the principal's to obtain permission to conduct the questionnaire survey at the selected school with the least amount of disruption to the academic day.

The population was a stratified population of learners, consisting of both genders, from grades ten, eleven and twelve, engaged in both technical courses as well as academic courses at secondary school level, educators teaching at these technical high schools and principals of these schools, and subject advisors for Technical subjects. Technical school principals, educators, learners in grades 10, 11 and 12 both boys and girls made up the sample population for the questionnaires. Two technical subject advisors were also interviewed. The proposed time in which this population was used for this study was the academic school year, 2006. Overall this study concentrated on grade 10, 11 and 12 secondary school learners of both genders, as well as the different races and backgrounds, at a predominantly Technical Secondary school in the Ethekewini region, engaged in the study of a technical course.

3.8 The Research Instrument

In response to the critical questions, the questionnaire and interview schedule was the only instrument used in this study (Appendix) the underlying principle behind the use of such an instrument is as follows:

- For a sample as large as one across the KwaZulu-Natal province, it was found that the questionnaire was the most effective method of gathering data. Respondents could complete it with little or no assistance
- Access to the perceptions of principals, educators and learners was gained by means of a questionnaire. Interviews were conducted with the subject advisors who were in charge of these subjects. Observations although an ideal means of obtaining first hand observation, would have become a long and tedious task to achieve the same objectives.
- It became evident that the questionnaire also became a cost effective method to gather data from a sample as large as the one used in this study.
- In the questionnaires and verbal responses, respondents were assured that only the researcher, supervisor and the data analyst had access to personal information such as age, marital status etc. and anonymity was guaranteed.

All questionnaires had an introduction letter addressed to each respondent explaining the details of the study. This introductory letter promised individual responses will be used for academic purposes only and that confidentiality will be guaranteed. The questionnaire was divided into two parts. Part one included the biographical details with closed and one-word responses such as age, gender and academic qualifications. Assistance was obtained from a statistics expert regarding the technical aspects in the construction of the questionnaire. These revolved around the determination of the dependent and independent variables. This also incorporated assigning values to the variables

Part two of the questionnaire had open ended and closed ended questions where the respondents had to give a written response as well as to choose their responses from a Likert type scale, which was as follows:

1. Strongly disagree
2. Disagree
3. Neutral
4. Agree
5. Strongly agree

Respondents had to tick the appropriate block using the given scale. These questions required less effort to complete than the 'response type questions'. Less than one third of the respondents left the last question unanswered. This question called for any other comments that respondents would like to make. All other questions were answered and this made the coding and scoring of the statistics for the spreadsheet for the Statistical Package for Social Sciences (SPSS) much easier.

The questions were designed to revolve around the critical questions and also designed to ascertain how secondary school learners and educators felt, perceived and valued the current status and the fostering of technical/technology education at technical secondary schools. The questions were formulated using simple language and endeavoured to obtain responses as accurately as possible. The nature of the questions was also non- personal.

TABLE A: METHODOLOGICAL APPROACHES USED IN THE STUDY

Critical questions	Purpose	Sample	Frequency	Instrument Used	Result of inquiry
1. What is the current status of Technical/Technology Education in selected Technical Secondary schools across Kwa-Zulu Natal in South Africa?	1. To establish the current status of Technical education in the province.	Subject Advisors School Principals Educators Learners	2 3 30 120	Interview Schedule Questionnaire Questionnaire Questionnaire	Negative Positive and Negative Positive and Negative Very Positive
2. How do principals, teachers, and learners' perceive Technical/Technology Education as it is currently fostered at schools?	1. To ascertain the value of technical education to the youth of the province. 2. To find out the gender involvement in technical education in the province. 3. To determine the quality of curriculum provision and pedagogy in technical education. 4. To validate the perception of technical education in the province.	School Principals Educators Learners	3 30 130	Questionnaire Questionnaire Questionnaire	Positive and Negative Positive Very positive

There were a few open-ended questions in the questionnaire to which respondents had to write longer responses. Open-ended questions permit an unlimited number of possible answers and allow respondents to provide detailed, clarified and qualified responses (Neuman, 1997).

The Statistical Package for Social Sciences (SPSS) (computer software) was used in the data analysis. This meant that the technical design of the questionnaire was compatible with the statistical package for Social Sciences. Values were assigned to the responses of each variable. The subscripted number represented the value.

After the values are assigned to the variables, the data is captured on a spreadsheet and this totalled to 120 learners responses, 30 educators responses, and three principals responses, due to the fact that only three schools were sampled and each school only has one principal. On completion of the data capture, the computer generated frequency tables and the responses were ready for analysis (Khumalo, et al., 1999) In the case of this research study comparison analysis, descriptive analysis, graphs and tables gleaned from the respondent's questionnaires and interview schedules were used to support evidence used in this study.

3.9. Restrictions Of The Questionnaire

Taking part in this research was a voluntary one and as a result, many questionnaires came back unanswered and in some sections were left unanswered. In this study of the one hundred and fifty questionnaires administered to learners, only one hundred and twenty were returned. Of the sixty questionnaires to the educators, only thirty was returned. All three principals and two subject advisors responded to filling in the questionnaires and the interview schedules.

Some of the problems that I experienced when analysing the data were that some of the respondents may not have answered the questions honestly. Many questionnaires were incomplete, and returned as such, for example question 1.9 *Why did you choose to study a*

technical Education/Technology education course? Question 23 Are there any other comments you wish to make?, also the value questions (part 3) and the curriculum questions(part 4)- refer to appendix. Some respondents also provided very flippant responses. It must also be noted that the questionnaire required a long time to complete due to its length and this may have led to incomplete or unanswered questions being returned.

3.10. Validity

The validity of the questionnaire was established as follows:

- It was scrutinized by a fellow researchers and the data analyst for commentary and validity to the critical questions.
- The supervisor of the study, who provided advice on items to be reshaped, deleted or added questions.

The reliability of data was reinforced by making use of statistical significance to argue for reliability.

3.11. Ethical Considerations

An application for permission from the KwaZulu-Natal Department of Education to conduct research at public secondary schools within the Ethekwini Region was initially sought. To ensure that ethical practices were maintained in this research, confidentiality and privacy of the respondents was assured at all times. Research intentions were clearly outlined to all respondents in the collection of data.

An explanation to the respondents that this research was based purely on a voluntary basis was highlighted at the outset of the data collection process. Schools principals were assured that the research would cause no disruption to the normal functioning of the school. An undertaking was given that the results originating from the study would be reported as precisely and accurately as possible.

3.12. Limitations to the study

In response to the critical questions stated earlier in chapter one of this study, this study was limited in that it was conducted within and was limited to the geographic region served by the KwaZulu–Natal Province, located in the country of South Africa. There are approximately five hundred and sixty schools in the province that offer technical subjects, but such a large number would have been impossible to include in this study, therefore the nine technical high schools in the province were selected. Of the nine only three technical high schools in the province were used in the survey due to its proximity to the researcher, for their willingness to participate in the research project and for the fact that these schools were supervised by the researcher in his capacity as a subject advisor. Due to the lack of specialist subject advisors for technical education, of the four, only two were available for interviews. Inquiry was limited to those technical education learners, principals, subject advisors, and educators at Technical Secondary schools within this region. These four population samples were targeted for their specific relationship to the area of technical education and training. Technical education has traditionally been associated with the preparation of youth for the world of work, and the Further Education and Training Act (FET) requires all students to have access to education, technical education has been marginalized in the development of these programmes. Training and development professionals are directly responsible for the continuing education and training of employees in their respective organizations, from new hires to experienced workers and thus has a unique perspective on the issues posed in this study.

While the study is restricted to selected technical schools in the KwaZulu- Natal province, especially in the Ethekwini region, it is hoped that a broad picture with important findings will become known, however a national study could provide the focus that the adequate provision of technical /technology training is being marginalized at secondary school level leading to a low status afforded to technical education.

3.13. Conclusion

This chapter looked at the methodology that was used in this research project to gather data. Due to the fact that the topic for the research involved technical education, technical schools in the Ethekewini region was used, because of their relevance to technical education, educators, principals and learners of the schools were also targeted to obtain perceptions on the status of technical education in the province and of its value to them. Subject Advisors for these technical subjects were interviewed because they are responsible for these schools under their region. Two instruments were used, the questionnaire and the interview schedule. A description of the empirical investigation was provided. The questionnaire was discussed briefly and the course of the research was indicated. In the next chapter I discuss the analysis and interpretation of the empirical data, and describe the findings.

CHAPTER 4

Analysis and Interpretation of Empirical Data

4.1 Introduction

This chapter presents an analysis of the results of two sets of data, an administered questionnaire and an interview schedule in response to the critical questions. This presentation and analysis of data attempts to address the critical questions of this research study which revolve around:

- What is the current status of Technical/Technology Education in selected Technical Secondary schools across Kwa-Zulu Natal in South Africa?
- How do principals, teachers, and learners' perceive Technical/Technology Education as it is currently fostered at schools?

Questionnaires were administered to the principals, educators and learners (both male and female) at the selected technical schools, namely Phoenix Technical School, Meadowlands Secondary and M L Sultan Technical School (KwaDukusa), while the interviews were conducted with two First Education Specialists (Subject Advisors), both responsible for Technical and Technology subjects in the Ethekewini region at Malgate Building in Durban.

The main issues raised in response to each of the questions enumerated in the questionnaires and interview schedule are presented. A structured method of analysis was used in writing up of the research report. This study is an exploratory one and reflects the opinions of the participant's feelings on the status of technical education provision in South Africa. In an attempt to do so, certain themes emerged as a result of the analysis which is categorised as follows, and which will be used to elucidate the perceptions of principals, educators and learners around the following themes:

- the status of technical education in the province
- the value of technical education for the youth of the province
- gender involvement in technical education in the province

- curriculum provision and pedagogy of technical education
- perception of technical education in the province, and
- the relationship between technical education and technology education

This chapter also includes tabulations to explain some of the perceptions of the principals, educators and learners at the selected schools. The Statistical Package for Social Sciences (SPSS), was used to analyse some of the data generated by the responses to the questionnaires. Charts and graphs are used to explain the statistics. I begin this chapter with an analysis of the sample namely, the biographic description of both education specialists and principals, as well as educators and learners.

4.2 Biographic details of respondents

4.2.1 First Education Specialist (F.E.S) (Subject Advisors)

The respondents to the questionnaires were mainly principals, educators and learners at Technical Secondary schools in the Ethekewini Region in KwaZulu-Natal, South Africa. In order to maintain the anonymity of the respondents to the questionnaires, they are not identified. In the interviews with the subject advisors, a semi-structured interviews schedule was used in order to collect the data and to probe further. A tabulation of the biographical details of the respondents is presented in the table 4.1.

Demographic data collected on Technical Education FESs' attributes show FES's ranged in age from 40 to 50 years. Both FES's included in this study, were male. Their respective term in their present position ranged from a low of 5 years to a high of 7 years. The FES's as respondents were of Indian origin, serving the Technical Education department, within the KZN Department of Education in the Ethekewini District. Both were between 44 to 47 years in age. In terms of their respective educational qualifications, one holds a masters degree, while the other is in possession of a bachelor's degree. As educators, one has 13 years teaching experience while the other has 15 years experience teaching technical subjects at secondary school level. They are both currently supervising Technical education in the province.

BIOGRAPHICAL DETAILS OF RESPONDENTS

Table 4.1. FIRST EDUCATION SPECIALISTS BIOGRAPHICAL DETAILS

First Education Specialist	Gender		Age	Race	Qualifications	Teaching Experience	Yrs as FES	Location	Current Supervising Tech. Ed	Taught Technical	Studied Technical
	M	F									
A	✓		30+	Indian	Degree	15 years	5	Malgate Bld Durban	Yes	Woodwork Tech. Drawing	Yes
B	✓		30+	Indian	Post Grad (Masters)	13 years	7	Malgate Bld Durban	Yes	Tech Drawing Metalwork	Yes

Table 4.2. PRINCIPALS BIOGRAPHICAL DETAILS (TECHNICAL SCHOOLS)

Principal	Gender		Age	Race	Qualifications	Teaching Experience	Yrs as Prin	Location	Current Teaching Tech. Ed	Teaching Technical	Studied Technical
	M	F									
X	✓		30+	Indian	Post Grad	30 years	5	Phoenix Durban	Yes	Building drawing Carpentry Tech.draw	Yes
Y	✓		30+	Indian	Post Grad	37 years	8	Kwadukusa	No	N/A	N/A
Z	✓		30+	Indian	Post Grad	20 years	3	Chatsworth Durban	No	Woodworking Carpentry Building drawing	No technical courses offered as pupil.

TABLE 4.3. BIOGRAPHICAL DETAILS OF EDUCATORS

Educ	Gender		Age 30 +	Race	Qualifications	Teaching Experience	Location	Current Teaching Tech. Ed	Teaching Technical	Studied Technical	Motivation for choosing a Technical Course (Question 1.10 of the questionnaire) ¹
	M	F									
VAR	1.1		1.2	1.3	1.4	1.5	1.6	1.7	1.8	1.9	1.10
1	X		OLDER	INDIAN	DIPLOMA	27 YEARS	NA	YES	TRADE	SCHOOL/COLLEGE	4.5
2	X		OLDER	INDIAN	DIP	16 Yrs	Dbn	YES	TRADE	COLLEGE	4.5.6.10
3	X		OLDER	INDIAN	DEGREE	18	Lm	YES	TECH	COLLEGE	4.5.6.8.9/11/13
4	X		OLDER	INDIAN	DIP	17	Dbn	YES	TECH	COLLEGE/SCHOOL	10
5	X		OLDER	INDIAN	PG	17	Ver	YES	TBCH	COLLEGE	8.9.13
6	X		OLDER	INDIAN	DIP	19	Dbn	YES	EGD	COLLEGE	NA
7	X		OLDER	INDIAN	PG	23	Dbn	YES	ENG	UNIV	4.5.6.7.10.11.13
8	X		OLDER	INDIAN	PG	30	Ver	YES	TECH	COLLEGE	3.4.5.6.11.13
9	X		OLDER	INDIAN	PG	30	Dbn	YES	TECH	SCHOOL	NA
10	X		OLDER	INDIAN	DIP	10	Dbn	YES	HAIR CA	COLLEGE	3-7.9-11-13
11	X		OLDER	INDIAN	DIP	13	Dbn	YES	NA	COLLEGE	NA
12	X		OLDER	INDIAN	PG	25	Dbn	NO	HC	NA	3.4.11
13	X		OLDER	INDIAN	PG	16	Dbn	YES	NA	COLLEGE	NA
14	X		OLDER	INDIAN	PG	14	Dbn	NO	ELEC	NA	1
15	X		OLDER	INDIAN	PG	13	Dbn	YES	NA	UNIV	5
16	X		OLDER	INDIAN	DIP	14	Dbn	YES	MECH	COLLEGE	4.5.6-11
17	X		OLDER	INDIAN	PG	25	Naa	YES	MECH	INDUST	NA
18	X		OLDER	INDIAN	PG	18	Dbn	NO	PLUB/CIV	INDUST	6
19	X		OLDER	INDIAN	DIP	30	Dbn	YES	NA	INDUST	4.6.10.13
20	X		OLDER	INDIAN	DIP	22	Dbn	YES	TECH	NA	NA
21	X		OLDER	INDIAN	DIP	10	Dbn	NO	NA	COLLEGE	7
22	X		OLDER	INDIAN	PG	16	Dbn	YES	TECH	NA	NA
23	X		OLDER	INDIAN	PG	23	Dbn	NO	NA	COLLEGE	NA
24	X		OLDER	INDIAN	PG	22	Dbn	YES	NA	COLLEGE	NA
25	X		OLDER	INDIAN	PG	20	Dbn	NO	NA	NA	NA
26	X		OLDER	INDIAN	PG	22	Dbn	NO	TECH	NA	NA
27	X		OLDER	INDIAN	PG	27	Ver	YES	NA	UNIV	NA
28	X		OLDER	INDIAN	PG	18	Dbn	YES	NA	UNIV	NA
29	X		OLDER	INDIAN	PG	30	Dbn	NO	NA	STC	NA
30	X		OLDER	INDIAN	DEG	15	Dbn	NO	NA	NA	NA

¹ Options in the questionnaires ranged from question 1 to question 14 and the respondents choose accordingly. Refer to the KEY on the next page for details.

Key

1.10 Why did you choose to study a Technical Education course? (Reason)

- I wanted to do engineering at University (1)
- I wanted to study architecture (2)
- I wanted to open my own business (3)
- I like to work with my hands (4)
- I like to work in a workshop environment (5)
- I wanted to learn technical skills (6)
- I wanted to work in a practical environment with no paperwork (7)
- I enjoyed Technical drawing as a subject. (8)
- I liked my teacher. (9)
- I felt it was more beneficial to me than the academic subjects were. (10)
- I am a creative person and I like to make things. (11)
- I did it as a hobby, because I am very academically inclined. (12)
- I felt that I could get a job with a Technical Education course. (13)
- It is an easy course to pass. (14)

Qualifications

Dip = Diploma

PG = Post Graduate

Deg = Degree

Location

Dbn = Durban

Lm = La Mercey

Ver = Verulam

NA - not applicable

Teaching Technical

Trade – Trade subjects

Tech –Technology

Eng – Engineering , Graphics and Drawing

Hair Ca/ HC- Hair Care

NA - not applicable

Elec – Electrical Technology

Mech – Mechanical Technology

Plub – Plumbing

Civ – Civil Technology

Studied Technical

Univ- University

Indust – Industry

STC – Springfield Training College

NA - not applicable

4.2.3 Principals Profiles

Three principals, from the three different schools responded to the questionnaires administered. The biographical details of the principals have been tabulated above: (refer table 4.2)

The principals who responded to the questions were males of Indian origin. Their age group ranged above the 30 plus category, and all had postgraduate qualifications. Their experience as principals ranged between 20 to 40 years, with Principal X with 30 years, principal Y with 37 years and principal Z with 20 years experience, respectively. Each principal had a vast teaching experience, and was able to draw on this information in order to complete the questionnaire with a wealth of information. Their experience in Technical Schools was as follows: principal X, 5 years, principal Y, 8 years and principal Z, 3 years, respectively. Only one principal had no technical experience although he was a principal of a Technical school.² Of the three principals, only one had experience as a pupil studying technical subjects while the other two had no experience.

