

# **A curriculum framework for undergraduate studies in dental health science**

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## Declaration of originality

I, Mahomed Hanif Essop Laher declare that

- i. the research reported in this thesis, except where otherwise indicated, is my original work
- ii. this thesis has not been submitted for any degree or examination at any other university
- iii. this thesis does not contain other persons' data, pictures, graphs or other information, unless specifically acknowledged as being sourced from other persons
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Mahomed Hanif Essop Laher

December, 2009

## Preface

This research study was conducted in the context of the political, social and human changes in South Africa at the time of the dismantling of the apartheid system leading up to the year 2004. These changes, I suggest, have impacted to a significant degree on the spheres of education and health.

I am primarily a dental health professional and secondarily, a dental health educator. Although born and brought up in South Africa, a member of a historically disadvantaged group, I received my tertiary and professional education and practised entirely outside the country and returned to the dental health education context in this country with an individual, and possibly idiosyncratic viewpoint. It was a very exciting and challenging time for both South Africa and academic dentistry, and me.

With these challenges I chose to examine in detail current undergraduate dental health science curricula and, from that examination, to propose how these can be made relevant to the present and future dental health professionals and, perhaps more importantly, to the present and future consumers of dental health services in South Africa. Having become an “insider”, I have had to come to terms with the often uncomfortable and challenging aspects of change and in the course of this study I have had to deal with the conflicting and confusing demands imposed through the newly formed educational regulating body as well as a wealth of issues around proposals, policies, production (knowledge and skills), providers (practitioners) and the purchasers (patients) of the services. Prompted by the buzzword used *among smart business people and their advisers* (Toffler & Toffler, 1998, p. x) – I started to “think outside the box”. Through the readings of a publication of Samuel Isaacs (2001, p.31) I was directed to the works of Machiavelli and Handy, among many others, where I found some solace. Change, I came to understand, is more complex and difficult than we can imagine.

In *The Prince* - although written in 1531, it still rings true today - Niccolò Machiavelli reminds us how problematic change can be:

*And let it be noted that there is more delicate matter to take in hand, nor more dangerous to conduct, nor more doubtful in its success, than to set up as a leader in the introduction of changes. For, he who innovates will have for his enemies all those who are well off under the existing order of things, and only lukewarm supporters in those who might be better off under the new. This lukewarm temper arises partly from the fear of adversaries who have the laws on their side, and partly from the incredulity of mankind, who will never admit the merit of anything new, until they have seen it proved by the event. The result, however, is that whenever the enemies of change make an attack, they do so with all the zeal of partisans, while the others defend themselves so feebly as to endanger both themselves and their cause* (Machiavelli, 1992 (original publication P. F. Collier & Son, circa 1910) p.13).

An extensive literature research in a variety of disciplines – education, sociology, philosophy, business and management – has informed this study and given it depth and breadth. In the context of this study the major question has been - how are programmes within dental health science landscape weathering the storm of change? In short - to steal another business-related cliché – this study examines the input, throughput and output to discover the impact of change on them. The input is represented by the access to the facilities and programmes by potential students in relation to the geographical locations and the basis on which students are selected. The term throughput, unless indicated otherwise elsewhere, is used in this study to mean the modes of teaching, learning and assessment and how courses are organised in this area of activity as the learner progresses through the programme. The output is the assessment practices and the results of these practices. These are encompassed by the broad framework of the term “curriculum” that underlies the whole study. Consideration of this term introduced a number of sub-questions to be addressed. What does “curriculum” mean? What are its dimensions? What are the professional roles and identities and the nature of the different dental health science occupational categories that shape and colour the curriculum? How do the complex systems that are the educational institutes – and the over-arching political considerations - impact on the curriculum? These conundrums are considered within this study. There are institutions and programmes with mission statements grandly purposing to be “globally competitive” and “internationally recognised” and at the same time wanting to “reach out to the majority population who are disadvantaged”. The needs of this wider community are for basic dental services. There is a critical shortage of resources available for this training, particularly human resources yet most of the available resources are geared to produce technologically-superior professionals who will cater for the smaller section of the population in South Africa and the wider population in the United Kingdom and Australia. The implications of these issues are discussed within this study.

Story telling consists of an approach beyond the “scientific” one which is more commonly applied to the health research field. This study searches for concepts and principles in order to tell a story with a liberal use of metaphors, and it is intended for audiences within the health education and education fields. I am aware that the educational audience is perhaps far more familiar with educational concepts and theories than the dental health science counterpart - for it could be claimed that the latter group entered academia through the “backdoor”, having trained as dental professionals and not as educators. I am equally conscious of the dominant approaches of the scientific and quantitative approaches within the dental health science field and the qualitative approaches in the social sciences, arts and humanities fields. Without wishing to patronise any individual, it is suggested that appreciation of these concepts does not reach the conscious awareness of a significant number of my dental health science colleagues. At the same time, in trying to reach the educational audience with dental health issues this report may err in oversimplifying these so I run the risk of being criticised from both ends.