4.2.4 Educator participants in the Questionnaire Survey.

The sample of the educator respondents consisted of thirty educators, both male and female, with a mixture of curriculum experience in all subjects, not only from the technical field. As reflected in table 4.3, 63% of the educators were male and 36.6 % were female. These statistics reflect the mismatch in distribution in terms of gender of educators involved in technical education. All educator respondents were over thirty years of age, and belonged to the Indian race. There were no other teachers at this school or if there were, they did not participate in the survey. All the respondents are academically qualified, with 33% having a diploma, 6.6% with a degree and 60% of the respondents having postgraduate qualifications, (refer table 4.3):

² Although this principal was a principal of a purely Technical School, catering for predominantly technical studies, this principal had not had any experience as a teacher in any of the technical subject taught at this school.

All the respondents had ten years and above teaching experience, with 13.3% in the thirty-year teaching experience range. Judging from the experience of the educator respondents, it appears that the responses elicited from their questionnaires will lend credibility to the research study in terms of the textured rich data that emanated from this study.

4.2.5 Learner participants in the questionnaire survey

The questionnaires were also administered to learners in grade 10, 11 and 12 of both sexes. Of the one hundred and fifty questionnaires administered, one hundred and twenty were returned. This excellent return rate was made possible by emphasising to the learners the reason for the study and also that their input into this study was of tremendous importance. As a result a return rate of 80% was achieved for the return of the learner questionnaire. The respondents comprised of both boys and girls, in the technical and academic streams at technical schools in KwaZulu-Natal. It was a too large a number, namely one hundred and twenty learners to include in a table form, hence statistical analysis was used to generate these following tables.

The table below is reflective of the cross section of the learners' participants in this survey in terms of their biographical details.

Learner Biographical Descriptive Percentage Statistics

Table 4.4. Gender of Respondents

	Frequency	Percent	Valid Percent	Cumulative Percent
Male	56	48.3	48.7	48.7
Female	59	50.9	51.3	100.0
Total	115	99.1	100.0	
Missing System	1	.9		
Total	116	100.0		

The results of the table above reveal gender dispersion of participated respondents in this project, the participated respondents in this project are 48.3 % males and 50.9 % are females as per the demographic trend of the school and the respective sampling.

The following table reflects the age group of the respondents to the questionnaire.

Table 4.5. Respondent Age group

	Frequency	Percent	Valid Percent	Cumulative Percent
13 - 18 years	113	97.4	98.3	98.3
19 - 20	1	.9	.9	99.1
21 - 25	1	.9	.9	100.0
Total	115	99.1	100.0	
Missing System	1	.9		
Total	116	100.0		

The table above reveals age group dispersion of participated respondents in this project, these are 97.4 % are in between 13 - 18 years, very few (0.9 %) were of the age group 19 – 20 years, while 0.9 % were 21 - 25 years. It therefore reveals that the majority of learners that participated in the survey were from the 13-18 year old age group.

Table 4.6. Race group of Respondents³

	Frequency	Percent	Valid Percent	Cumulative Percent
Indian	59	50.9	51.3	51.3
Coloured	4	3.4	3.5	54.8
African	51	44.0	44.3	99.1
Other	1	.9	.9	100.0
Total	115	99.1	100.0	
Missing System	1	.9		
Total	116	100.0		

The table above results reveal ethnic group dispersion of participated respondents in this project, the participated respondents in this project are Indian 50.9%, Coloured 3.4%, African 44.0% and other .9 %. The table reveals that there were no white learners who participated in this survey. This table also shows that a large population of the learners were of African origin, demonstrating that the African youth of today is interested in studying technical subjects.

³ In this research study I have included a basic classification of the ethnicity /race groups so as to reflect on the historical past where people were prevented from studying technical subjects due to their race. In the present day context how has this trend now changed.

Table 4.7. Education of Respondents

	Frequency	Percent	Valid Percent	Cumulative Percent
Grade 12	18	15.5	15.9	15.9
Grade 11	33	28.4	29.2	45.1
Grade 10	59	50.9	52.2	97.3
Below Grade 10	3	2.6	2.7	100.0
Total	113	97.4	100.0	
Missing System	3	2.6		
Total	116	100.0		

The table above results reveal respondent education group dispersion of participated respondents in this project, the participated respondents in this project in terms of education distribution are Grade 12 - 15.5%, Grade 11-28.4% Grade 10-50.% and 2.6% below grade 10. From the table it reflects that the most number of respondents emanated from the Grade 10 classes. Although, in the execution of this survey, it was confined to the Grade 10, 11 and 12's only, it appears that learners from below grade 10 also participated in his survey, 2.6%. The reason for this inclusion was to determine the perceptions that the grade 12's, 11's and grade 10's felt about technical education from a learner perspective.

4.3 Discussion of Findings

Questionnaires administered to the respondents posed questions to the educators, principals and learners around different themes, namely; perceptions of technical education, value of technical education to the learner, the involvement of gender in technical education and the pedagogical value of technical education in terms of the sustainable economic growth of the country in terms of providing skilled labour for the future. Under each theme, there were several questions asked and these have been restated within the themes. All responses pertaining to a particular theme have been captured together.

The following perceptions by the subject advisors, principals, educators and learners are noted in response to the perception of:

4.3.1 The status of technical education in the province

In response to the second critical question, “How do principals, teachers, and learners’ value/perceive Technical/Technology Education as it is currently fostered at schools?”

The principals were positive that technical education played “*a vital role in the developmental needs of the country and that it should be encouraged as a subject in the curriculum It also gave learners an opportunity to make career choices at an earlier age.*” In line with the theme based on perceptions, they believed that the curriculum was broad, but catered for learners who wanted to study engineering. When asked about technical education still being perceived as “*inferior education*” for the weaker learner, 90% of the principals agreed, 10% felt that it “seems to be more academically inclined” and in keeping with new trends.

In response to question one, which entailed: “As a Subject specialist what do you feel is the Status of Technical Subjects in the Province?”

Subject advisors unanimously agreed that the present status of technical education in the province was ‘low’. As specialists in the field, and during supervision at schools it emerged that technical education had a *low status* attached to it. Remarks such as “*the subject is accorded a very low status*’ and that it is the perception that” *this subject is for non academically inclined learners*” emerged in the interview. Another remark made was that “*the status was poor because the workshops are not being adequately equipped to deal with the new curriculum*”, namely the introduction of the new FET curriculum.

Principals, on the other hand, in response to the first critical question, were unanimous that the perception had not changed much at all, as historically stated, that technical education was still regarded as “*inferior education*”

According to Silberman, (1986) who ideas concur with what the principals and subject advisors, state, that technical education is still regarded as ‘inferior education’ by stating that secondary vocational education is not given a “high priority”.

Silberman(1986) argued that leaders still feel that technical education “ is separate from general education, has little educational value, and should be replaced by a predominantly academic curriculum. He stated that many leaders still believed that “vocational courses are expected to provide students who are not college-bound with minimal training for low status jobs at entry level”

Why technical education has little value and should be replaced by an academic curriculum is yet to be investigated.

The subject advisors gave differing answers, to the question on status. One stated 'no', while the other said 'yes'. Comments such as “*Too few pupils take these subjects (technical) and very few schools are offering these subjects*”. Technical education has a “*High status*” according to one respondent, “*after the President's address on the upliftment of technology in the country*”.

O'Connor and Trussell, (1987), confirm our earlier assertion that, one reason vocational education has such low status is that it is not a requirement for admission to universities. Although sixty percent of high school graduates enter the workforce directly after graduation and need the skills that vocational education can provide vocational education is seen as having no place in career paths of young urban professionals. According to Silberman, (1986: 6) students “in pursuit of fame and fortune, the best and brightest high school students, have little time for elective vocational courses”. Future lawyers and financiers do not take courses with "shop" components”.

Robert Reich (1983) has written about the dysfunctional economic consequences of the "best and brightest" students avoiding economically productive jobs in favour of more comfortable and prestigious "paper entrepreneurial" positions in law and finance.

In response to the theme on status in the educator's questionnaires, this is what the educators had to say about Questions 1.12 – 1.26. Educator responses to the question of ‘what do you feel teachers and other learners (not technical); think about a Technical education course?’ differed according to the respondents understanding of a technical education course. Historically technical education has always been perceived as being

“an unfortunate link between poverty and manual work, hence the stigma of inferiority attached to technical education” Kruger, (1993: 182). In response to Questions 1.12, 1.13 and 1.14 on the issue of status, the majority of the educators felt that a technical education course is still perceived as “*inferior education*” The use of the following terms qualified this “*for learners not academically inclined*”, “*low achievers*”, “*easy courses*”, “*not real subjects*”, “*dropouts slow learners*”, “*weak pupils*”, “*learners with not good academic abilities*” or “*those not academically inclined*”; “*learners with low IQ*”, “*inferior learners*”. It must be noted that this perception has not changed in the past one hundred years. On the other hand, a few of the educators had positive feelings about learners who choose to do a technical course and stated that it was for learners who are “*creative*”, “*those who see the need to study this course*”, “*learners doing it as a means of getting a job*”, “*very beneficial*”, and “*valuable in securing a job*”. However, the majority of the perceptions still concur with what people have described as early as the 1900’s that technical education is “inferior education”. From the responses it is clear that perceptions have not changed that much amongst our present day educators.

In response to Question 1.13, which sought the opinion of educator on the status of technical subjects at school today, educators provided broadly divergent reasons. The majority of the educators felt that not much attention was given to technical course at schools, by the government, while others said that it was a “*growing subject*”, Some respondents reflected that “*it was a pity that the N courses was phased out by the government to the detriment of quality technical education*”, “*that the subjects were easy*”, “*technical subjects had no status*”, “*not rated as high as academic subjects*”. “*Technical subjects are not respected; it does not have much status*”. On the other hand, there were a few respondents that said that the workshops were “*better equipped*”, that “*technical education was given high priority*”, and “*it was popular with many learners, as many schools had to turn away learners because there was no space available*”. Some believed that many students choose these subjects because it had a “*low pass requirement*”

In response to Question 1.14, “Who in your opinion are the students that choose a

course in Technical education?" educators felt that the students who choose technical courses are the students that like to *"work in industry"* *"students who enjoy practical work"*, those that were *"technically inclined"*, learners who wanted a *"career in technical education"* *"students who want to pursue a trade"*, pupils whose *"parents had their own businesses"* or that *"were choosing to study engineering or become artisans in a company"*, some said it was for *"creative learners"*, learners *"who like to work with their hands"* Some responded that it was for learners with *"lower academic potential."* Some educators commented that *"it was for the academically weak learners, pupils who experienced problems in schoolwork"*, *"poor achievers"*, *"the average learner"*, learner's that were not *"cut out for academic courses"* Some even expressed that it was the *"absconders, difficult learners, learners with" limited academic ability"*.

In response to question 23, on the issue of whether learners were properly guided, and not misled when selecting courses at school, *one* educator suggested that: *"This was a serious problem at schools because academic staff sway the learners and parents into believing that technical courses are for slow learners."* He further stated that *"at school level many schools merely fill classes to suit their current educator numbers."* It appears from the statements above that learners at schools are not properly guided, in their selection and choice of subjects; they are merely placed into classes to suit the educator situation at a particular school.

In response to the theme on the status of technical education learners responded to the following questions:

- What do you feel teachers of other learning areas, and other learners; think about a Technical Education /Technology education course at your school.
- Are you comfortable about learning technology at school? Why is this so?
- Who in your opinion are the students/learners that choose a course in Technical/Technology education? as follows,

In response to the questions above based on the perceptions of learners on the status of technical education in the educational system. The following was some of the sentiments

that were echoed by the learners. At the outset, it must be pointed out that the learners have a very optimistic view of the portrayal of technical education for the future of the country. They do not see a distinction between the academic subjects or the technical ones. Unlike the perceptions of principals and some of the educators, the majority of the learners are very positive about the role that technical education plays in our education system.

They felt that it gave them direction in their choosing a field of study and to get an idea of what it will be like in that job occupation. Learners responses were as follows *“It is worth having these educational courses at schools, it gives other learners who choose not to do the academic system a wide range of choices to choose from”* Respondents view technical education courses as *“other choices”* equal to or better than the academic subjects. Some learners were despondent that the course that they were studying was being phased out, for example hairdressing and cosmetology. Learners felt that they are exposed to enough experience to get them ready for the world of work. In response to question two, *“What do you feel teachers of other learning areas, and other learners think about a Technical Education /Technology education course at your school”*, learners stated that *“we act as a model C school, but they would love to have technical education at their schools.”*

This response came from an African learner who was speaking to his friends in other schools; it appears as if after achieving democracy in 1994, predominantly black schools across the province have been left as is with no further development. Anecdotal insight into ex-African schools shows no development in terms of equipping the schools with other facilities like technical workshops, domestic science classrooms and gymnasiums have been provided in the so called ex-Department of Education and Training (D.E.T) schools. Their infra structure has been left as it was prior to democracy in 1994. Furthermore there are inadequate numbers of educators to teach technical subjects at these schools. Learners at black schools are still not exposed to technical education, and very few schools do teach technology education in the GET phase in the correct way.

This I have observed as a supervisor for Whole School Evaluation⁴, on a number of occasions. It seems as if our previously disadvantaged African learners are still disadvantaged thirteen years after democracy. Another response was that, *“Everything is advancing. The world is becoming more computerised and this is a good thing for all the electronic learners”*. *“They think that it is very hard. But when you tell people that you are doing electronics, they say that it is a very good field.”*

Responses from the learners were more motivated and inspirational. They see value and substance in technical education and do not denigrate technical education. The learners have a higher respect for technical education; hence the “status” for them is high. Learners perceive this type of education as a learning opportunity that will eventually take them into a world of work and a world of technology. It also provides an avenue for learners to prepare for an occupational field outside the formal education system. Finally, it provides a basis for a wide range of opportunities to develop skills, aptitudes and knowledge in choosing an occupation and also access into their first jobs.

Table 4.8. The current syllabus in technology/ technical subjects is inadequate for the current employment market.

	Frequency	Percent	Valid Percent	Cumulative Percent
Strongly Disagree	45	38.8	43.3	43.3
Disagree	38	32.8	36.5	79.8
Neutral	14	12.1	13.5	93.3
Agree	4	3.4	3.8	97.1
Strongly Agree	3	2.6	2.9	100.0
Total	104	89.7	100.0	
Missing System	12	10.3		
Total	116	100.0		

Learner respondents believed very strongly in the importance of technical education in their lives and or what it was teaching them. They felt that the skills they acquired

⁴ I am currently employed by the Department of Education as a Supervisor for Technical and Technology Education in the province of KwaZulu-Natal. In the evaluation of schools, lesson observation constitutes 50% of the evaluation process, as a result one gets a hands on approach as to what is taught to learners in a classroom situation, during lesson presentation.

because of these courses certainly prepared them for the world of work. In response to Question 2.4 which states “Are you comfortable about learning technology at school? Why is this so?” Learners responded by saying that “*yes, I enjoy working with my hands. I was always fascinated about electronics. There is always something new to learn about.*” In some cases, learners said that they were not comfortable about learning technology at school “*No, cause it can be hard and there is a lot to learn in a short period of time.*” It appears as if the learners do not want to study the theoretical aspect of the curriculum and only want to engage in the practical aspect of the workload. Studying the table above, one observes that there is a concurrence with their quantitative responses, where 38.8 % and 32.8% disagreed that technical education does not prepare you for the world of work.

Learner respondents had this to say about question 1 on perceptions which stated “Do you feel that what is being taught in the Technical Education/Technology Education classes prepares learners adequately for the world of work.”

Many learners’s found Technical education an interesting subject. They responded by saying that technical education “*teaches you to utilize skills and develop skills that are required in society*” In response to Question 2, which states “What do you feel teachers of other learning areas, and other learners; think about a Technical Education /Technology education course at your school”, learners said that it is “*needed to provide learners with the opportunity of getting a job*”

In support of the sentiments of the learners, the quantitative results given in the table below reflect similar views. 31% and 15% said that technical subjects at their schools was more popular, however it was interesting to note that 35% of the respondents remained neutral on this point or were undecided. Only 19% and 9% disagreed. 46 % of the learners agreed that technical education was more popular at their schools.

Table 4.9. Technical subjects are more popular than academic subjects.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	9	7.8	8.3	8.3
	Disagree	19	16.4	17.4	25.7
	Neutral	35	30.2	32.1	57.8
	Agree	31	26.7	28.4	86.2
	Strongly Agree	15	12.9	13.8	100.0
	Total	109	94.0	100.0	
Missing	System	7	6.0		
Total		116	100.0		

Anecdotal evidence suggests that one of the problems facing industries today is that they encounter very little linkage between the educational system and the employee skills required by the private sector, especially in secondary, primary, and pre-primary schooling. Another problem is the brain drain of highly qualified and skilled workers who are leaving the country, for greener pastures. There appears to be a growing shortage of workers in the fields of engineering, accounting, and information technology. According to Wakeford (2001), although South Africa is relaxing its restrictive immigration that is not a sustainable answer, the real answer is to get local people to have the desired skills.

Learners did not think about technical education giving them an opportunity of becoming entrepreneurs in their field of study. Learners other comments revolved around “*technical education was very popular at these schools because it was technical schools and that many learners had to be turned away because of the limited space available*”. With the skills, shortage in the country the government needs to look at the role that technical education will play in the country at school level. The establishment of FET colleges has addressed some of the issues, but this is just touching the surface of the problem in addressing the shortfalls.⁵

⁵ The FET Colleges ACT

TABLE 4.10: Is additional training required?

Percentage of Total

		P1.7: Are you currently engaged in any form of learning Technical Education/Technology Education?		
		Yes	No	Total
S3.15: On completion of a technical course, there is no need to go for additional training.	Strongly Disagree	29.7%	3.0%	32.7%
	Disagree	27.7%	5.9%	33.7%
	Neutral	11.9%	4.0%	15.8%
	Agree	13.9%		13.9%
	Strongly Agree	4.0%		4.0%
Total		87.1%	12.9%	100.0%

57.4% of the learners stated that there is a need to go for further training, as they believed that what they learnt at school level was insufficient for them to start a job immediately as opposed to 14.3% of the learners who felt it was not necessary to go for further training. These 14.3% of the learners believe that they have the necessary skills to start work immediately.

This is in direct contrast to the table below which shows an opposing view.

Table 4.11. Are workshops at school sufficient?

Percentage of Total

		P1.7: Are you currently engaged in any form of learning Technical Education/Technology Education?		
		Yes	No	Total
S3.9: The workshops at my school are sufficient to enable me to be adequately trained for the world of work.	Strongly Disagree	9.8%	2.0%	11.8%
	Disagree	14.7%	3.9%	18.6%
	Neutral	13.7%	2.9%	16.7%
	Agree	32.4%	1.0%	33.3%
	Strongly Agree	16.7%	2.9%	19.6%
Total		87.3%	12.7%	100.0%

The table above shows a 49.1% of learners who agree that the workshops at the current school are able to train them adequately for the world of work as opposed to 24.9% of the learners who stated that the workshops were inadequate to train them for the world of work.

Needhi (2002) believes that the reason for this may be that *“some of the modern and high tech machinery are too big to be housed within the school workshops and that these are the items the school cannot really afford”* This will affect the quality of teaching at these schools in that learners are not fully exposed to the realities of what is required by industry, because they are not familiar with the tools and equipment that is currently used to produce bulk orders.

In response to this question: 2.5 who in your opinion are the students/learners that choose a course in Technical/Technology education? Learners responded by saying: *“Students who want to further their education in engineering”* or *“those who want to render a service as a job like an electrician or a plumber”* and *“Future technicians”* were expressed as opposed to educators and principals responses. The use of the word *“render a service”* suggests that these learners are looking at technical education as a key to providing them with a job as well as having met their ambitions. It suggests that the opinion of technical education by the future generation is changing; they do not consider technical education as being inferior education. Instead, they are saying, *“technical education is preparing us to use our creative minds and hands to design stuff*, which is in keeping with the design of the new FET curriculum. Learners also stated that *“it is exciting, it is more like practical subjects, it teaches us a lot”* *“You have some knowledge when you finish school, you will know something about your trade, you would not have to start from the beginning”*.

The table below 4.3.5 reflects that 44.4% of the respondents disagreed with the statement that people have a low opinion of learners who take technical subjects. This corresponds with their earlier description that they valued technical education and thought that it had a lot of potential for the youth in the country and for the future of the country as whole.

TABLE 4.12. Perception of learners that do technical subjects
Percentage of Total

		P1.7: Are you currently engaged in any form of learning Technical Education/Technology Education?		Total
		Yes	No	
S3.20: People generally have a low opinion of learners that do technical subjects	Strongly Disagree	28.9%	3.1%	32.0%
	Disagree	15.5%	3.1%	18.6%
	Neutral	19.6%	4.1%	23.7%
	Agree	13.4%	1.0%	14.4%
	Strongly Agree	9.3%	2.1%	11.3%
Total		86.6%	13.4%	100.0%

On the other hand there were some learners who felt that the technical courses at their schools are not promoted enough, and that other people thought it was more beneficial to them to pursue an academic course. From the table above, it reflected in the quantitative results that 22.7% of the learners believed that people generally have a low opinion of learners that do technical subjects. It therefore suggests that not all learners are of the opinion that technical education is for intelligent, creative and innovative learners; there are still some learners that are of the opinion or perceive that technical education is “inferior education”

TABLE 4.13. The elevated importance placed on academic subjects in schools

		P1.7: Are you currently engaged in any form of learning Technical Education/Technology Education?		Total
		Yes	No	
S3.17: The elevated importance placed on academic subjects in schools caused learners not to take technical subjects	Strongly Disagree	10.5%	1.1%	11.6%
	Disagree	20.0%	2.1%	22.1%
	Neutral	32.6%	8.4%	41.1%
	Agree	17.9%	1.1%	18.9%
	Strongly Agree	5.3%	1.1%	6.3%
Total		86.3%	13.7%	100.0%

The above results reveal, perceptions of participated respondents in this project, they have expressed that 10.5 % strongly disagree, and 20.0 % disagree, while 32.0 % remain neutral, compared to 17.9 % who agreed, while 5.3 % strongly disagreed to the YES part and 13.7 % to the NO part of the above statement that the elevated importance placed on academic subjects in schools caused learners not to take technical subjects. From the table it was noted that 86.3 % agreed that academic subjects still had an elevated importance as opposed to 13.7% of the respondents. This high response rate suggests that the academic subjects at school level still enjoy an elevated importance as compared to the technical subjects.

However, other responses to similar questions resulted in these responses by the learners. *“The new education system teaches us to create our own jobs”, technical education is for intelligent learners, “I like to work with my hands” “People that are skilled and creative” Technical education is “beneficial to the students in that it makes them to be career orientated”*

Although there were mixed responses from the learners the majority agreed that technical education was a benefit to learners and to the development of the country as a whole.

4.4 The Value of technical education for the youth in the province

In response to this question asked of the subject advisors, is technical education valued and recognised in your province? Two opposing responses were given; one subject advisor stated that it was not recognised as quoted:

“Not really, because of the low status, principals still think that the technical subjects are a ‘dumping ground’ for learners not academically inclined and that it is still regarded as ‘inferior education’”. While on the other hand, the other respondent was positive and stated that “technical education was valued and recognised in the province, but added that this was marginal because of the low numbers in the schools”.

Subject advisors also stated that, *“Although many school offer technical education there are very few learners in each discipline”* meaning that learners too are reluctant to choose technical subjects due to the stigma attached to it. Others stated that *“nothing is*

done to promote the subjects and assist the schools in terms of resources”, this impacts negatively on the development and promotion of the subject. In tying up with the second critical question, it appears that not much is been done to adequately foster these subjects in the province.

In response to this question asked of the subject advisors about “*what are children learning in Technical education /technology*” subject advisors believed that “*due to the changes in the curriculum for both the GET phase and the FET phase learners are offered a variety of subjects in the FET phase, but in the GET, it is only technology with its knowledge areas that has a basis for technical education. In the FET phase, learners are exposed to technical education with subjects like Civil technology, Mechanical technology, Electrical technology and Engineering, Graphics and Design*”. Added to this is that they are exposed to “*learning of specific skills, values and acquiring content knowledge*”.

4.4.1 The Need for Technical Education in the province

Subject advisors were also asked: Is there a need for technical education in the province?

Subject advisors agreed that there was a need for technical education in the province. One of the reasons given was that there was a huge “*skills shortage*” in the country and at present South Africa was importing skilled labour. If technical education was promoted in the country we would not have to get skilled labour from other countries.

Principals responses to the following questions based on Value’s revolved around these set of questions.

- How do the present changes taking place in the educational curriculum affect you as a principal?
- In the past, we had subjects like, Basic Techniques, Industrial Arts, and other Technical subjects; today we have Technology/Engineering, Manufacturing and Technology. How do you view these changes in these subjects?

- Do pupils respond to Technology/Technical Education in a positive way at your school? Why do you say so?
- If you had the choice of being principal of an Academic school or a Technical school which would you choose and why?
- How do the learners respond to Technology/Technical Education at your school?
- Do you feel that learners who are not academically inclined be given technical/technology learning areas rather than academic subjects? What is your reason for this?

According to the principals, the main issue revolved around the “*lack of human and material resources*”, which seemed to pose a problem in the proper functionality of the curriculum at the schools. This was also supported by the Subject Advisors in their interview schedules. One principal had this say

“Human and material resources are scarce. The demands of the curriculum puts a strain on the budget as modern technology is costly” “It appeared that teachers where trained or was a specialist in a particular field and was now asked to teach a general course knowing little about the other disciplines in a subject field. A respondent had this to say” “The out phased subjects had some area of specialization, however the new subjects are of a general nature and this does not provide some form of employment at the end of the course”.

At the same time the principals as respondents echoed sentiments of this nature that “*technical education was to expensive and costly an endeavour and if funds where not available then its effectiveness in the classroom would be minimal*”. Industries were advancing but effective changes, have not yet taken places in technical school workshops, ideally equipping it to cope to meet the needs of the labour market.

In terms of value to this question, do pupils respond to Technology/Technical Education in a positive way at your school asked to the principals, why do you say so? Principals seem to feel that it does have a “*positive effect*” on the learners as both boys and girls

tend to opt for technical subjects today. One principal respondent had this to say, *“Yes! They have a flair for the subject and give off their best in it. A very small number fail their trade subjects.”*

Principals that had a technical bias as teachers and learners, opted to choose a technical school to be a principal in, while the other was non-committal in his response. Principals felt that the learners enjoyed the *“practical component of the coursework”*, and if more guidance were given, it would have a positive influence on the educators.

In response to the last question on value which reads as follows; *“Do you feel that learners who are not academically inclined be given technical/technology learning areas rather than academic subjects?”* *“What is your reason for this?”* The respondents were of a similar frame of mind and stated that it *“is for learners who are not academically inclined”*, while the other respondent stated otherwise, in that it was entirely the choice of the learner, by expressing these words *“Learners are given the opportunity to choose on their own”*.

4.4.2 Technical Education and preparation for the world of work

In response to the following question, *“Do you feel that what is being taught in the Technical Education classes prepares learners adequately for the world of work?”* almost 50% of the educator respondents stated *“no”* to this question suggesting that they did not agree that the current syllabus in technical education adequately prepares learners for the world of work. Some were not sure while the rest stated that it did prepare learners for the world of work. Analyses of the data revealed that there was a mixed response from group of 30 respondents, while some also suggested that further training was required after schooling was completed.

In response to the question on *“Is a Technical Education course popular at your school, and why this is so?”* almost all the educator respondents suggested that technical courses were popular at school for various reasons. Some said it was so because it *“ensured employment”*, *“learners liked working with their hands”*, *“more access to employment”* *“learners wanted to own their own businesses”* It therefore appears that educators

believe that technical education courses at schools does assist the learners in doing something with their lives after they complete school.

4.4.3 Industry preparedness

In response to the question on how our current education system is catering to the challenges that face our youth today, the educator respondents were of a similar view that not enough was being done to promote technical education in the country. Some of the respondent's cited revealed this e.g. *"One must address the needs of the country", "revise the existing curriculum, "address the social evils that plague society", "go back to the old system of specialisation"*, many educators revealed that one should make use of *"Outcomes based education in conjunction with the older methods"* Some respondents also stated that we could *"create more apprenticeships", "work in conjunction with industry and get the mega industries to sponsor courses thereby drawing learners to their company from this pool"* It appears from statement like these that in order for the principals to adequately provide an institution that caters for all aspects of the learners needs, and to train him/her properly requires a lot of financial implications which at present the schools cannot cope with.

On the other hand, learners response to this question: *"Is a Technical Education/Technology education course popular at your school, and why this is so"*.

Learners felt that technical education is regarded as popular at the schools selected. Most of the learners said that it was popular because it was a *"trade school"* Pupils enjoyed the courses and wanted to study it. With regard to the status learners felt that it had a *"high status"* because now learners can get a job with the technical subjects they learn. Some learners also suggested that it was a easy course *"Not a difficult course – possesses a good combination of courses"*.

The table below reinforces what learners have to say about technical subjects being a waste of time.

Table 4.14. Technical subjects are not important

	Frequency	Percent	Valid Percent	Cumulative Percent
Strongly Disagree	70	60.3	67.3	67.3
Disagree	24	20.7	23.1	90.4
Neutral	4	3.4	3.8	94.2
Agree	4	3.4	3.8	98.1
Strongly Agree	2	1.7	1.9	100.0
Total	104	89.7	100.0	
Missing System	12	10.3		
Total	116	100.0		

The above results reveal perceptions of participated respondents in this project, they have expressed 60.3 % strongly disagree, 20.7 % disagree, 3.4 % are neutral, 3.4 % are agree, 1.7 % strongly agree and 5.2 % did not respond towards the above statement that technical education is not important. 81% disagreed that technical education was not important, while only 5.1% felt that is was not important. Learner respondents clearly see the value of technical education in our current education system in terms of job opportunities, job creation and entrepreneurial activities.

In studying the history of technical education in South Africa, in chapter two, we found that technical education was only offered to 'whites' in the early days, and latter to blacks, but only to perform the menial tasks and with no theory attached. Today however the scenario is quite different, in that we find that after democracy a number of African learners opted to study a technical course because they felt that it would guarantee them employment. This comparison stat chart above helps to reinforce the statement that technical education is important to the learners.

TABLE 4.15. Ethnic groups involved in Technical education

% of Total

		P1.7: Are you currently engaged in any form of learning Technical Education/Technology Education?		Total
		Yes	No	
P1.3 : Respondent Ethnic group	Indian	39.1%	11.8%	50.9%
	Coloured	2.7%		2.7%
	African	44.5%	.9%	45.5%
	Other	.9%		.9%
Total		87.3%	12.7%	100.0%

Interpretation of this comparison statistical graph we find that of the total of 87.3% of learners engaged in doing a technical course at schools, 44.5% of this group belonged to the African race group.

The table on the next page shows the data on whether schools educate learners to enter tertiary institutions rather than to obtain a job.

TABLE 4.16. Are schools educating learners to enter tertiary institutions rather than to obtain a job?

Percentage of Total

		P1.7: Are you currently engaged in any form of learning Technical Education/Technology Education?		Total
		Yes	No	
S3.2: Schools educate learners to enter tertiary institutions rather than to obtain a job.	Strongly Disagree	7.5%	.9%	8.5%
	Disagree	10.4%	3.8%	14.2%
	Neutral	15.1%	2.8%	17.9%
	Agree	30.2%	.9%	31.1%
	Strongly Agree	24.5%	3.8%	28.3%
Total		87.7%	12.3%	100.0%

The above results reveal perceptions of participated respondents in this project, they have expressed 7.5 % strongly disagree, 10.4 % disagree, 15.1 % are neutral, 30.2 % are agree, 24.5 % strongly agree and 5.2 % did not respond towards the above statement that : Schools educate learners to enter tertiary institutions rather than to obtain a job. It is noted that 54.7% agreed that schools should prepare learners for universities rather than go into jobs while 17.9% disagreed with this statement. Learners in their qualitative remarks suggested that although technical education had value, the concurrence with the quantitative results is displaying another reason. Learners still feel that they need to learn more and need to go to universities, especially to do courses in engineering and like-minded fields of study.

TABLE 4.17. Objection by parents to doing a technical course

% of Total

		P1.7: Are you currently engaged in any form of learning Technical Education/Technology Education?		Total
		Yes	No	
S3.8: My parents object to me doing a technical course	Strongly Disagree	29.7%	2.0%	31.7%
	Disagree	23.8%	5.0%	28.7%
	Neutral	9.9%	3.0%	12.9%
	Agree	18.8%	3.0%	21.8%
	Strongly Agree	5.0%		5.0%
Total		87.1%	12.9%	100.0%

It also evident that many parents are now encouraging their children to participate in technical education programmes as they can see the results of technical education in everyday life. The cross tabulation above clearly reflects that 53.5% of parents encourage their children to take a technical course. This reflects a slight change in mindset as originally seen in the literature review in chapter two, where it was found that parents wanted their children to enter universities rather than to do a technical course at a technikon. Many parents preferred their children to graduate with a degree rather than a diploma.

TABLE 4.18. Technical subjects are more popular than academic subjects

Percentage of Total

		P1.7: Are you currently engaged in any form of learning Technical Education/Technology Education?		Total
		Yes	No	
S3.3: Technical subjects are more popular than academic subjects	Strongly Disagree	5.8%	1.9%	7.7%
	Disagree	16.3%	1.0%	17.3%
	Neutral	27.9%	4.8%	32.7%
	Agree	24.0%	4.8%	28.8%
	Strongly Agree	13.5%		13.5%
Total		87.5%	12.5%	100.0%

37.5% of the learners agreed that they felt that technical subjects are more popular than academic subjects as opposed to 22.1 % o the learners who disagreed. This goes to prove that learns still feel that doing a technical education course at school level is just as important, as or more important than an academic course.

The graph below demonstrates a reflection on learners' perceptions with regard to the question, which reads "People generally have a low opinion of learners that do technical subjects". It is noted that 51% of the learner population disagreed with this statement, further reinforcing the fact that the status of technical education at schools amongst the learners is increasing.