This then is the setting within which I locate my study and describe it in the context of the development of dental health science professionals and the higher education institutions within which they are developed.

I have deliberately taken a synoptic slant in the first four chapters of this report which provide a map of the landscape and routes taken to arrive at the thesis. Armed with the theoretical and the knowledge in action I have developed models to understand the information gathered in order to emphasise aspects of the curriculum that need special attention as we develop professionals to meet the demands of practice. Issues are addressed with regards to the types and the levels of knowledge and skills and their relevancy as are the types of learning that are required to develop undergraduate dental health science professionals.

In order to make this journey, I have made, and referred to, studies of the evidence and writings collected by previous explorers.

The journey I have taken has been described within the following sections.

**Chapter One:** Purpose and rationale of study – educational challenges.

Chapter One begins with an autobiography, explaining how and why I finally came on this journey. It contains a rationale for the study as well as a detailed background of education and training in transformation. Thus, this chapter forms a jumping off point for the journey of exploration.

The main landmarks which define the journey are:

- a personal autobiography of the explorer
- a description of the changes in higher education including the introduction of a regulatory body
- changes in the way that students have access to tertiary education
- changes in the way we teach, learn and assess
- changes in accountability by education institutes and programmes

This research study is frozen in time around the years 2004/2005 when policies around the context of higher education in South Africa were moving at a rapid pace. Certain policies (e.g. the HEQF, restructuring of HEIs), though signalled in the context in this chapter, have been implemented at the time of this submission and may alter the landscape that has been described.

**Chapter Two:** Purpose and rationale for study – challenges for dental health sciences.

Chapter Two describes the lie of the land by describing the geographical locations of the dental health education institutions in South Africa as well as the communities of dental health practitioners within those closely defined territories.

The main roads travelled are:

- changes in the regulation of health professions
- a survey of where education and training is conducted; the types and numbers of occupational categories that are trained
- examination of the issues relating to the professions in dental health science
- exploration of the nature of health professional development.

**Chapter Three:** Theoretical framework for research study – curriculum and professional development.

Chapter Three takes the traveller through the highways and by-ways of curriculum and of professional development. This chapter brings the reader to the high ground from which to overlook dental curricula in particular and from which to explore the critical questions - which are framed here - using the information and resources examined and discussed in the previous chapters.

**Chapter Four:** Research methodology – theoretical approaches and data production.

Chapter Four introduces the exploratory tools used. A detailed description of research methods available precedes the rationale for the ones selected as appropriate for this particular journey.

**Chapter Five:** Data findings – technikon and university programmes.

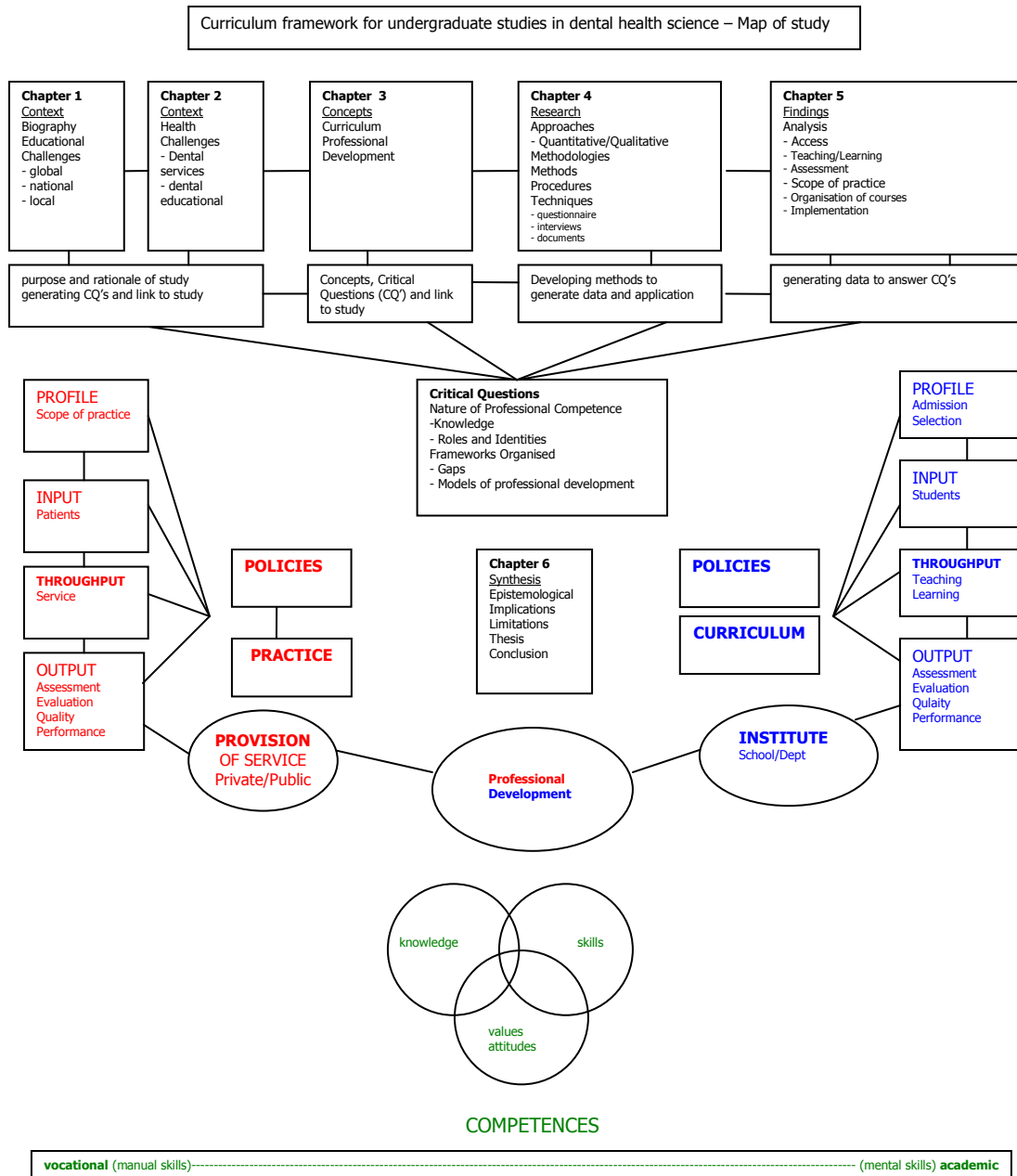
Chapter Five describes for the voyager the discoveries made on the journey. The data collected en route is analysed from within and between the two types of tertiary institutions as well as the differing occupational categories of dental health professionals.