FIGURE 1: Perception of learners who take a technical education course to the statement: "People generally have a low opinion of learners that do technical subjects".

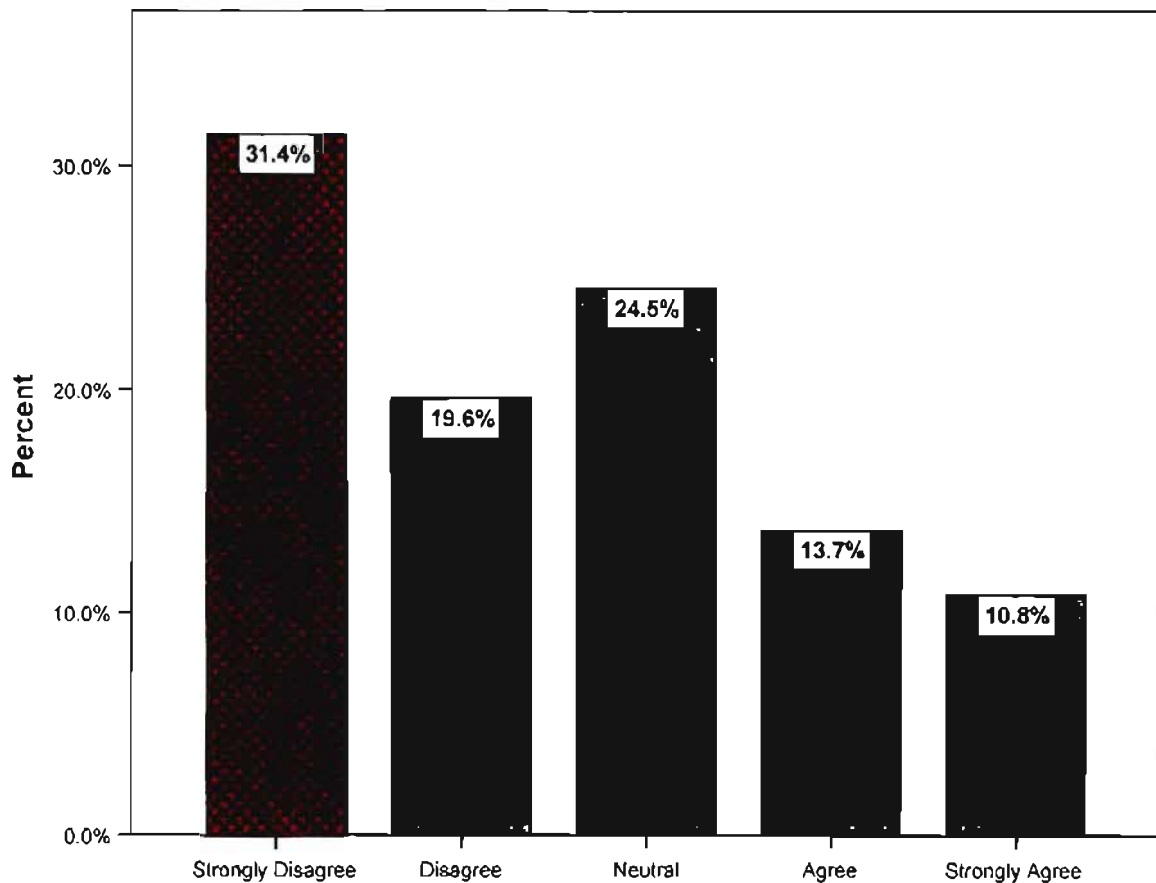


TABLE 4.19. On completion of a technical education course, there is no need to go for additional training.

Percentage of Total

		P1.7: Are you currently engaged in any form of learning Technical Education/Technology Education?		Total
		Yes	No	
S3.15: On completion of a technical education course there is no need to go for additional training.	Strongly Disagree	29.7%	3.0%	32.7%
	Disagree	27.7%	5.9%	33.7%
	Neutral	11.9%	4.0%	15.8%
	Agree	13.9%		13.9%
	Strongly Agree	4.0%		4.0%
Total		87.1%	12.9%	100.0%

TABLE 4.20. Value of a Technical course at school.

Percentage of Total

		P1.7: Are you currently engaged in any form of learning Technical Education/Technology Education?		Total
		Yes	No	
S3.19: There is no value in taking a technical course at school	Strongly Disagree	50.5%	7.1%	57.6%
	Disagree	25.3%	3.0%	28.3%
	Neutral	3.0%	3.0%	6.1%
	Agree	3.0%		3.0%
	Strongly Agree	5.1%		5.1%
Total		86.9%	13.1%	100.0%

75.8% disagree that there is no value in taking a technical education course, as opposed to 8.1%. This huge gap between the two percentages demonstrates that the learners can see the full potential that technical education has in this country.

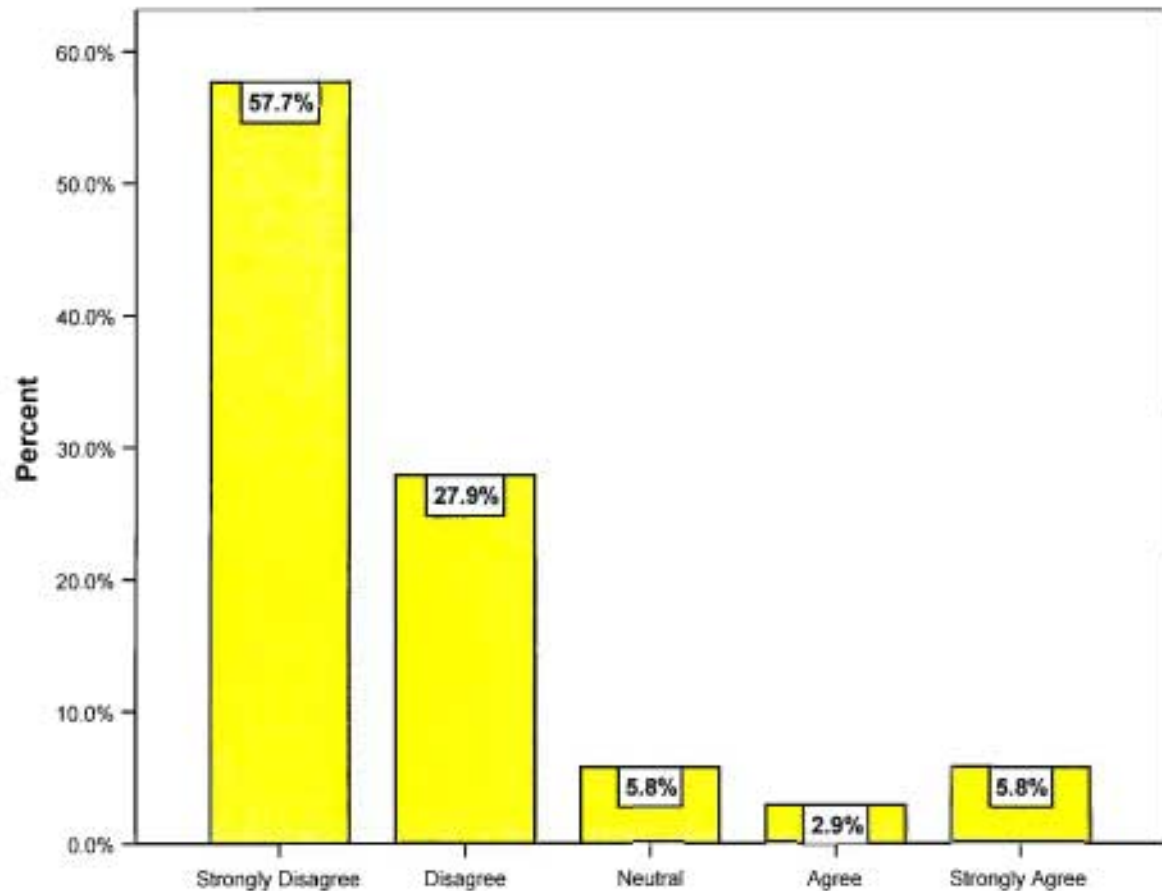
In response to the question on “What I learn in a Technical/Technology course is not useful to me”, learner’s responses were very positive and they believed that the type of education that they are receiving in the technical course is an excellent one. In the cross

tabulation table below, it clearly reflects that 76% of the learners responded positively to this question, therefore it stands to reason that technical education has made a huge difference in the lives of these learners and if this trend continues it will make a bigger impact in the future. Only 8% disagreed with this statement.

TABLE 4.21. What I learn in a Technical/Technology course is not useful to me
% of Total

		P1.7: Are you currently engaged in any form of learning Technical Education/Technology Education?		Total
		Yes	No	
S3.14: What I learn in a Technical/Technology course is not useful to me	Strongly Disagree	58.0%	5.0%	63.0%
	Disagree	18.0%	2.0%	20.0%
	Neutral	3.0%	5.0%	8.0%
	Agree	3.0%		3.0%
	Strongly Agree	5.0%	1.0%	6.0%
Total		87.0%	13.0%	100.0%

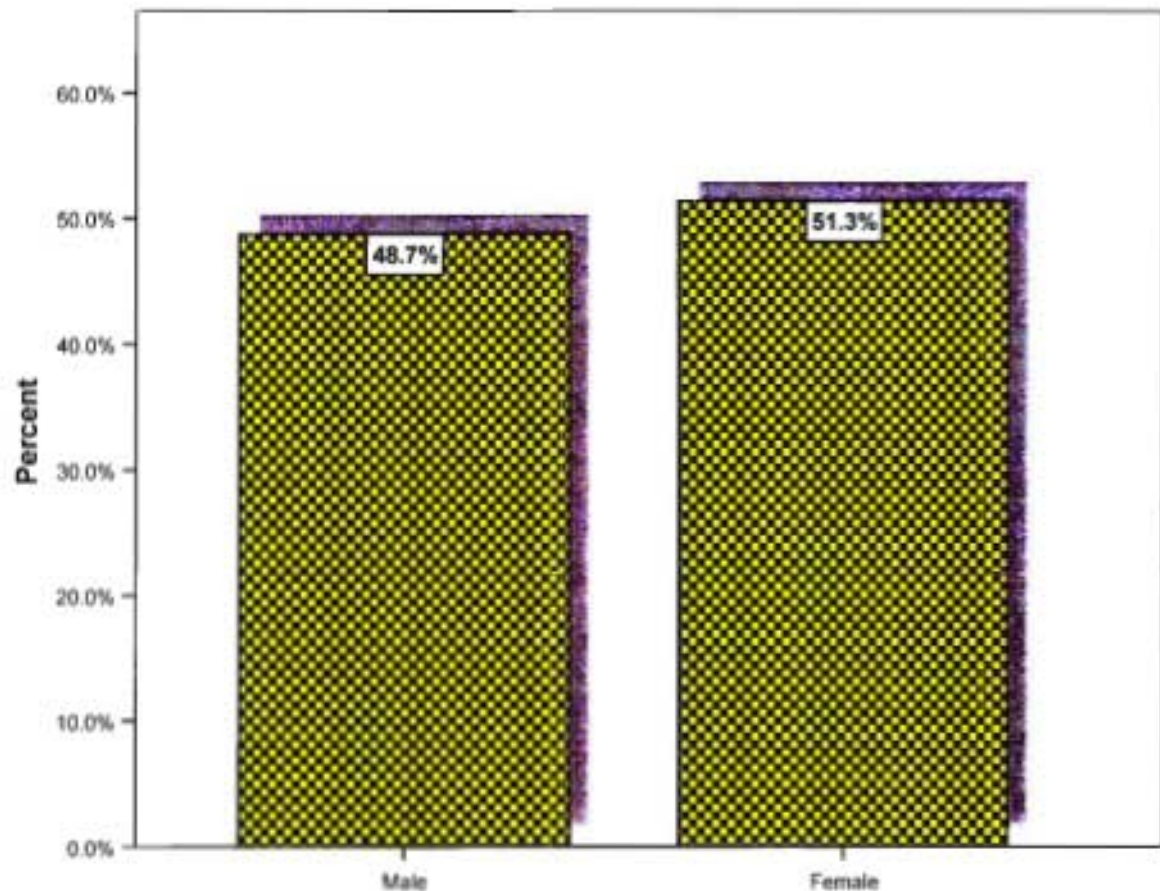
To add to this many learners responded very positively to question nineteen “There is no value in taking a technical course at school?” In the questionnaire stating that “technical education has no value” (refer to table 4.20) learners disagreed with his statement, as reflected in the graph below. 85.6% of the learners disagreed with this statement, as opposed to 8.9% of the learner respondents, hence inferring from the learner respondents that they are able to see that technical education has value.

FIGURE 2: Learners Responses to the value of taking a technical course at school

4.5 Gender involvement in technical education in the province.

Responses surrounding the perception on GENDER focused on the following:

At the outset it must be stated that there were more females that responded to the questionnaires than males. This demonstrates that the percentage of female learners currently in technical courses at schools could be large. The following graph illustrates the gender distribution of the respondents that participated in this research project.

FIGURE 3: Graphical Representation – Learners**Gender****Gender participation in Technical/Technology Education?**

Subject advisors agreed that both boys and girls were engaged in technical education. It was ascertained from the sample questionnaires administered to the learners that the distribution of males to females was as follows:

Table 4.22. Current engagement in learning Technical Education/Technology Education?

	Frequency	Percent	Valid Percent	Cumulative Percent
Yes	96	82.8	87.3	87.3
No	14	12.1	12.7	100.0
Total	110	94.8	100.0	
Missing System	6	5.2		
Total	116	100.0		

The table above results reveal learners both male and female, currently engaged in learning technical education as a dispersion of the participated respondents in this project, the participated respondents to this question are 82.8 % said “yes” while 12.1% said “no” and 5.2% was unanswered. It reveals that at these particular schools the majority of learners attending these schools i.e. 82.8% do so because they want to learn a technical subject.

Table 4.23. Learners Age group with Gender
Percentage of Total

		P1.1 : Learner Gender		Total
		Male	Female	
P1.2 :	13 – 18	47.0%	51.3%	98.3%
Respondent Age	years			
group	19 – 20	.9%		.9%
	21 – 25	.9%		.9%
Total		48.7%	51.3%	100.0%

In cross tabulating learner age with gender it was found that the table results clearly exhibit dispersion of different gender group respondents. There were 47% males aged between the ages of 13-18 years of age while females were 51.3%. .9% did not state their respective genders. From the sample, it demonstrated that more female respondents engaged in the learning of technical subjects than males.

Table 4.24. Learners doing a Technical Course with gender.

		Percentage of Total		
		P1.1 : Respondent Gender		Total
		Male	Female	
P1.7: Are you currently engaged in any form of learning Technical Education/Technology Education?	Yes	43.6%	43.6%	87.3%
	No	4.5%	8.2%	12.7%
Total		48.2%	51.8%	100.0%

The table above reveals comparative descriptive results of respondent currently engaged in any form of learning Technical Education/Technology Education group's dispersion as per gender group's wise, table results clearly exhibit dispersion of different gender group respondents. From the chart, there was an equal distribution between male and female totalling 87.3% that was currently engaged in Technical education and 4.5% of males said no, while 8.2% females said no, that they were not engaged in any technical education course at school.

4.5.2 Does your department have both male and female educators for technical subjects/technology? If yes how many?

Learner were positive to this question and agreed that both males and females educators teach technical subjects. However, they did note that it was still a male dominated area. They would not mind having female educators in the technical education department, because they said that they were "*hardworking*". In response to this question the subject advisors stated that there were more males educators than female educators teaching technical subjects, the reason for this is that in the past technical education in South Africa was still very male dominated. According to one subject advisor, there were 73 male's educators and five (5) female educators currently teaching technical subjects in the province of KwaZulu -Natal. It was also eluded to that of the five females, only one was a black female educator who taught technical drawing in the senior classes.

Mixed responses from the subject advisors to this question “*Do you see a need for diversity in education, in terms of gender, race, and ethnic minorities?*”

one stated ‘yes’ while the other said ‘no’

Subject advisors, in response to the question on the status of women teaching technical subjects, said that they were more “*dedicated and committed*” to their job in teaching technical subjects than the male educators, while another remark made was that we should have more women teachers teaching the subject because they were “*good teachers*” Clearly one can perceive that no form of bias existed in the responses given. Subject advisors also stated that female educators would be welcomed in the technical department as there was a huge shortage of educators in this field.

Subject advisors further elaborated on the status of women teaching technical subjects within the education system in the province. Different responses were obtained, one subject advisor stated ‘yes’ while the other said ‘no’. In elaboration, it was revealed that they (female educators) did hold positions as Heads of Departments in the technical subjects at schools and some were examiners of technical education papers in the region. Very few occupied positions of seniority (upper management) within the department of education in the technical subjects, however there were a few that are subject advisors for the technology learning area in the general education and training field (GET), who were absorbed into the department of Education after Teacher Training Colleges closed.

Principal’s perceptions on gender, revolved around the following questions:

- Do you have any female members of staff teaching a Technical subject at your school? If yes, how many and which subjects.
- Do female learners respond well to the Technical subjects offered at your school?
- How do you find the female learners coping with their studies in Technical Education?

- Should technical/technology education be included in the secondary school curriculum for all learners (both male and female)?