**Chapter Six:** Synthesis and implications of the study – making sense of what has been discovered.

Chapter Six brings together the synoptic slant adopted in the opening chapters. Influenced by my personal biography, the broad context of a transforming South Africa, the imposition of policy regulations, the institution contexts and the research discoveries, Chapter Six offers proposals that provide an impetus for the drafting of shared curricula that will produce dental health professionals who are relevant to the South African population.

This study is mapped out and is presented in the following figure (Figure P1).

**Figure P1: Map of study**



**Author's Notes on writing style and format used for report:**

1. Where direct quotations are made from texts, these have been placed in *italics*.
2. The style of writing that is adopted is both in the first and third person.
3. I have succumbed to the use of the modern lay-out of not using full-stops. Where possible this has been limited to the style used in the titles of headings.
4. Attempts to disentangle and clarify terminologies, concepts and definitions that were encountered and were found to be confusing - particularly in Chapter Three - are made explicit and are found in Appendix 5. These have been used, where appropriate, for the purposes of consistency in this report.

*Everything which does not correspond to the rules of compositions should be forgiven for the sake of the truthfulness of what is represented (Luigi Boccherini - 1743-1805)*

## **Abstract**

This study begins with an ethnographic self-study which allows for a reflection on traditional learning experiences.

This study is located in the context of the initial development of dental health professionals within those higher education institutions that endeavour to provide education and training in a rapidly changing context. This context is characterised by the simultaneous need to address the blurring of boundaries and the dichotomies that exist such as the first world and the third world, the developed and the less developed world, the rich and the poor, health and wealth, the private and the public sectors, the formal and the informal sectors, the advantaged and the disadvantaged, the privileged and the underprivileged.

The definitions, concepts, theories and principles around curricula and professional development are examined in an effort to extend into discoveries of educational research usually beyond the purview of dental health practitioners, policy makers or higher education specialists involved in training these dental health practitioners.

It poses key questions regarding the nature of professional competences within dental health science undergraduate studies and how the curricula are organised around these perceptions of competence. Investigative tools include participant observation, interviews and questionnaires which have included both education deliverers – the teaching staff - and education consumers – the students.

The areas of access by students to programmes (input), activities whilst in the programmes (throughput) and their competences at the exit end of the programme (output) are examined.

It was found that institutions and programmes are paradoxically positioned declaring missions to be globally competitive and internationally recognised and at the same time wanting to reach out to the population who are disadvantaged and who form a majority. Whilst the needs of the wider community is for basic dental services and primary health care, the resources appear to be geared for producing technologically-superior professionals who will cater for a largely urban and middle class populations. The resources available, particularly human resources, for this training, are going through a critical shortage. Simultaneously demands are being made to challenge the epistemological rationale of the curriculum practice of the training sites at both universities and technikons (now known as universities of technology).

These findings reveal that the SAQA demands and the proposed transformation of higher education provided an impetus for schools and departments within universities and technikons and their institutes to look at educational concepts and to transform curricula. This shift was found to be hampered by a variety of causes which included territorial protection, lack of a deep understanding of the education and training concepts and lack of human, physical and financial resources.

It was also found that traditional designs of programmes are locked into tribal boundaries which restrict movement beyond these. The boundaries are ring-fenced by historical legacies and practices which confine programmes within these borders and continue to cement the fragmented development of dental health science professionals.

The education and training of the different dental health science occupational categories are fragmented between institutes, within institutes and with three separate professional regulating bodies and, seemingly, disjointed functioning national and provincial departments of health and education.

This (education and training) is found to be dominated by the traditional mould of teaching, learning and assessment with pockets of change in some schools and departments. Teaching units in the form of subjects, which operate as discrete units and remain entrenched by the habituations of subjects and departments within schools, restricts movement in the competence-based direction.

The framework offered by this thesis sets broader and more fluid principles and guidelines which embody the notion of knowledge, skills, attitudes and values and which course designers and educators can utilise so that renewed ways can emerge for their programmes. This allows for a cross over into each other's territories (regulatory, institutional and the health and educational services) that will allow for courses to be designed more holistically and rationally with appropriate transformatory potential.

## Acknowledgements

Arrival at this juncture in the complex terrain of research, and in the production of a doctoral thesis, requires the company of a host of individuals to guide, direct and support one through a very rugged but enjoyable journey. In completing a doctoral thesis one has a heightened awareness of life's daily interruptions of joys and sorrows with dramas of births, illnesses, marriages, deaths and other social upheavals coupled with the challenges of work and income and the magical moments of nature, family, sporting events and music.

In collecting any accolade the recipient who stands on a biographical platform, built by life's opportunities and experiences, is always flanked by key individuals who provide the strength through their coaching and developing skills and supported by a host of individuals who provide unconditional assistance that in turn reinforces and further builds the platform and also provides the inspiration to continue.

Michael Samuel as Coach in Chief, and my wife and partner 'Rene, as the Assistant Coach played that guiding, mentoring and developing role without which I would not have even considered taking on this project.

Michael with his incredible vision could see the thesis before I even submitted the first draft of the first chapter for his comments - and there were many - but his return was always constructive. He guided me patiently, without ever losing his decorum or showing any irritation, through the dark tunnel until I gained the courage and confidence to see the light and then ensured that I emerged from that tunnel with a product. Michael always had confidence in me even though I wavered at times.

He was unselfish in sharing with me - at a pace he could see that suited me - his vast knowledge and expertise, not only in the philosophical, psychological, linguistic and educational fields but also in the area of spiritual understanding. It must be remembered that during his supervision of my work, and apart from engaging in his own academic duties of research, supervision and teaching and playing leadership and management roles in the faculty, he also had many duties outside the faculty. He was absent for a lengthy period away from base, serving in the national government on important educational policy matters. He always found time, mainly after normal working hours, to accommodate my work. Even when interrupted in his office during these sessions by students who often mistook me as the professor and Michael as the student, he showed the same care and concern to assist them and thereafter continued to provide the intellectual stimulus with new words, new thoughts and new directions. After exhausting my mental powers in sessions with his limitless energy

and enthusiasm he would go on to do even more work related to his academic position. Apart from his concentration on every detail (intellectually, conceptually, grammatically and linguistically) and the correctness in arrangement of my chapters that were submitted (never on time) he would take "time out" to explain educational principles and concepts accompanied with the linguistic finesse and encouraging and stimulating me to think "outside the box". He devised many ways in order for me to understand complex ideas and principles as well as to organise the "putting together" of the thesis. He not only strengthened my resolve to be reflective and inquiring but pushed me further to be even more critical. Although the final bar was set to a height that was always very difficult to reach, he carefully adjusted it each time and raised it incrementally so that it was reachable. Whilst Michael played the role of Chief Coach, 'Rene my daily companion and as Assistant Coach, aside from living with my anguishes and constant talk (many times an echo) about "finishing the thesis" and providing the domestic and social support, played an instructional role by selecting and providing the literature and buying books for me to read that shifted my thinking in a profound way. All the thoughts before any writings, and before any submissions were made, went through a coarse wringing process at home. The writing was then refined by 'Rene who acted as the first editor and proof reader in the sifting process. My Co-supervisor, Jairam Reddy, with his standing at the local, national and international level both as an educational and policy consultant and an academic dental specialist, was a constant reminder of what was to be achieved and he acted as the third arm and a beacon in the production of this thesis. Even in his very busy "retired" life with hectic international and national commitments, he found time to take an interest in my work and to guide and question my thinking. The support structure was propped up by the fuel provided in the form of assistance with computer software usage, the provision of data for this research, the testing of material and the management of ones duties during the absence from work. Indirani Naidoo from the Department of Management Information, UKZN was unstinting in her support with the Microsoft programmes of Word, Excel and SPSS. The heads for allowing me access to the schools and departments. The conversationalists, interviewees and curriculum committee leaders and representatives - ethical considerations preclude me from mentioning their names - who were generous in their time and with sharing their thoughts and documents. They (interviewees) were most approachable and open in their answers to the questionnaires and the semi-structured interviews. They even went further in distributing, collating and collecting my questionnaires and arranging its delivery from the different parts of the country – in many instances taking personal charge.

All the students who took the time and effort in sharing their views through the questionnaires in a very open way.