“According to the Wisconsin Department of Public Instruction, (1990), gender equity is a broad social issue that can be profoundly influenced in the field of education. The goal of education is to provide opportunities to gain knowledge, skills and attitudes that prepare young people for the adult world. To accomplish this purpose, schools should follow goals and objectives, which communicate a philosophy of equality for all. The climate of equitable learning can help all students become aware of the careers available to them and help prepare them for changing roles at home and in the work place. Biased opportunities and differential expectations resulting from sex bias and role stereotyping can cause students to lose the freedom of career choice and limit their ability to learn and to succeed. Furthermore, sex bias and stereotyping may negatively affect a state's economy and quality of life by not utilizing the skills and talents of all students most effectively.”⁶

In this theme on **gender**, questions on staffing, responses from female learners, and coping with the curriculum, principals stated that only one female educator was teaching technical subjects at their schools, the rest responded that there was no female teachers teaching at their schools. In response to this question posed to the principals on gender issues which reads “How do you find the female learners coping with their studies in Technical Education? Under the gender theme, it was found that female learners did respond well to technical subjects offered at these schools, this was a positive feature in this regard. These words are cited “Yes, most of the female learners prefer courses with an electronic or electrical bias”

⁶ Wisconsin Department of Public Instruction, 1990.

There seems to be a gender bias with a preference for male dominance in the sphere of studies. This bias has not changed much over the years. One principal had this to say in respect of whether technical/technology education is included in the secondary school curriculum for all learners. *“Considering the paucity of humans and material resources at school, this may not be a sound idea. It would be better to have specialist schools then make technology a general course.”*

In the context of race and gender related to technical education, Malherbe (1977: 164) states that:

“Industrial education or technical education evolved as a specific measure to combat ‘poor whiteism’ from the 1890s and as the means to train potential ‘poor white’ boys from the rural areas in industrial occupations such as shoemaking, carpentry, smithy work and so on, and to train ‘poor white’ girls in domestically-related occupations. In this period, the Dutch Reformed Church was instrumental in the establishment of industrial schools, in an attempt to alleviate the destitution and poverty of poor white children that accompanied war, epidemic and economic depression.”

The statement above gives an insight from a historically perspective into the stereotyping of both male and female learners into roles such as “industrial occupations” for the boys and “domestically related occupations” for the girls even from the early days. However, this trend seems to be changing in terms of technical education today.

Janet Spence (1985), in her presidential address to the American Psychological Association, expressed concern that in America:

"getting ahead" is so important that nothing else matters; it transcends all other values, including health, family, community, integrity, and quality of work. Shields (1989) stated the opinion that feminism has "catapulted young girl's right past vocational education" (p. 3). High school girls, instead of opting for

drafting, which formerly was seen as "male" dominated, are shooting for careers in engineering, architecture, computer programming and similar fields.

Therefore, they go for that third year of math, or physics, but nothing that smacks of vocational education.

The elimination of sex bias and sex stereotyping has been a national priority in vocational education for many years. Policy makers and researchers continue to maintain the importance of encouraging non-traditional vocational choices when seeking to raise educational standards and occupational outcomes. A study of sources affecting sex equity of vocational teachers is critical to provide means of change that will lead to programs that are more productive. The local school principal typically has the greatest impact on school level employment decisions because the school principal is the chief executive officer of the basic unit in the school system. According to Linn (1988), the administrators are the key personnel to actually achieve and maintain sex equity in schools. They can best recognize appropriate strategies to overcome barriers to implementation.

Therefore, principals' attitudes would logically be a key factor in elimination of sex bias in vocational teaching areas.⁷

This conclusion reflects similar views in present day thinking by school principals in this study.

In response to this question whether "both boys and girls involved in Technical Education?" the majority (70%) of the educator respondents were of the opinion that it catered for both boys and girls. However there were a few that said it that the technical subjects should be for boys only. Some educators suggested that the girls should do hair care and other similar courses like beautician work. Remarks such as the one above

⁷ Spence, J.T. (1985). Achievement American style. *American Psychologist*, 40, 1285-95. (<http://scholar.lib.vt.edu/journals/jvte/v12n2/catri.html#spence>)

suggest that stereotyping of gender roles is still prevalent among some of our educators in this study.

In response to this question on females teaching of technical subjects, it was found that there were no female teachers teaching technical subjects at the sampled schools.

An anecdotal perspective as a supervisor for technical education in the province, I discovered that there were no female technical teachers teaching technical courses in the sampled school, and some of the reasons were that they were not trained adequately to teach these trade subjects. Educators believed that these subjects still had a gender bias attached to them. Some educators did allude to the fact that some of the educators who taught hair care and beautician work were females. However, it was still male dominated, as it existed in the past.

Other reasons that emanated from this question by the educators, revolved around that there were *“not enough trained/qualified female teachers”*, *“it were the males who generally study towards a technical course”*, *“that there was gender bias /gender domination in these subjects”*, *“women still think it is for men to do”* and that there was a *“slow move of females in this field”*.

With regard to the theme of gender, many educator respondents felt that technical education was still for men and that very few women engaged in the teaching of technical subjects. Some of the reasons that accounted for this trend were the gender bias that was attached to technical education. The outcomes of the research still suggest that technical education is still a male dominated field of study in South Africa.

Le Roux, (1985: 149) cited in Corbett (1992) suggest that:

“Technical Education will never get of the ground if it is confined to the slow learner. It should be demonstrated to be valuable for all and given a high status. It should be accessible to the complete intellectual ability range of boys and girls.”

This conclusion reflects similar views as highlighted by the educators who participated in the survey in the present day.

Role of gender in Technical Education

The learners response to the role of GENDER in Technical education and to the following questions:

- Are both boys and girls involved in Technical Education/Technology at your school?
- Why would you not take a Technical Education/Technology Education course?
- Do you have any female teachers, teaching technical subjects/technology at your school? How would you rate them?

Unanimous decisions that both boys and girls choose technical education, most respondents said 'yes'. On the other hand there were some female learners who are not involved in technical education said that they would not take a technical education course because” *“I feel that academic subjects are more beneficial. They get you into higher field of education. It gives you a higher status”* Although both boys and girls choose these subjects, there were fewer girls in each of the classes. This reflects that there is still a gender bias towards technical subjects that it is mainly for the boys. It also emerged that no female teachers were teaching this course at these schools.

Table 4.25. Gender engaged in learning Technical Education/Technology Education?

Percentage of Total

		P1.7: Are you currently engaged in any form of learning Technical Education/Technology Education?		
		Yes	No	Total
P1.1 : Respondent	Male	43.6%	4.5%	48.2%
Gender	Female	43.6%	8.2%	51.8%
Total		87.3%	12.7%	100.0%

From the table above it was gathered that of the respondents that are currently engaged in

technical education an equal distribution of learners (boys and girls) who participated in the survey that is 43.6% said yes while 12.7 indicate no.

Table 4.26. Technical / Technology Education for all learners (boys & girls)

	Frequency	Percent	Valid Percent	Cumulative Percent
Strongly Disagree	9	7.8	8.2	8.2
Disagree	25	21.6	22.7	30.9
Neutral	36	31.0	32.7	63.6
Agree	27	23.3	24.5	88.2
Strongly Agree	13	11.2	11.8	100.0
Total	110	94.8	100.0	
Missing System	6	5.2		
Total	116	100.0		

The table above results reveal perceptions of participated respondents in this project, they have expressed 7.8 % strongly disagree, 21.6 % disagree, 31.0 % are neutral, 23.3 % are agree, 11.2 % strongly agree and 5.2 % did not respond towards the above statement . Therefore, it reflects that 34.5% of the learners would like the entire school population(boys and girls) to be engaged in some form of technical education. This holds true for the type of education system that exists in Japan, where the entire school population (boys and girls) engages in some form of technical education. The outcome of this type of education has resulted in Japan having a very low unemployment rate.

Table 4.27. Cross tabulation between should every learner at school be engaged in Technical / Technology Education with are you currently engaged in Technical education.

Percentage of Total

		P1.7: Are you currently engaged in any form of learning Technical Education/Technology Education?		Total
		Yes	No	
S3.1 : Every learner at school should be engaged in Technical / Technology Education	Strongly Disagree	3.8%	3.8%	7.5%
	Disagree	19.8%	2.8%	22.6%
	Neutral	28.3%	3.8%	32.1%
	Agree	23.6%	1.9%	25.5%
	Strongly Agree	12.3%		12.3%
Total		87.7%	12.3%	100.0%

In the table above 87.7% of the learners agreed that the entire school population should do a technical course, while only 12.3% said no. This reflects that technical education is not to be dominated by male learners only but that it should be for all the learners (both male and female) at the school and not according to gender.

As cited in the journal article Perceptions held by Vocational Educators towards Female Participation in Non-Traditional Programs, Volume 13, Number 1, Fall 1996, it states that, according to Buzzell, (1993):

“Vocational education is part of the solution of the problem of workforce competitiveness and is uniquely positioned to prepare students for skilled jobs in today's labour market. However, most vocational occupations remain strongly gender segregated, though there have been countless programs to encourage females to enter non-traditional occupations (Ehrhart & Sadler, 1987). For several decades, females seemed to be the "forgotten half" in vocational education because they have been either prepared for occupations in homemaking or low pay, dead-end jobs. This ultimately contributes to inappropriate vocational preparation and barriers inhibiting female participation in non-traditional programs. These female participants could otherwise benefit

from a wide range of high-tech skills that offer long-term employment and higher wages.”

4.6 The quality of the curriculum provision and pedagogy of technical education

According to a UNESCO report (1979) based on the developments of technical and vocational education it was found that:

Significant inequalities remain between general education and technical education in terms of status, funds respectively devoted to these areas and the proportion of population served. Significant inequalities also remain in terms of the opportunities available in rural ones.

Similar patterns are emerging in our education system at present in South Africa, where significant inequalities exist between general education and technical education, in terms of resources, physical and human.

In response to the question asked to the subject advisors, around current Technical Education initiatives having a positive impact on recognition of technical education in the province, Subject advisors stated that it has a positive impact; due to the fact that at support workshops in technical education held by subject advisors to develop educators, subject advisors stated that educators appreciated it. On the larger scale, no other answers were provided, taking into account the JIPSA (Joint Initiative for Priority Skills Acquisition) and ASGISA (Accelerated and Shared Growth Initiative for South Africa) initiatives. It appeared as if the respondents did not understand the question or were not fully aware of the impact this has on the province as a whole.

As cited in an article on the key issues for the accelerated and shared growth initiative for South Africa, dated 19 February 2007, the article states that in terms of education and skills development for the country:

For both the public infrastructure and the private investment programmes, the single greatest impediment is shortage of skills – including professional skills such as engineers and scientists; managers such as financial, personnel and project managers; and skilled technical employees such as artisans and IT

technicians. The shortfall is due to the policies of the apartheid era and the slowness of our education and skills development institutions to catch up with the current acceleration of economic growth.

The AsgiSA responses range from medium-term educational interventions to raise the level of skills in areas needed by the economy to immediate measures to acquire the skills needed for the implementation of ASGISA projects.⁸

Subject Advisors did not see technical education in terms of addressing the shortfalls our skills shortages in the country, to the extent that it can actually do something to eradicate this shortage.

In response to this question to subject advisors, “Does the current curriculum consider learners with special educational needs?” they responded as follows:

Subject advisors agreed that it does cater by stating that “*the new curriculum does cater for learners with special educational needs in terms of their inclusive education programme*”. However, tools, machinery and equipment do not adequately cater to assist these learners. Many of the machinery and equipment is outdated, or no longer in use in industry, due to high technology.

In response to the theme on the quality of curriculum provision and pedagogy of technical education, one principal suggested that, “*The current syllabus is too broad and does not provide a vocation (self-employment) at all to learners. It however does provide some theoretical background to those wanting to pursue a career in Engineering.*” They felt that “*educators needed more training and direction in teaching the same curriculum*”. They responded positively to the teaching of technology in the GET phase but felt that it was “too much in detail for the learners with regard to certain aspects”. One respondent stated that the curriculum “*The content of the*

⁸ South African Government Information: Accelerated and Shared Growth Initiative for South Africa (AsgiSA)

learning area is too much in depth in certain aspects. Content covered in NTC III (grade 12) is expected to be taught in grade 9.”The new FET curriculum however allowed “learners to make positive career choices”.

Principals further stated that, *“Human and material resources are scarce. The demands of the curriculum put a strain on the budget as modern technology is costly”*. *“The new FET curriculum is much generalised and educators are not qualified to embrace the effective teaching of this new curriculum”*. Principals collectively agreed that learners enjoyed technical education, as many of them had a flair for these subjects, and often gave of their best. Many learners specifically choose to attend technical schools because they wanted to pursue a career in the technical field. Principals were very positive about the way learners responded to Technical education at their schools. However when asked if learners who are not academically inclined be given technical education all the principals *agreed*, thus reinforcing the statement made in the 1900’s by the then Union Government in South Africa, that technical education is “inferior education”. Perceptions on the value of technical education have not changed much, although technology is overtaking the world at present. Badroodien (1998:2) exploring the history of Technical Education in South Africa states that historically “technical/vocational education in this country has always been preoccupied with issues related to **indigence, social and educational inferiority, and mental backwardness**”. This conclusion reflects similar views in the present day context amongst some technical high school principals with regard to curriculum provision and pedagogy of technical education.

Added to this, with regard to teaching the curriculum, principals stated that officials concerned (referring to subject advisors) need to provide more direction to the educators currently teaching these subjects, due to the fact that the current FET syllabus has changed and there are no specialists in these new fields of expertise.

Principal’s responses to the questions based on their perceptions of PEDAGOGY, revolved around the following questions:

- Trained teachers

- Familiarity with the content
- learner involvement in technology
- Age of learner's engaged in Technology education
- Selection of learners for Technology education
- Technical/technology education and learner motivation
- Reasons for technical/technology education into the school curriculum
- Academic versus technical/technology education

In the theme on curriculum and **pedagogy**, principals were of the opinion that their teachers at their schools teaching the new FET subjects in technical education needed more support and development to teach these subjects more effectively, especially from the subject advisors concerned. They saw a need for more trained educators especially as the curriculum had changed but the educator's knowledge on the new curriculum was not the same. The principals echoed sentiments that "*the country needs more skilled people*". Principals at technical secondary schools kept abreast of the new curriculum and were *au fait*, with the current changes in the syllabus. They believed that learners should be actively involved in the learning of both Technology in the GET phase and Technical Education in the FET phase. They also believed that it be made available to all learners at their schools. Selection of learners for the course be done by interviewing potential learners, while some declared that it is for learners who had flair for the subject. All principals said that a technical education course at their schools improved learner motivation. Career choices and employability was the responses received in response to question seven on the theme on curriculum and pedagogy. Some respondents pointed to technical education as desirable example of integrating academic subjects with technical subjects. Principals stated that it was a good idea to incorporate a course that had both academic as well as technical courses included. The following statement echoes the sentiments expressed by the principals:

"The curriculum should be developed to meet the different levels of functioning of the learners" and "I would prefer that the technical schools offer a course to

learners that prepare them to own their own businesses after leaving school. In this way, we will be addressing the unemployment issue of the country. Learners with low academic achievement should not study academic subjects”

Principals are still of the opinion that learners who choose to study a technical course at schools is of poor academic quality. Few principals spoke about learners entrepreneurial skills in their area of specialization, yet most spoke about learners gaining employment in some workplace.

It therefore stands to reason that the mindset on technical education being regarded as “inferior education” has not changed. However, all of these concerns have generated initiatives geared toward producing a well-rounded student and potential employee.

In response to the question on our current education system is catering to the current challenges facing the youth of today, the majority of the educator respondents stated “no” to this question while the rest said “yes”, some of the respondents were undecided and did not give an opinion. Some were of the opinion that the current system does not incorporate “*new technology into its existing curriculum*” while the “*FET does not cater adequately*” to meet the challenges facing the youth in our country. Some educators on the other hand stated that it partially catered for this.

4.6.1 Skill of teacher in teaching Technical/Technology subjects?

The majority of the educator respondents that teach a technical course stated that they were “*well skilled*”, “*highly skilled*”. Educators that did not teach a technical course but who participated in this survey, stated that they were “*not skilled*”. On the other hand many educators stated that after the introduction of the new FET curriculum in the technical subjects, many of the educators feel inadequately trained to perform this task effectively.

4.6.2 Setbacks/problems encountered with Technical/Technology Education at schools

In response to this question on the setbacks and problems the majority of the educator respondents said that it was because of “*lack of resources, consumables*”, some mentioned that “*workshops not well equipped*” or that there were “*large numbers in the workshops*”. Many stated that because of “*under qualified educators*”, the cause for concern was teaching an effective curriculum. Many respondents felt that they are not truly equipped to teach the new curriculum as there were “*hardly any or a few workshops held to orientate educators in the new curriculum*”, and this caused a major setback with regard to the implementation of the curriculum as expected by the department of education. To add to this there is very little support and assistance from the so-called specialists in the field, as stated by these remarks, “*no support from management*”, “*no guidance from the subject advisors in these subjects*”, “*No proper guidelines are available*” and “*assessment strategies are not clearly defined*”. It therefore makes sense that the manner in which implementation of the current curriculum has been cascaded to the educator to fulfil, is not working.

Some respondents are correct in saying that “*there are no textbooks or very few available at present*”, and this is obvious when educators are visited at school, the major problem being the unavailability of textbooks for the new subjects. The majority of the educators stated that technical education was regarded as “*inferior education*” because “*the courses seem to attract the weaker pupils*”. Statements such as these tend to reinforce earlier statements in the literature review that technical education is “*inferior education*”.