The well-structured programme at the School of Educational Studies, University of Durban-Westville, where I commenced my studies and which allowed for me to test and develop my ideas. The facilitators, Chandru Kistan, Cliff Malcolm, Rashida Naidoo, Labby Ramrathan, Michael Samuel, Reshma Sookraj and Renuka Vithal who gave up weekends and developed the participants and the programme.

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The platform that shaped me – my family and friends and in particular the late Ameen Akhalwaya. The people who were at the gates when opportunities arose. In the United Kingdom, Phil Jenkins who employed me as well as seconding me for my Master's degree. Alan Brook who accepted me as a student in the Masters' programme and embedded ideas of continuum, Jenny King who inspired and guided my first piece of research, Barry Scheer who gave meaning to inquiry and reflection.

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Finally there is that unexplainable intervention and force that points and places one in a particular direction which can only be answered by the phrase "it was meant" and the word destiny.

## Abbreviations and acronyms

ANC	African National Congress
CDD	Committee of Dental Deans
CEPD	Centre for Education Policy development
CERTEC/SERTEC	Certification Council for Technikon Education
CHE	Council on Higher Education
CNAA	Council for National Academic Awards (UK)
COSATU	Council of South African Trade Unions
CPD	Continuing Professional Development
CTP	Committee of Technikon Principals
CUP	Committee of University Principals
DAASA	Dental Assistants Association of South Africa
DASA	Dental Association of South Africa
DCP	Dental Care Professionals
DENTASA	Dental Technology Association of South Africa
DENTASA	Dental Therapy Association of South Africa
DENTHASA	Dental Therapy Association of South Africa
DoE	Department of Education
DoH	Department of Health
DP/DPC	Duly Performed/Duly Performed Certificate
ETQAs	Education and Training Quality Assurance Bodies
FDI	Fédération Dentaire Internationale
	International Dental Association
	World Dental Federation
FETC	Further Education and Training Certificate
GDC	General Dental Council (UK)
HAU	Historically Advantaged University
HBU	Historically Black University
HDU	Historically Disadvantaged University
HEI	Higher Education Institute
HEQC	Higher Education Quality Committee
HEQF	Higher Education Qualifications Framework
HESA	Higher Education South Africa
HG/SG	Higher Grade/Standard Grade
HPCSA	Health Professions Council of South Africa
HRH	Human Resources for Health
HSWG	Health Sciences Working Group
HWU	Historically White University
IADR	International Association of Dental Research
IPET	Implementation for Education and Training
ITQMS	Institutional Total Quality Management System
MEDUNSA	Medical University of South Africa
MESAB	Medical Education for South African Blacks
NCHE	National Commission on Higher Education
NECC	National Education Crisis Committee
NEPI	National Education Policy Investigation
NEPU	National Education Policy Unit
NPHE	National Plan for Higher Education
NQF	National Qualifications Framework

NSBs	National Standard Bodies
NTS	National Training Strategy Report
OBE	Outcomes Based Education
OBET	Outcomes Based Education and Training
OHASA	Oral Hygienists Association of South Africa
OSCE	Objective Structured Clinical Examination
	Objective Summative Clinical Examination
PBL	Problem Based Learning
PCD	Professionals Complementary to Dentistry
Pentech	Peninsula Technikon
PHC	Primary Health Care
QA	Quality Assurance
QE	Quality Enhancement
QPU	Quality Promotions Unit
RDP	Reconstruction and Development Plan
RPL	Recognition of Prior Learning
SADA	South African Dental Association
SADLA	South African Dental Laboratories Association
SADTC	South African Dental Technicians Council
SAQA	South African Qualifications Authority
SAUVCA	South African Universities Vice-Chancellors Association
SERTEC/CERTEC	Sertifiseringsraad vir Technikononderwys
SET	Science, Education and Technology
SETAs	Sector Education and Training Authorities
SG/HG	Standard Grade/Higher Grade
SGBs	Standards Generating Bodies
UDW	University of Durban-Westville
UWC	The University of the Western Cape
WHO	World Health Organisation
WITS	The University of the Witwatersrand
WPET	White Paper on Education and Training

# Contents

Declaration of originality.....	ii
Preface.....	iii
Abstract .....	x
Acknowledgements .....	xii
Abbreviations and acronyms.....	xv
Contents.....	xvii
List of tables.....	xxiv
List of figures.....	xxvi
List of appendices .....	xxvii
<b>Chapter One.....</b>	<b>1</b>
Challenges faced by educators in the context of the changing higher education landscape ....	1
1.1 Introduction.....	1
1.2 Purpose of this chapter.....	2
1.3 Section one: purposes of study .....	3
1.4 Section two: biography.....	3
1.4.1 Introduction .....	3
1.4.2 Primary and secondary education in South Africa (1953-1964) .....	3
1.4.3 Further and higher education in the United Kingdom (1965-1976) .....	5
1.4.4 Professional career and continuing education in the United Kingdom (1977-1980) ...	6
1.4.4.1 The first phase (1977-1978) .....	7
1.4.4.2 The second phase (1978-1980).....	7
1.4.4.3 The third phase (1980-1988).....	7
1.4.5 Academic and professional career and continuing education in South Africa (1989- present) .....	8
1.5 Section three: rationale for study .....	9
1.6 Section four: the context - education in transformation (regulating education and training) .....	9
1.6.1 International issues .....	10
1.6.2 Education in transformation (regulating education and training) .....	12
1.6.2.1 Pressures for change.....	12
1.6.2.2 Some landmark policies and proposals in education and health in South Africa since 1994 .....	13
1.7 Summary of Chapter One .....	26

<b>Chapter Two .....</b>	<b>28</b>
Challenges for the dental health sciences in the context of the changing education and health landscape .....	28
2.1 Introduction .....	28
2.2 Purpose of this chapter .....	29
2.3 Education provision: the topography .....	30
2.3.1 Opportunities for learning within South Africa: the land.....	30
2.3.2 Occupational categories of dental practitioners: the lie of the land.....	34
2.3.3 The institutes, the courses offered and the duration of the course of studies.....	34
2.3.4 The total number of students registered per occupational category in all the institutes in South Africa .....	36
2.3.4.1 Student numbers obtained from own study .....	36
2.3.4.2 Comparison of students registered: own study and other sources .....	37
2.4 Service provision .....	39
2.4.1 Oral health status .....	39
2.4.2 Health service provision .....	41
2.5 Present funding of dental education and training.....	45
2.6 Professional regulation: the gamekeepers.....	46
2.7 Professional associations: the territories .....	47
2.8 Territorial and border disputes .....	47
2.9 Curriculum guideline documents.....	52
2.9.1 Dental assisting and dental technology .....	52
2.9.2 Dentistry, oral hygiene and dental therapy .....	53
2.9.2.1 Dentistry .....	53
2.9.2.2 Oral Hygiene and dental therapy.....	55
2.10 Education and professional bodies .....	55
2.11 Continuous professional development (CPD) .....	56
2.12 From policy to practice.....	58
2.13 Summary of Chapter Two .....	59
<b>Chapter Three .....</b>	<b>61</b>
Principles and concepts: curriculum and professional development .....	61
3.1 Introduction.....	61
3.2 Purpose of this chapter .....	61
3.3 Guide for the theoretical framework .....	61
3.4 Section one: curriculum .....	66

3.4.1	What is "curriculum"?	66
3.4.2	Curriculum development	69
3.4.3	Characteristics of curriculum	72
3.4.4	Interaction between curriculum and professional development	73
3.5	Section two: professional development	74
3.5.1	Professional knowledge, roles and identities	76
3.5.1.1	Describing professional knowledge: breadth and types of knowledge	76
3.5.1.2	Professional roles and identities	80
3.5.1.3	Models of professional development	81
3.5.2	Qualifications and pedagogy	85
3.5.2.1	Building for qualifications	85
3.5.2.2	Teaching/learning/assessment	87
3.5.2.3	Competence, outcomes and performance	92
3.5.3	Access and success	95
3.5.3.1	The needs of the individual	95
3.5.3.2	The needs of the institute/school/department	96
3.5.4	Course design	98
3.6	The critical questions	98
3.7	Summary of Chapter Three	99
	<b>Chapter Four</b>	<b>101</b>
	Research methodology: theoretical approaches and data production	101
4.1	Introduction: the overall research approach	101
4.2	Purpose and organisation of this chapter	102
4.3	Section one: research methodology - theoretical approaches	102
4.3.1	Research methodologies	103
4.3.2	Quantitative research	103
4.3.3	Qualitative research	104
4.3.4	Quantitative and qualitative approaches in social research: comparison	106
4.3.5	Judging qualitative research	107
4.3.6	Exploring qualitative research	109
4.3.6.1	Grounded theory	109
4.3.6.2	Ethnography	111
4.3.6.3	Narrative research	113
4.3.6.4	Phenomenology	114
4.3.7	Summary of the main types of qualitative research	114

4.4 Section two: research design and data production.....	114
4.4.1 Research design: mixed methodology .....	116
4.4.2 Data collection.....	116
4.4.3 Research procedures .....	118
4.4.3.1 Negotiating and gaining access and fieldwork relations.....	118
4.4.3.2 Ethical considerations.....	120
4.4.4 Techniques involved in obtaining data.....	122
4.4.4.1 Sampling .....	122
4.4.4.2 Questionnaires.....	124
4.4.4.3 Interviewing .....	127
4.4.4.4 Observations .....	128
4.4.4.5 Documents .....	129
4.4.4.6 Summary of the data collected.....	131
4.5 Section three: data analysis and presentation .....	132
4.5.1 Proposed work plan and critical questions .....	132
4.5.2 Tools used in assembling the data .....	134
4.5.2.1 Documents: handbooks/SAQA submissions for registration of qualifications .	134
4.5.2.2 Questionnaires.....	134
4.5.2.3 Interviews/conversations.....	134
4.5.3 Selecting the lens through which the critical questions can be answered? .....	135
4.6 Summary of Chapter Four.....	136
<b>Chapter Five.....</b>	<b>138</b>
Data findings: technikon and university programmes.....	138
5.1 Introduction.....	138
5.2 Purpose of this chapter.....	138
Part A: Access (input), Teaching and Learning (throughput) Assessment (output) .....	140
5.3 Section one: access.....	140
5.3.1 Trends and patterns of enrolment and admissions .....	141
5.3.2 Admission requirements .....	142
5.3.2.1 Dental assisting .....	142
5.3.2.2 Dental technology .....	142
5.3.2.3 Dentistry, oral hygiene, dental therapy .....	142
5.3.3 Selection: process and pattern .....	144
5.3.3.1 Dentistry .....	144
5.3.3.2 Oral hygiene and dental therapy .....	145