4.6.3 Syllabus relevance

In response to this question on syllabus relevance, some educators were of the opinion that the syllabus does not teach relevant information and this was expressed as “*Not in technical education*” “*each educator is doing his own thing*” and “*partly relevant, not entirely*”. Others were of the opinion that the syllabus is relevant and taught the learners what they needed to know. In keeping with the ASGISA and JIPSA programmes, it appears that the current syllabus for technical education to equip South Africa with ‘*skilled personnel*’ is failing.

4.6.4 Redesigning the syllabus

Responding to this question on the redesigning of the syllabus, the educator respondents stated that they would include “*modern technological processes*”, because most of the workshops used to teach the curriculum today has outdated equipment. Some stated that they would “enhance the practical component” so that the learners can get hands on approach to the content. Respondents also stated that they would like to “*teach learners entrepreneurial skills so that they can own their own businesses*” and be employed, while other respondents stated that a “*general course in mathematics and science is needed*” to improve the level of performance in the technical field in terms of being creative, innovative and enterprising. The majority of the respondents said that the current syllabus has to relevance as stated by this remark, “*there must be relevance to industry and learners must write for a trade test*”, “*it should take on a more hands on approach*”, “some also felt that we should “*go back to the past and specialize in each area*”. Some educators stated, “*What we have now is a broad overview, this is not going to make learners employable, there is a need for further training*”. Judging from the statements above it is clear that the educators are not happy with the current syllabus in technical education, as it does not allow one to specialize in a specific stream, and many felt that what is currently being taught to the learners does not adequately prepare them for the occupational work.

Although the educators are skilled in teaching their respective fields they felt that there were many areas in the current curriculum that needed addressing e.g. more resources, more hands on workshops and more guidance from the education department specialists. Many were of the opinion that “*there is a need for a mindset change*”, i.e. that technical education is not for the ‘lazy’ learners, but that the “*department of education can make it a compulsory course for all learners at secondary school level.*” If this was possible then we would be following the Japanese model education system.

With regard to the pedagogical aspect of this research, it became obvious from the educator respondents that some of the grievances bordered around Support from Departmental Officials as cited in this statement:

“it is disturbing to note that whilst every government recognises the importance of Technical Education, Mathematics and Science Education, the departmental officials charged with this responsibility of furthering Technical education are not providing much support at the grass roots level,; whilst all other learning areas/subjects have had their FET training in 2005, the technical training only started in May 2006. Textbooks are non – existent, there appears to be a lack of capacity.”

It makes sense therefore that more support is expected from the departmental officials, more textbooks are to be written, more guidelines to be given and that the resources and material to undertake the effective teaching of these subjects need to be made available to schools.

As cited in the Green Paper on Further Education and Training (15 April 1998: 1)⁹, “Weak linkages with industry: Employers argue that many programmes offered by technical colleges and regional training centres are irrelevant and outdated. Equipment is antiquated and tuition is of poor overall quality.” This hypothesis reflects related views as espoused by the educators in their questionnaires.

In response to the question whether “what is being taught in the Technical Education/Technology Education classes prepares learners adequately for the world of work.” 90% of the learners said “yes” and stated that technical education does to a certain extent prepare one for the occupational work. Another response was, “Yes, they teach us everything about the subject and makes sure that you understand everything. The teachers sort of put us in a job position and we have to react”. Since the course outline

⁹ Green Paper on Further Education and Training (15 April 1998:1)

incorporates both theory and practical work learners felt that they were at an advantage in that they get first hand information at school level of what will take place in a work environment. Learners had this to say, *“They want to learn more about it, and enjoy learning how to make new things”*.

4.7 Current perception of technical education in the province.

Discussions taken from a UNESCO report state that,

“Although every country cited negative attitudes to technical and vocational education and to the occupations to which it leads as a major brake on the development in this area, all were aware that this was a problem which will only be solved in the long term by creating new sets of values through education, in the broadest sense of the population as a whole”¹⁰(UNESCO, 1979:103) and,

“One of the most intangible problems facing technical education in most countries is made up of attitudes of resistance to change and the negative views as to the value of technical education in a country.”(UNESCO, 1979:112).

In the light of the statements above an examination of what respondents said about technical education in our country is taken into consideration.

In response to the question on perception asked of the subject advisors, about the way Technical Education is taught and fostered in the province?

Two differing opinions arose, the first being that it is taught by *“inexperienced educators”*, while the other is that many educators are *“very positive about technical education in the province”*. The problem of not equipping educators with the necessary knowledge and skills, prior to the implementation of the curriculum has resulted in

¹⁰ Developments in Technical and vocational education: A comparative study. Trends and issues in technical and vocational education. UNESCO: 1979:103

educators being inexperienced. On the other hand, the broad spectrum encompassed by the new curriculum, makes it exciting and challenging, hence the positive attitude.

In response to this question asked of the subject advisors are you aware that no teaching qualification according to the Education Law manual is required to teach any of the technical subjects?

Both agreed that they did not know that no formal teaching qualification was required to teach a technical subject, as cited in the Employment of Educators Act, 73,¹¹

“Notwithstanding the requirements set out in paragraph (1) a person appointed to anyone of the following posts, is not required to be a qualified educator but must comply with the relevant requirements for appointment as set out in the document “evaluation of qualifications for employment in education”

- Posts for Technical Subjects including hair care
- Posts for Technical drawing

By not making it (technical subjects) have a qualified educator, reinforces the image of technical education being inferior education, because it appears as if anyone can teach these subjects. To elaborate further on this question Subject advisors were also asked, how they felt about this. Subject advisors responded by suggesting that it “*seemed strange*”, or “*that it did not make sense*”, reason being that it is a “*highly specialised subjects and needs very skilled people*”. When referred to the quotation above taken from the Employment of Educators Act they said that they were not aware of this.

Principal’s perceptions that ‘*technical education is for learners with little academic ability*’ is still true today as it was for yesterday, according to the responses from two principals, the other respondents suggested “*No! According to new trends, it seems to be*

¹¹ Employment of Educators Act, p. 73

more academically inclined". However he does not give further details about his response for this view.

Learners response to the following questions based on the examination of the curriculum for technical education:

- Current learning areas at school
- Competency of the new technical/technology curriculum
- Problems with Technical Education/Technology
- Learner needs
- Current educational challenges
- Course selection
- Principal perceptions of technical subjects

The majority of the learners felt that technical education was easy to understand. Some learners felt that the studying part when writing examinations theory papers was difficult, and when coming up with models for practical activities. The syllabus was "*to long and harder to understand*" Many learners also responded that there was too much emphasis on the theoretical aspect of the syllabus which resulted in a lot of written work. They preferred the workshops rather than copy copious notes from the board. It appeared as if the practical component at some of these schools was not being done.

At number of learners responded that other learners were "*not willing to learn and to put their minds to work*" some learners suggested that industries sponsor a learner so that the learner would be able to apprentice himself/herself in the employ of that industry to obtain on the job training.

Research by the American and British¹² suggest adopting a similar program called the "school to work transition model" This model allows learners to do the theoretical part of a course at school and during the school vacations they are placed in an industry where they are able to learn the practical aspect of this course, thus developing their practical skills in a proper work environment.

¹² . Journal of Vocational and Technical Education: Volume 12, Number 1.Fall 1995.

As cited in Apling, (1992); and Bresnick, (1984):

Many young people completing high school in the United States do not have immediate plans to attend college or to complete a four-year post-secondary degree. They are frequently ill prepared for the world of work and drift from job to job until their late twenties there have been numerous suggestions for assisting school-to-work transition. Many of these, but in particular youth apprenticeship, rely on the involvement of employers in providing work-based learning opportunities for high school students.

According to S. H. Hamilton (1990) and Stern (1990), for the purposes of this paper, youth apprenticeship is defined as a program that integrates school and workplace learning by emphasizing learning by doing under the tutelage of experts, and which addresses the personal and occupational development of young people.¹³ Many of the learners stated that they would like to be involved in 'youth apprenticeship' programs so that they would get hands on experience in a real world of work environment.

Table 4.26. Inadequacy of the current syllabus
Percentage of Total

		Are you currently engaged in any form of learning Technical Education/Technology Education?		Total
		Yes	No	
The current syllabus in technology/ technical subjects is inadequate for the current employment market.	Strongly Disagree	37.4%	4.0%	41.4%
	Disagree	31.3%	6.1%	37.4%
	Neutral	12.1%	2.0%	14.1%
	Agree	3.0%	1.0%	4.0%
	Strongly Agree	3.0%		3.0%
Total		86.9%	13.1%	100.0%

A total of 86.9% of the learners agreed that the courses that they did at school, did not prepare them for the employment market, as compared to 13.1% who said that it did. This

¹³. Journal of Vocational and Technical Education: Volume 12, Number 1.Fall 1995 p 2.

demonstrates that the majority of the learners believe that the education that they are receiving in schools does not prepare them for the world of work. Principals also concurred that the syllabus does really do justice to the knowledge that is required for a learner to go from school into a job situation without any further training.

Responses such as *“the course is not vast enough with respect to Further education and limits our career choices”* were stated by the learners. Not having sufficient equipment was another factor that impeded the growth of the courses; the subject advisors as well as the learners and some educators alluded to this fact. Some learners suggested that *“lessons be made more enjoyable so that learners will be interested in their studies”* They felt that educators must *“explain more in detail”* Comments on the new curriculum focused on the fact that the syllabus was *“Not good because now it feels as if three technical subjects are composed in one”* *“Teachers go for workshops and we the students, our time is wasted”*

Since 1998, the country's official school curriculum for primary and high schools has been Outcomes-Based Education (OBE)¹⁴. This curriculum focuses on students learning specific performance skills in small classroom settings. There are standards established for such fields as literacy, mathematics, and life skills, however there has been critique on the OBE philosophy.

4.8 The relationship between technical education and technology education.

In response to this question asked of the subject advisors *“Within the schools and the province, is there a clear understanding between technical education and technology”*.

Both subject advisors responded negatively. They believed that the managers of these learning areas and subjects had *“no clue between the GET and FET curriculums”*. The

¹⁴ Outcomes Based Education, originated after South Africa achieved democracy in 1994, as a type of methodology through which the new curriculum will be taught. It is made up of both the critical as well as the developmental outcomes, together with specific outcomes to be achieved by the learners in each of the learning areas. These outcomes are further underpinned by assessment standards that form the essence of the curriculum in each learning area.

reason behind this statement is not unfounded. Anecdotal research suggest that the manner and haste in which the existing curriculum has been implemented or cascaded making use of the cascading model, then one would understand why subject advisors are of the opinion that there is no clear understanding between technical education and technology. From my evaluation at schools as a Supervisor for Technical Education it emerged that many of the educators at schools are not confident in teaching the new curriculum in the technical subjects, as they do not have the necessary knowledge or skills to do so.

4.8.1 Uniqueness of Technology Education

In response to this question on the uniqueness of technology posed to the subject advisors, Subject advisors were positive to this question. The reason they gave was that *“it is the only subject that has a drawing, theory and practical component.”* which they regarded as adequately fitting the training required in the engineering field. With the new FET curriculum, learners are exposed to designing and making based on a problem context approach or scenario- based approach. Learners are expected to use the acquired knowledge and skills learnt in this discipline in order to design make and communicate their ideas.

4.8.2 Problems and Resources

In response to this question posed to the subject advisors, about concerns around technical and technology education expressed by the teachers and demonstrated in their classroom practice during your supervision it was found that, the subject advisors as respondents were passionate about their responses in that it was about their specialist subjects. Hence these remarks were made *“overcrowding of classes up to 40 +”* seemed to be a major problem, because of safety factors given to workshop conditions by NOSA¹⁵, only 25 learners should be accommodated at any given time in workshop. Shortage of workshops at these schools in KZN proved to be a major concern to the subject advisors. Other causes of concern revolved around *“not having enough space”*

¹⁵ National Occupational Safety Association- developed to ensure that safety requirements for weach job occupation is undertaken to protect its workforce

“lack of resources”, “lack of content knowledge in the new subjects” e.g. civil technology. The other respondent stated that *“inadequate training with regards to the new curriculum and new content knowledge.”* According to anecdotal evidence inadequate training arose because of insufficient capacity within the technical field, for six thousand schools in KwaZulu – Natal (KZN) there are only four subject specialists.

In response to the question on curriculum the subject advisors stated that it could be done *“through integration”* with other learning areas or through the *“life skills programme”* Although the curriculum is tight with eight learning areas in the GET phase and four subject areas in the FET phase. In response to this question posed to the subject advisors, *what were the teachers' prior understandings of teaching and learning, technology, and technology education?* Subject advisors were of the opinion that educators knowledge of technology education was *“very vague”* while on the other hand they did teach *“content with application”*. In my personal capacity as a supervisor for technology education in the province, I have found that some teachers do not have a clue as to what or how to teach technology in the classroom situation. Interpretation of the learning outcomes and the assessment standards are poor and the incorrect information is being taught to the learners. Currently there is more of handicraft done at schools rather than the proper teaching of technology.

In response to the question on planning subject advisors responded that it revolved around *“on a needs basis”* or *“based on policy”*. None of the subject advisors spoke about workshops, presentation papers, seminars or conferences to air educator’s views, listen to problem areas or discuss developmental issues pertaining to the learning area or subject.

In response to this question posed to the subject advisors, *addressing educator concerns in the classrooms*, respondents said that it was done *“through forums, meetings, etc.”*

while the other stated on “*research, cluster groups and through the use of Learning teacher support materials (LTSM¹⁶)*”

Strong sentiments were echoed about the professional development of educators by the subject advisors in that they felt that “*not enough professional development was taking place, only a few workshops were conducted by the subject advisors*” There were few Higher Education Institutions (HEI’s) that offered diplomas or degree courses in technology education. In terms of developing the educator professionally within his/her field, there appeared to be very little being done by the HEI’s In response to this question posed to the subject advisors, *are there currently any teacher training programmes in place for technical education?* Only one subject advisor said that there was one that catered for technical education in the FET phase. In response to this question posed to the subject advisors *has the demand for technology education teachers increased?* Both agreed that there was but this was due to attrition. Subject advisors responded to the question on sufficient trained teachers by stating “*no*” “*As a result the technical component within the province is at a disadvantage because there are learners that are willing to take technical courses but due to the lack of human resources (educators to teach the courses), this is not possible*”.

Subject advisors further responded to concerns by stating that “*there was no link between FET schools and the Higher Education Institutions. Only Maths and Science is needed to gain entry into the Engineering Faculty of the HEI’s. No technical subjects are considered at all*”.

The majority of the learners’ responded positively to the question on their understanding of technology education. Some learners said that “*this was the first time that they had encountered something like this*”. In the majority of cases, it was from African respondents. In addition, a small percentage said “*they were not familiar with this*

¹⁶ The abbreviation LTSM stands for Learner and Teacher Support Material, and refers to the handouts that are designed by the Department of Education and given to educators for their use in the classroom as auxiliary support material to enhance teaching and learning.

learning area”. It would appear that those learners that are not familiar with this learning area were never taught this learning area at their schools. Through Whole School Evaluation¹⁷, it was discovered that some schools have two timetables, one that they display for the sake of Departmental officials while the other is what they actual use in the class. It has often been found that little or no work is been done in the learning area of technology at a number of schools across the province. Hence the responses from the learners.

4.9 Conclusion

In response to critical question one, educator respondents were of the opinion that the general trend in that technical education is still perceived as “inferior education” today as it was for yesterday, that perception has not changed much. On the second critical question, respondents felt that technical education had value for the economic growth of the country, in that it would assist in providing learners with employment, and to assist them in opening their own businesses and allow them to be creative in their sphere of expertise.

Perceptions of some of the stakeholders with regard to the status of the technical subjects need to change so as to create a powerful technical training environment.

It also reflects the current status quo that exists in most schools around the country that offer technical education, common variables are lacking, e.g. skilled human resources, financial assistance by the state, relevant tools, equipment and machinery used in industry today and the relation of the current syllabus to the actual work environment. On the positive side the learners see the need and value for technical education in the province as a means to find jobs and to earn a living in the future, they do not see technical education at schools as “inferior education”.

In the next chapter I focus on the findings, conclusions and recommendations of this study for all stakeholders concerned.

¹⁷ Whole School Evaluation is a process set up by the national Department of Education to monitor and evaluate schools with the prime purpose of assisting the school to grow. The process makes use of nine focus areas, with 50% of the evaluation process concentrating on lesson observation and the quality of teaching and learning at a school.

Chapter Five

Findings, Conclusion and Recommendations and Limitations

5.1. Introduction

The primary purpose of this study was to determine if there were differences in perceptions amongst technical educators, principals and learners and training and development professionals regarding the current status of technical education at secondary schools in South Africa. In this chapter I summarize the findings under the following categories; role of technical education in the education system, education and skills development, value of technical education to society, role of gender bias in technical education, and technical education curriculum. I also draw particular conclusions, make recommendations and describe the limits of the study.

5.2. Findings

5.2.1. The Role of Technical Education in the education system

Historically, technical education had a stigma of inferiority attached to it. Not much importance was given to a person who participated in these programmes. Perceptions of the principals and educators were very similar to earlier views as highlighted in the literature review in chapter two. The older respondents (principals and educators) still believed that technical education was “*inferior education*” as opposed to the learners, who felt that technical education has a promising future in South Africa. However the perceptions of the learners, was quite different. They felt that technical education had a very “high status” and that learners enjoyed studying this course because it afforded them with the opportunity of obtaining jobs after they finish school. Learners are very positive and optimistic of technical education for the development of the country. The role played by the Accelerated and Shared Growth Initiative for South Africa (ASGISA) and Joint Initiative for Priority Skills Acquisition (JIPSA) in trying to eradicate the skills shortage and unemployment (26%) in the country is testimony to the fact that not much is being done to address this problem.