5.3.3.3 Dental technology .....	147
5.3.3.4 Dental assisting .....	150
5.3.4 Subject requirements: some views.....	151
5.3.5 Population groups and grades obtained by students .....	155
5.3.5.1 Dentistry .....	155
5.3.5.2 Dental therapy.....	156
5.3.5.3 Oral hygiene.....	156
5.3.5.4 Dental technology .....	156
5.3.5.5 Dental assisting .....	157
5.3.6 Geographical issues .....	157
5.3.7 Summary and key features.....	157
5.4 Section two: teaching and learning.....	158
5.4.1 Teaching methods .....	159
5.4.2 Learning style of students .....	160
5.4.3 Teaching staff: their qualifications and availability .....	161
5.4.4 Access to training sites.....	164
5.4.5 Quality assurance of teaching programmes. ....	165
5.4.6 Summary and key features.....	166
5.5 Section three: assessment .....	166
5.5.1 Assessment practices .....	167
5.5.1.1 Class tests, semester/year marks and DPs .....	167
5.5.1.2 Examinations .....	168
5.5.1.3 Moderation .....	170
5.5.1.4 Selection of examiners/moderators .....	171
5.5.2 Integrated assessment.....	172
5.5.3 Some exceptions: setting of examination questions, marking and moderating - a model.....	175
5.5.4 Examination and promotion courses.....	177
5.5.5 Summary and key features.....	178
Part B: Broader issues that impact on professional development.....	179
5.6 Section four: scope of practice - roles, identities and knowledge within professions.....	179
5.6.1 Scope of practice and qualification.....	180
5.6.1.1 Dental assisting .....	180
5.6.1.2 Dental technology .....	181
5.6.1.3 Oral hygiene .....	183

5.6.1.4	Dental therapy .....	185
5.6.1.4.1	Who speaks for dental therapy? .....	186
5.6.1.5	Dentistry (dental surgery).....	187
5.6.2	Regulation and professionalism .....	188
5.6.2.1	Dental assisting .....	189
5.6.2.2	Dental technology .....	189
5.6.2.3	Oral hygiene, dental therapy and dentistry .....	189
5.6.3	Career progression .....	190
5.6.3.1	Furthering studies .....	191
5.6.3.2	Work choices and opportunities .....	192
5.6.4	Hierarchy and status .....	194
5.6.5	Summary and key features.....	197
5.7	Section five: organisation of courses.....	198
5.7.1	The general pattern of the way courses are organised .....	199
5.7.2	The power of departments .....	200
5.7.2.1	University-based programmes.....	200
5.7.2.2	Technikon-based programmes .....	202
5.7.3	Forming course units within subjects and integrating .....	203
5.7.4	Problem-based learning .....	206
5.7.5	Balance between cognitive versus psychomotor; theory and technical skills.....	207
5.7.6	Articulation.....	208
5.7.7	Summary and key features.....	210
5.8	Section six: dealing with policies and managing change.....	211
5.8.1	Process of submissions to SAQA by institutes .....	211
5.8.2	Procedures.....	211
5.8.3	Understanding of the document items.....	214
5.8.4	Purpose statements of qualifications .....	215
5.8.5	Summary and key features.....	217
5.9	Summary of Chapter Five .....	217
5.10	Conclusion .....	219
	<b>Chapter Six .....</b>	<b>220</b>
	Synthesis and implications of the study .....	220
6.1	Introduction .....	220
6.2	Purposes of this chapter .....	221
6.3	Organisation of this chapter .....	222