An extract from the document on AsgiSA:

Shortage of suitably skilled labour amplified by the impact of apartheid spatial patterns on the cost of labour. The most difficult aspects of the legacy of apartheid to unwind arise from its deliberately inferior system of education and irrational patterns of population settlement. In a period of growth, it is evident that we lack sufficient skilled professionals, managers and artisans, and that the uneven quality of education remains a contributory factor. In addition, the price of labour of the poor is pushed up by the fact that many live a great distance from their places of work.

5.2.2. Education and skills development

For both the public infrastructure and the private investment programmes, the single greatest impediment is shortage of skills – including professional skills such as engineers and scientists; managers such as financial, personnel and project managers; and skilled technical employees such as artisans and IT technicians. The shortfall is due to the policies of the apartheid era and the slowness of our education and skills development institutions to catch up with the current acceleration of economic growth.

5.2.3. The value of technical education to society

The changing pace of industry found the South African nation without adequately prepared workers to meet the needs of the country. The Apartheid regime prior to 1994 exacerbated the condition, and the need for better training became evident. Many voices were raised in consideration of a new conceptual approach.

As cited in the Journal article Perceptions of Vocational Educators and Human Resource/Training and Development Professionals Regarding Skill Dimensions of School-to-Work Transition Programs by Chris Zirkle:

Changes in the workplace have demanded a variety of skills from workers. Business and industry, involved in competition on a global level, have grown increasingly "worried by

the growing gap they see between the capabilities of high school graduates and the skills, knowledge and habits of mind that employers seek" (O'Neill, 1992, p. 6)

Today, Technical education holds a high value in terms of training at school level. Many learners, educators, and principals agreed that technical education had very good value to society, in that it could meet the needs of addressing the skills shortage in our country. Overall, technical education has evolved in response to social, educational, industrial and economic changes, and now provides subjects which are both demanding and relevant.

5.2.4. The role of gender bias in technical education

Although, both boys and girls did technical education at these selected schools. It was still male dominated. Girls, it appears were still reluctant to take technical education because they felt that they will be treated different by the boys. Some female respondents said that they will not be able to understand it, hence reinforcing the stereotyping of gender bias on technical education. It must also be noted that in not one of the schools sampled were there any female educators that taught technical subjects.

Burge and Culver (1990)¹ concluded the willingness of vocational educators to be innovative in recruitment and retention activities can make a difference in women's lives. Wrightsman and Keaux (1981) pointed out that perceptions and attitudes have been assumed to guide people to adopt different vocational and life roles. In turn, educators' perceptions and attitudes may have significant effects on students' behaviour (Harvey & Klein, 1985; Spender & Sarah, 1980). Since vocational educators are involved in providing guidance and education and their influences can greatly shape and promote students' career choices, it is important that the current situation be assessed.

For the past two decades, significant efforts have been made to eliminate gender discrimination and gender stereotyping in vocational education. Since Title IX of the Educational Amendments of 1972, the federal government of USA has been promoting gender equity, thus ensuring opportunities for education, which had previously been

¹ Cited in Perceptions Held By Vocational Educators Toward Female Participation In Non-Traditional Programs Volume 13, Number1, 1996

denied to people because of their gender. In so saying, South Africa has been trying to do the very same thing, however with very little effect.

Nevertheless, the overall status for females in non-traditional programs remains relatively low (Burge & Culver, 1990) despite great efforts to change and create a more favourable environment for females. Vocational educators sometimes have gender stereotyping attitudes and behaviours without these individuals even being cognizant of their detrimental effect. These have contributed to difficulties experienced by females who either are enrolled or are contemplating enrolling in non-traditional programs.

5.2.5. Findings in respect of the Curriculum in Technical education

In most cases it was found that the curriculum did not cater adequately of the needs of the learners. Investigation of the courses proposed and taught in our schools leads one to note these prominent inadequacies in manual training:

- That the course does not prepare one adequately to enter the occupational work. More theory and very little practical work took place at the centre.
- Educators did not take into consideration the uniqueness of the learner in order to provide for the individuality of the child. Each learner had to conform to the system.
- Learners are not motivated enough in their tasks. The work was all prescribed in a fixed course. Hardly any scope for creativity and innovativeness.
- Placing the emphasis upon the product as the objective, rather than upon the growth of the child

The course structure is too generalized and not specific enough to allow learners to be adequately trained to suit a particular job market.

Finding good qualified technical education teachers was a problem. No new teachers are being trained, or if training has begun then they will be ready to work only in three years time.

According to Foster (1997)²

“Another current problem in technology teacher education is a serious shortage of teachers (Householder, 1992; 1993) which given its current rate, has been predicted to result in the demise of the profession (Volk, 1993). By the 1960s, the problem had existed for some time, and although teacher education enrolments were on the rise (Boyd, 1966), the teacher shortage was considered to be a top professional issues in industrial arts (Babcock, 1967; Decker, 1967).”

The South African problem is not a unique one but an international one as described above. To further emphasize this need an extract taken from a UNESCO (1979:130) report states:

“To enhance the achievement of the objectives of technical and vocational education, a priority should be given to the recruitment and preparation of adequate numbers of well-qualified and competent teachers, administrators and guidance staff and to the provision of the necessary training and other facilities to enable them to unction effectively in their profession.”

However in South Africa, very little is being done to train teachers in the technical/technology fields. After the closure of teacher training colleges, and the merging of some colleges with universities, very few are training teachers in the technical education field.

Many learners wanted to have in house training with a particular firm or industry, at present very little provision is made for such programmes. However in America and Britain:

“With regard to question 1 (prior skill levels), the training and development professionals perceived students as needing higher prior mastery skill levels in academic skills when entering school-to-work transition programs than did vocational educators. They felt most strongly about reading and writing skills, as

² Lessons from history: Industrial Arts/Technology Education as a case, Volume 13, Number 2, 1997

those are the areas where the differences in perception were statistically different. It would appear that training and development professionals clearly felt these skills need to be mastered prior to entrance. From these observations, it may be concluded that training and development professionals did not believe students should enter school-to-work transition programs with academic skill deficiencies. The lone exception to this was advanced math, where both groups felt some assistance or supervision with this skill may be required.”

According to Foster (1997):

“The opposite seems to have been true of vocational education. The American Vocational Association appears to have welcomed the trend (Magisos, 1973), but as always, the question remained as to the base purpose of vocational education -- some in the profession felt that its role was to educate for general employment; others were of the opinion that vocational education should prepare youths and adults for employment in a specific trade. From the latter standpoint, career education was laudable, but not part of vocational education. It was too general.”

According to Chris Zirkle (1998)³

“Recently, there has been a national consciousness emerging that the United States has a serious deficiency in the system by which youth obtain needed skills and move from the school world to the work world (Barton, 1993). Much of the recent impetus for improving this transition has come from outside the schools (Goldberger and Kazis, 1996). Changes in the workplace have demanded a variety of skills from workers. Business and industry, involved in competition on a global level, have grown increasingly "worried by the growing gap they see between the capabilities of high school graduates and the skills, knowledge and

³ Zirkle (1998): Perceptions of Vocational Educators and Human Resource/Training and Development Professionals Regarding Skill Dimensions of School-to-Work Transition Programs. Volume 15, Number 1

habits of mind that employers seek" (O'Neill, 1992: 6). Studies, such as the American Society for Training and Development (ASTD)/U.S. Department of Labour document Workplace Basics: The Skills Employers Want (Carnevale, Gainer and Meltzer 1988) and SCANS (1991) are just two of the publications that document skill deficits in high school graduates."

5.3. Conclusion

In South Africa one of the problems industries encounter is that there is very little linkage between the educational system and the employee skills needed by the private sector, especially in secondary, primary and pre-primary schooling. Another issue is the brain drain of highly qualified, skilled workers leaving the country. There is a growing shortage of workers in the fields of engineering, accounting and information technology. Although South Africa is relaxing its restrictive immigration, that is not a sustainable answer.. "The real answer is to get local people to have the desired skills," he said. (Wakeford, cited in Kathy Kowalenko, 2001)

Currently not much consideration has been given to the development and fostering of technical education (desired skills) across secondary schools in South Africa. To address the huge skills shortage and the high rate of unemployment, the youth of our country need to be trained in appropriate technical fields in order to overcome these shortfalls and employment imbalances. Perceptions of the role and value of technical education in South Africa differ considerably amongst principals, educators and learners with regard to the status of technical education in the province. Principals and educators still believe that technical education is "inferior education" while learners on the other hand are positive and excited about the role of technical education in the education system. They feel it plays a major role in their lives and the skills and knowledge that they learn provided them with skills to do something "constructive and worthy" with their lives. On the other hand, some principals and educators feel that technical education is a waste of time, and that learners be given only academic subjects. Principals still think that the technical subjects are a 'dumping ground' for learners with low academic abilities.

The way technical education is currently fostered in the province is inadequate in that many of the educators teaching these subjects are not fully prepared to do so. The fault lay with the inadequate training that educators received insufficient support material, inexperienced educators, not enough support from subject advisors, and little understanding of the content and assessment of the new subject fields.

There is a lack of understanding between technology in the GET band and Technical subjects in the FET band. Many teachers are confused about the two fields of learning. To add to this there are only a handful of educators that are qualified enough to teach technology in the GET phase, because any educator who did not have a class to teach was given technology to fill into his timetable. As a result, the outcome of this process is making a mockery of the technology learning area.

It is the researchers belief that many educators that are currently teaching technical subjects do not have the necessary know how of what is actually expected of them in the new curriculum. Many are still struggling with the content in terms of knowledge and skills. Many do not know how to assess their learners accurately in terms of the new assessment requirements. Educators are confused about the simulation processes expected of them and to teach making use of the context- based approach as well as the problem solving based approach. It has become known from other educators and the subject advisors that many educators are “doing their own thing”. This is counter productive to the teaching and learning environment in which the learner is used as guinea pig for the new curriculum.

There are several factors that affect the recruitment and retention of women and black students in the technical education fields. Due to historical past of apartheid many Black learners were deprived of a technical education in the previous DET schools. Many of them are still denied the opportunity on engaging in technical education because many schools are ill equipped to deal with this, or that they do not have the educators to teach these subjects. The same holds true for women who become involved in technical education both as teachers and as learners. In this research study, it shows that there are

more males than females enrolled for the technical courses. Women are still afraid to venture into an avenue that was previously dominated by men, although liberal feminism is alive and well in South Africa today. The theory of behaviourism and constructivism that underpins technical education still hold true for the type of education that is delivered in schools today. However, it is more behaviourism rather than the constructivist approach that is adopted by most educators in the field of technical education today.

Recommendations

- There needs to be a huge “mind set” change to the way technical education is perceived in the country. As Roger Burrows said, it occupies a “cinderella status, and it is time for that status to change”. Technical education needs to be given its due recognition so that its true impact can be seen in all sectors of economic growth and development in the country.
- In view of the high unemployment rate in the country (26%) the government needs to look more closely at the role or potential that a technical education course will have in addressing this dilemma.
- The new FET curriculum is too generalised and does not prepare learners adequately for the world of work. No programmes are in place to address hands on work experience like the school to work programmes adopted by America and Britain. More theory rather than practical experience is taught at technical schools.
- The huge shortage of properly trained technical educators resulted in schools not offering technical subjects although they had the facilities to do so. Not offering technical courses at schools still compromises the Black child in their schools because prior to 1994, Black learners had very little exposure to technical courses, and very little has been done to address this situation in the post apartheid period.
- Workshops are not adequately equipped to deal with the new curriculum. Equipment in workshops are outdated, broken and archaic, resulting in it not being in line with what is currently used in industry today.
- Teachers currently teaching the new curriculum are not adequately trained to teach the new syllabus, as most have been specialist teachers in the past and are

not sure how to approach the new curriculum. There is very little support from Departmental officials in this field, to do justice to the training that technical educators need in their respective fields.

- The issue of training more female educators in the technical field also needs to be addressed, because at present there are only five in the entire province. In order to address this gender imbalance and bias, more female educators need to be trained in the technical fields.
- Industry needs to play a pivotal role in school activities to ensure sustainable economic growth of our country and to assist in the eradication of unemployment and in the development of the skills shortages by encouraging learners to visit their industries on an ad hoc basis to familiarize learners with the reality of what is expected of them at work level.
- Tertiary institutions need to embark on programmes that encourage learners doing technical courses to continue with their studies at degree and diploma levels.
- The future acceptability of technical subjects as entry qualifications for higher education would provide substantiation of the growing strength of technical education in the curriculum.
- Due to the technologically changing environment, the mindset of all stakeholders needs to change in terms of giving technical education the due recognition that it deserves and equating on an equal status as all other academic subjects.
- Constructivism rather than behaviourism needs to be used as the basis in the teaching of technical subjects, due to the nature of the new curriculum in the FET phase. However many educators still believe in making use of behaviourism in their teaching methodologies. It is the intention of the new technical curriculum to create; creative, thinking and innovative learners by making them solve problems in a more constructive manner.

5.5. Limitations of the study

This study was limited to secondary schools in the geographic region of Kwa-Zulu Natal, one of the nine provinces of South Africa only, and did not include teachers and learners from primary schools. Given the limited sample of this study, future studies could include

a more elaborate sample cross provincially to determine whether a similar pattern emerges across South Africa.

Due to logistical reasons and the limited scope of my study only three technical secondary schools were used in the survey. Inquiry was limited to those learners, principals, subject advisors, and educators at the sampled Technical Secondary schools within this region. These four populations were targeted for their specific relationship to the area of technical education and training. Future studies could include the views, attitudes and opinions of parents on this topic.

The shortage of specialist subject advisors for technical education, only two were available for interviews. Given the expected expertise of such specialists a larger sample of specialist subject advisors would have elicited richer data.

Since the private sector is by large, experiencing the shortage of technically skilled workers in South Africa, future studies must also include a survey of the perceptions of expert informers from the private sector to determine reasons for the negative attitudes towards technical education, reasons why the shortage has arisen, as well as measures and suggestions to improve this backlog.

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KZN EDUCATION

UMNYANGO WEZEMFUNDO
ISIFUNDAZWE SAKWAZULU-NATALI

ENQUIRIES: N K RAMDUTT
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REF: 01

DATE: 27 April 2007

Dr. B.H Mthabela
Director: Research Strategy, Policy Development and Education Management
Information Systems
Department of Education
Head Office
Dear Sir

Re: Permission to conduct research at schools in KwaZulu - Natal as part of a study at the University of KwaZulu-Natal, School of Education.

I hereby request permission to conduct research at selected schools in the Ethekwini Region of KwaZulu-Natal. My research focus is based on "the Status of Technical/Technology Education in the Ethekwini Region in South Africa"

Technical education has always being regarded as "inferior education", yet in every aspect of our daily lives we are making use of technical knowledge and equipment. Is this statement still true , today. Furthermore, South Africa is currently experiencing a huge skills shortage and unemployment which may or may not be directly related to the current provision of education in South Africa, more particularly in the field of Technical/Technology Education. With the current changes that have taken place in the GET and FET phases in our Education system especially with regard to Technical/Technology Education, one wonders what impact these changes are having on the leamer in the classroom and later as a member of a workforce. It is with this in mind that I wish to investigate the status of technical /technology education in schools across KZN.

It is therefore important to find out the way Technical/ Technology education is being fostered at selected secondary schools across KZN and its impact on learners currently enrolled in these courses.

Participation in this research will be on a voluntary basis and prior arrangements will be made with the schools concerned. I ensure confidentiality to all responses to the questionnaires and interview schedules and undertake that all information gleaned will be used for academic purposes only.

Further, administration of the surveys and questionnaires will be conducted during non – teaching time, with the least possible disruption to the school day.

I remain yours faithfully,

Mr N K Ramdutt
DCES – Quality Assurance Directorate
Head Office (10951814)

APPENDIX 1

University of Kwa Zulu – Natal
School of Education

Learner Questionnaire

Number: _____

Dear respondent

I am currently conducting research on “The Status of Technical/Technology Education in the Ethekwini Region in South Africa” and will value your input by in filling in this questionnaire.

Please indicate your answer by means of an X, and where required please use the spaces provided for your written responses to questions. I thank you for your co-operation in filling out this questionnaire.

Do not write your name on the questionnaire.

SECTION ONE

Biographical Details

1.1 Gender:

Male 1

Female 2

1.2 Age in years:

1 13-18

3 21-25

5 older

2 19-20

4 26-30

1.3 Race: White

Indian

Other

Coloured

African

1.4 Qualifications:

Post Graduate

Degree

Diploma

Certificate

Matric

Grade 10

Below Grade 10

1.5 Experience in School:

years.

1.6 Address: Physical:

1.7 Are you currently engaged in any form learning Technical Education/Technology Education?

Yes	No
<input type="checkbox"/>	<input type="checkbox"/>

1.8 If yes, what form are you exposed to?

1.9

Why did you choose to study a Technical Education/Technology education course?

- I wanted to do engineering at University
 - I wanted to study architecture
 - I wanted to open my own business
 - I enjoy working with my hands
 - I prefer to work in a workshop environment
 - I wanted to learn technical/technology skills
 - I wanted to work in a practical environment with no paperwork
 - I enjoyed Technical Drawing as a subject.
 - I liked my teacher.
 - I felt it was more beneficial to me than the academic subjects were.
 - I am a creative person and I like to make things.
 - I did it as a hobby, because I am very academically inclined.
 - I felt that I could get a job with a Technical Education course.
 - It is an easy course to pass.
- Other reasons not specified above**
-
-

SECTION TWO

PERCEPTIONS

2.1 Do you feel that what is taught in the Technical Education/Technology Education classes prepares learners adequately for the occupational work?

2.2 What do you feel teachers of other learning areas, and other learners; think about a Technical Education /Technology education course at your school.

2.3 As a learner, how do you view the changes that are taking place in the technical / technology educational area in schools at present?

2.4 Are you comfortable about learning technology at school? Why is this so?

2.5 What in your opinion is the status of these technical/technology subjects at your school?

2.6 Who in your opinion are the students/learners that choose a course in Technical/Technology education?

VALUE

3.1 Is a Technical Education/Technology education course popular at your school, and why this is so.

3.2 Are you familiar with the technology learning area content?

3.3 What in your opinion is the status of these technical/technology subjects at your school?

GENDER

4.1 Are both boys and girls involved in Technical Education/Technology at your school?

4.2 Why wouldn't you take a Technical Education/Technology Education course?

4.3 Do you have any female teachers teaching technical subjects/technology at your school? How would you rate them?

CURRICULUM

5.1 What are your current learning areas at school?

5.2 How do you feel the learners are coping with the new curriculum at school in terms of technical/technology learning areas?

5.3 What are some of the setbacks/problems that you encounter with Technical Education/Technology at your school?

5.4 Do you feel that the syllabus/curriculum is relevant to the needs of the learners? Please elaborate!

5.5 What do you feel are the current challenges facing the youth of today with regard to education

5.6 How can we address these problems?

SECTION THREE

USE THE FOLLOWING SCALE TO ANSWER THE QUESTIONS.

PLEASE PUT AN X IN YOUR CHOICE OF RESPONSE.

These questions are prepared to inform us on what you think about technical education at Secondary schools in KZN. The technical subjects (Engineering, Manufacturing and Technology) refer to subjects like Technical Drawing, Woodwork, Metalwork, Motor Mechanics,

Bricklaying and Plastering , Electricians work, Electronics, Fitting and turning, Welding and Metalworking and Woodworking

The following scale is used:

1	2	3	4	5
---	---	---	---	---

1. Strongly disagree
2. Disagree
3. Neutral
4. Agree
5. Strongly agree

1. Every learner at school should be engaged in Technical/technology education.

1	2	3	4	5
---	---	---	---	---

2. Schools educate learners to enter tertiary institutions rather than to obtain a job.

1	2	3	4	5
---	---	---	---	---

3. Technical subjects are more popular than academic subjects are.

1	2	3	4	5
---	---	---	---	---

4. One can open a business at home with technical education course.

1	2	3	4	5
---	---	---	---	---

5. Technical subjects are not important subjects.

1	2	3	4	5
---	---	---	---	---

6. The current syllabus in technology/technical subjects is inadequate for the current employment market.

1	2	3	4	5
---	---	---	---	---

7. Teachers are not suitably qualified to instruct me properly in technology/technical subjects.

1	2	3	4	5
---	---	---	---	---

8. My parents refuse to allow me to do a technical course.

1	2	3	4	5
---	---	---	---	---

9. The workshops at my school are sufficient to enable me to be adequately trained for the occupational work.

1	2	3	4	5
---	---	---	---	---

10. My teachers mock me because I do a technical course.

1	2	3	4	5
---	---	---	---	---

11. A technical course at school is more expensive than a normal academic course.

1	2	3	4	5
---	---	---	---	---

12. Some schools do not like to offer technical subjects, although they have the facilities to do so.

1	2	3	4	5
---	---	---	---	---

13. I prefer to do a white collar (office) job than to work with my hands.

1	2	3	4	5
---	---	---	---	---

14. What I learn in a technical/technology course is not useful to me.

1	2	3	4	5
---	---	---	---	---

15. On completion of a technical education course there is no need to go for additional training.

1	2	3	4	5
---	---	---	---	---

16. The technical education course concentrates more on theory than on practical work.

1	2	3	4	5
---	---	---	---	---

17. The elevated importance placed on academic subjects in schools caused learners not to take technical subjects.

1	2	3	4	5
---	---	---	---	---

18. My friends thought that I was stupid to take a technical course at school.

1	2	3	4	5
---	---	---	---	---

19. There is no value in taking a technical course at school.

1	2	3	4	5
---	---	---	---	---

20. People generally have a low opinion of learners that do technical subjects.

1	2	3	4	5
---	---	---	---	---

21. Do you think that the government should fully finance all technical subjects at school level.
Give reasons or your answer.

YES	NO

22. Do you feel that learners should be properly guided and not misled when selecting courses at school?

23. How does your principal feel about technical subjects?

24. Are there any other comments/suggestions that you wish to make based on the current topic?

I take this opportunity of thanking you for taking the time and effort in completing this questionnaire, your input will be of value to the research study as well as to the Status of Technical /Technology education as a whole.

Mr N K Ramdutt (Researcher)

APPENDIX 2

University of KwaZulu- Natal School of Education

Educator Questionnaire

Number: _____

Dear respondent

I am currently conducting a research on "The Status of Technical/Technology Education in the eThekweni Region in South Africa" and will value your input by obliging in filling in this questionnaire.

Please indicate your answer by means of an X, and where required please use the spaces provided for your written responses to questions. I thank you for your co-operation in filling out this questionnaire.

Do not put your name on the questionnaire. ALL INFORMATION PROVIDED BY YOU WILL BE TREATED AS CONFIDENTIAL

PART 1-SECTION A Biographical Details

- 1.1 Gender: Male 1 Female 2
- 1.2 Age in years: 1 15-18 3 21-25 5. older
- 2 19-20 4 26-30
- 1.3 Race : White Indian Other
- Coloured African
- 1.4 Qualifications: Post Graduate Degree diploma matric
- Std 8 Below Std 8
- 1.5 Experience in Teaching: years.
- 1.6 Address: Physical: _____
- 1.7 Are you currently engaged in any form of teaching /learning Technical/Technology Education Yes
- No
- 1.8 If yes, what form are you exposed to?

- 1.9 Where did you receive this education from?
- school college skills training centre University Other

1.10 Why did you choose to study a Technical Education course?

- I wanted to do engineering at University
- I wanted to study architecture
- I wanted to open my own business
- I like to work with my hands
- I like to work in a workshop environment
- I wanted to learn technical skills
- I wanted to work in a practical environment with no paperwork
- I enjoyed Technical drawing as a subject.
- I liked my teacher.
- I felt it was more beneficial to me than the academic subjects were.
- I am a creative person and I like to make things.
- I did it as a hobby, because I am very academically inclined.
- I felt that I could get a job with a Technical Education course.
- It is an easy course to pass.

1.11 What subjects/learning areas are you currently teaching at school?

SECTION B – Perceptions

1. What do you feel teachers and other learners (not technical); think about a Technical education course?

2. What in your opinion is the status of technical subjects at schools today?

3. Who in your opinion are the students that choose a course in Technical education?

Value

1. Do you feel that what is being taught in the Technical Education classes prepares learners adequately for the world of work.

2. Is a Technical Education course popular at your school, and why is this so.

3. Do you feel that our current education system is catering to the current challenges facing the youth of today?

4. How can we address these problems?

Gender

1. Are both boys and girls involved in Technical Education? _____

2. Do you have any female teachers, teaching technical subjects at your school?

3. If not, why do you think this is so?

Pedagogy

1. How skilled are you as a teacher in teaching Technical/Technology subjects?

2. What are some of the setbacks/problems that you encounter with Technical/Technology Education at your school?

3. Do you feel that the syllabus is relevant and teaches you what want to know?

4. If you could redesign the syllabus, what would you include in it?

Part Two

Use the following scale to answer the questions below.

These questions are prepared to tell us how you feel about technical education at secondary schools in KZN. The technical subjects refer to subjects like Technical Drawing, Woodwork, Metalwork, Motor Mechanics, Bricklaying and Plastering, Electricians Work, Electronics, Fitting and Turning, Technika Electrical, Technika Electronics, Technika Mechanical , Welding and Metalworking, and Woodworking.

1	2	3	4	5
---	---	---	---	---

1. Strongly Disagree
2. Disagree
3. Neutral
4. Agree
5. Strongly agree

1. The entire school population should be engaged in Technical Education.

--	--	--	--	--

2. Schools should prepare learners for Universities rather than to go into jobs.

--	--	--	--	--

3. Technical subjects are more popular than academic subjects.

--	--	--	--	--

4. It is easy to open a business at home with the Technical knowledge and skills.

--	--	--	--	--

5. Technical subjects are a waste of time.

--	--	--	--	--

6. The syllabus for technical subjects does not prepare one for the world of work..

--	--	--	--	--

7. Teachers who teach technical subjects should be from industry rather than colleges or universities.

--	--	--	--	--

9. The training facilities at school are sufficient to train learners adequately.

--	--	--	--	--

10. My colleagues look down on me because I teach a technical

course.

--	--	--	--	--

11. Some schools do not like to offer technical subjects, although they have the facilities to do so.

--	--	--	--	--

12. I like to do a white collar job than to work with my hands

--	--	--	--	--

14. I derive great personal satisfaction in teaching a Technical course

--	--	--	--	--

15. After completing a technical course there is no need to go to a tertiary institution.

--	--	--	--	--

16. The technical course is mostly theory rather than practical work.

--	--	--	--	--

17. The importance attached to academic subjects at schools resulted in many learners not taking technical subjects.

--	--	--	--	--

18. My girlfriend thought I was stupid to take a Technical course at school.

--	--	--	--	--

19. There is no value in taking a technical course at school

--	--	--	--	--

20. People generally have a low opinion of learners that do technical subjects.

--	--	--	--	--

21. Do you think that the government should fully finance all Technical subjects at school level.

2.

1.

YES

NO

Give reasons for your answer.

22. What are the recommendations you will make to improve the status of technical education at schools?

23. Do you feel that learners should be properly guided, and not misled when selecting courses at school?

24. How does your principal feel about technical subjects offered at your school?

25. Do you have any additional comments/suggestions you would like to add?

I take this opportunity of **thanking you** for taking the time and effort in completing this questionnaire; your input will be of value to the research study as well as to the Status of Technical/Technology Education as a whole.

Mr N K Ramdutt- 0837821131/031-2744077
(Researcher)

APPENDIX 3

University of KwaZulu- Natal
School of Education

Interview Schedule to Subject Advisers (Technical Education Specialists)
Number: _____

Dear respondent

I am currently conducting a research on “**The Status of Technical/Technology Education in the Etekweni Region in South Africa**” and will value your input by obliging in filling in this questionnaire.

Please indicate your answer by means of an **X**, and where required please use the spaces provided for your written responses to questions. I thank you for your co-operation in filling out this questionnaire.

Do not put your name on the questionnaire. ALL INFORMATION PROVIDED BY YOU WILL BE TREATED AS CONFIDENTIAL

PART 1

Biographical Details

1.1 Gender: Male 1 Female 2

1.2 Age in years: 1 13-18 3 21-25 5 Older

2 19-20 4 26-30

1.3 Race: White Indian Other

Coloured African

1.4 Qualifications: Post Graduate Degree Diploma Certificate

Matric Grade 10 Below Grade 10

1.5 Experience in School: years.

1.6 Address: Physical: _____

1.7 Are you currently engaged in any form learning Technical Education/Technology Education?

Yes	No
<input type="checkbox"/>	<input type="checkbox"/>

1.8 If yes, what form are you exposed to? . _____

1.9 Why did you choose to study a Technical Education/Technology education course?

- I wanted to do engineering at University
- I wanted to study architecture
- I wanted to open my own business
- I like to work with my hands

- I like to work in a workshop environment
- I wanted to learn technical/technology skills
- I wanted to work in a practical environment with no paperwork
- I enjoyed Technical Drawing as a subject.
- I liked my teacher.
- I felt it was more beneficial to me than the academic subjects.
- I am a creative person and I like to make things.
- I did it as a hobby, because I am very academically inclined.
- I felt that I could get a job with a Technical Education course.
- It is an easy course to pass.

Other reasons not specified above: _____

PART 2

PERCEPTIONS

1. As a Subject specialist what do you feel is the Status of Technical Subjects in the Province?

2. Within the schools and the province, is there a clear understanding between technical education and technology.

3. What are your perceptions about the way Technical Education is taught and fostered in the province?

4. Are you aware that no qualification according to the Education Law manual is required to teach any of the technical subjects.

5. How do you feel about this.

6. Does Technical Education hold a high status in the province. Why do you say so?

VALUE

1. Is technical education valued and recognised in your province.

2. Why do you say so? Please elaborate.

3. What are children learning in Technical education /technology

4. Is Technology a unique learning area? Why would you say so.

5. What were the concerns about technology and technology education expressed by the teachers and demonstrated in their classroom practice during your supervision?

6. Is there a need for technical education in the province?

CURRICULUM

1. Do current Technical Education initiatives have a positive impact on recognition of technical education in the province?

2. Does the current curriculum consider learners with special educational needs

GENDER

1. Do both boys and girls engage in Technical/Technology Education?

2. Does your department have both male and female educators for technical subjects/technology?

3. If yes! How many?

4. Do you see a need for diversity in education, in terms of gender, race and ethnic minorities?

5. What in your opinion is the status of women teaching technical subjects?

6. Have any of them held any prominent position within the education system in the province.

PEDAGOGY

1. How can technology fit into an already packed primary curriculum?

2. What were the teachers' prior understandings of teaching and learning, technology, and technology education?

3. How do you plan for and structure technology activities.

4. How did the teachers attempt to address their concerns in their classrooms?

5. What implications can be made about the professional development of primary /secondary teachers in the learning area of technology/and in the FET phase?

6. Are there currently any teacher training programmes in place for technical education.

7. Has the demand for technology education teachers increased?

8. Do you have sufficient trained teachers to meet this demand?

9. Any other concerns that you may wish to raise.

I take this opportunity of **thanking you** for taking the time and effort in completing this questionnaire; your input will be of value to the research study as well as to the Status of Technical/Technology Education as a whole.

Mr N K Ramdutt- 0837821131/031-2744077
(Researcher)

APPENDIX 4

UNIVERSITY OF KWAZULU-NATAL
The Status of Technical/Technology Education in the eThekweni Region
in South Africa

Principal's Questionnaire

Dear respondent

I am currently conducting a research on "The Status of Technical/Technology Education in the eThekweni Region in South Africa" and will value your input by obliging in filling in this questionnaire.

Please indicate your answer by means of an X, and where required please use the spaces provided for your written responses to questions. I thank you for your co-operation in filling out this questionnaire.

Do not put your name on the questionnaire.

PART 1

Biographical Details/Personnel

Name of School: _____

District: _____

1.1 Gender: Male 1 Female 2

1.2 Age in years: 1 13-18 3 21-25 5 Older
2 19-20 4 26-30

1.3 Race: White Indian Other

Coloured African

1.4 Qualifications: Post Graduate Degree Diploma Certificate

Matric Grade 10 Below Grade 10

1.5 Experience in School: years.

1.5.1 No of years as Principal

1.6 Address: Physical: School

1.7 Are you currently engaged in any form of teaching Technical Education/Technical Education at your school?

Yes	No
-----	----

1.8 Have you ever being involved in the teaching of a Technical subject as a teacher. If yes, please reflect which one.

1.9 Have you ever done any Technical Subjects as a pupil at school? If yes, why.

Part 2

PERCEPTIONS

1. What are your perceptions about Technical Education in general as part of the school curriculum?

2. How do you feel about the learning area Technology in the GET phase ?

3. In your opinion how do the teachers at your school perceive Technology Education/Technical Education?

4. In the past Technical Education was perceived as an education for learners with little academic ability. Is this perception the same for Technology education today?

-
-
5. If the answer to the question above is no, how do you think perceptions have changed.

Part 3

VALUE

1. How do the present changes taking place in the educational curriculum affect you as a principal?

2. In the past we had subjects like, Basic Techniques, Industrial Arts, and other Technical subjects, today we have Technology/Engineering, Manufacturing and Technology. How do you view these changes in these subjects?

3. Do pupils respond to Technology/Technical Education in a positive way at your school? Why do you say so?

4. If you had the choice of being principal of an Academic school or a Technical school which would you choose and why?

5. How do the learners respond to Technology/Technical Education at your school?

-
-
6. Do you feel that learners who are not academically inclined be given technical/technology learning areas rather than academic subjects? What is your reason for this?

Part 4

GENDER

1. Do you have any female members of staff teaching a Technical subject at your school? If yes, how many and which subjects.

2. Do female learners respond well to the Technical subjects offered at your school?

3. How do you find the female learners coping with their studies in Technical Education?

4. Should technical/technology education be included in the secondary school curriculum for all learners?

Part 5

Curriculum and PEDAGOGY

1. Do you have adequately trained and qualified teachers to teach Technology at your school? If not who teaches this learning area at present?

2. As the principal of the school, are you familiar with the content area of the Technical subjects?

3. Do you believe that the learners at your school should be involved in the learning area technology? If yes, state why you think so.

4. If there are learner's who should be engaged in Technology education, from what age should they receive it?

5. If there are learners who should be given Technology education, how should they be selected?

6. Would technical/technology education offered at your school increase learner motivation? If yes, explain how!

7. For what reasons should technical/technology education be part of the school curriculum? Explain!

8. What do you feel about having a curriculum that incorporates both academic as well as technical/technology for the learners.?

9. Is there any other comments/suggestions that you would like to add to this questionnaire?

I take this opportunity of **thanking you** for taking the time and effort in completing this questionnaire; your input will be of value to the research study as well as to the Status of Technical/Technology Education as a whole.

Mr N K Ramdutt- 0837821131/031-2744077
(Researcher)