6.4 Section one: the nature of professional competence.....	222
6.4.1 Towards a model of professional development for dental health science studies..	223
6.4.2 Theory of practice and practise of theory .....	224
6.4.3 Summary .....	227
6.5 Section two: issues relating to the organisation of courses, teaching, learning and assessment.....	227
6.5.1 Organisation of courses: course design and course plan – bringing the levels closer together .....	228
6.5.2 Designing units of study: bringing occupational groups closer together at the programme level .....	229
6.5.3 Teaching and learning.....	234
6.5.3.1 Teaching: staff characteristics.....	235
6.5.3.2 One-dimensional nature of teaching .....	235
6.5.3.3 Level and depth of teaching, learning and assessment .....	235
6.5.3.4 Time spent in obtaining in acquiring knowledge .....	238
6.5.3.5 Learning: access and student characteristics.....	240
6.5.3.6 Alternatives to conventional teaching and learning .....	242
6.5.4 Summary .....	243
6.6 Section three: reconciliation - recalling the critical questions and linking the answers: a curriculum framework for undergraduate studies in dental health science.....	244
6.6.1 The questions.....	244
6.6.2 The lens.....	245
6.6.3 Findings.....	245
6.7 Section four: limitations of study .....	247
6.7.1 Selective on what and the way it is reported. ....	247
6.7.2 Selective on what is collected and what is analysed .....	248
6.8 Section five: implications from this study .....	248
6.8.1 University or technikon?.....	248
6.8.2 Co-ordinating the professional categories .....	250
6.9 Chapter six: general conclusion .....	257
References .....	259
Appendices.....	269

## List of tables

Table 1.1: The revised National Qualifications Framework .....	14
Table 2.1: The nine provinces of South Africa and population distribution.....	31
Table 2.2: Dental health science offerings in institutes in South Africa.....	33
Table 2.3: Institutes in South Africa and their dental health science offerings .....	35
Table 2.4: Number of students enrolled per programme in 2002.....	38
Table 2.5: Dental practitioners registered with HPCSA in 2004.....	43
Table 2.6: Dental practitioners per region registered with HPCSA.....	44
Table 2.7: Dental professionals in the public sector .....	44
Table 3.1: Grouping together concepts.....	63
Table 3.2: Core and qualifying concepts .....	64
Table 3.3: Groupings of concepts around curriculum .....	65
Table 3.4: Value orientations from conceptions of curriculum .....	73
Table 3.5: The Force Field model of practitioner development .....	75
Table 3.6: The context and specific areas of professional knowledge .....	76
Table 3.7: Methods of engaging with learners.....	90
Table 3.8: Developing general/critical outcomes .....	94
Table 4.1: Comparison between qualitative and quantitative approaches.....	107
Table 4.2: Judging quality - quantitative versus qualitative research .....	108
Table 4.3: Four main types of qualitative research .....	114
Table 4.4: Undergraduate offerings in dental health sciences institutes in South Africa.....	124
Table 4.5: Official publications of dental offerings .....	131
Table 4.6: Interviews and questions: number scheduled and actually collected.....	132
Table 4.7: Proposed work plan - A curriculum framework for undergraduate studies in dental health science.....	133
Table 5.1: Selection and admission - subjects and minimum grades required.....	143
Table 5.2: Academic staff with education, doctorates and specialists qualifications.....	162
Table A4.1: No. and percentage of responses to questionnaires (August-October 2002)....	286
Table A4.2: Percentage and Number (n) of students per occupational category per institute .....	287
Table A4.3: Percentage of students per occupational category and per department/school (study) .....	288
Table A4.4: Percentages of students per department/school.....	289
Table A4.5: Number of students enrolled in the different occupational categories in dental institutes .....	290
Table A4.6: Percentage of students enrolled within the different occupational categories in dental institutes .....	290
Table A4.7: Percentage of students and type of matriculation certificate .....	291
Table A4.8: Number of students and the aggregate matriculation grade.....	292
Table A4.9: Percentage of dental assisting students and matriculation grades .....	293
Table A4.10: Percentage of dental technology students and matriculation grades .....	293
Table A4.11: Percentage of oral health students and matriculation grades.....	294
Table A4.12: Percentage of dental therapy students and matriculation grades.....	294
Table A4.13: Percentage of dentistry students and matriculation grades .....	295

Table A4.14: Response to the question "do you think you need to have good subject grades"?	296
Table A4.15: Learning style per occupational category	297
Table A4.16: Learning styles used when studying for examination purposes	298
Table A4.17: Provision of study guides	299
Table A4.18: Provision of lecture notes	300
Table A4.19: Provision of Lecture Notes/Study Guides and further notes	301
Table A4.20: Time spent in libraries	301
Table A4.21: Level of free time available on the time-table	302
Table A4.22: Free-time on time-table	302
Table A4.23: Continue to further studies	303
Table A4.24: Continue to further studies in dental therapy	304
Table A4.25: Further their studies in the area of dentistry.	304
Table A4.26: Work after qualification	305
Table A4.27: Preferences of work after qualification	306
Table A4.28: Percentage of students per occupational category who ranked in order of importance to the statements	307
Table A4.29: Profession is hierarchical with dentists at the top (n)?	308
Table A4.30: Profession is hierarchical with dentists at the top (%)?	308

## List of figures

Figure P1: Map of study .....	viii
Figure 2.1: Students enrolled for dental courses in tertiary institutes in South Africa in 2002... .....	36
Figure 3.1: The Iceberg Principle .....	85
Figure 6.1: Theory of practice and practise of theory – an idealised theoretical model.....	226
Figure 6.2: The nested model of dental health science professional development – “The Sydney Opera House”: Scenario 1.....	232
Figure 6.3: The nested model of dental health science professional development – “The Sydney Opera House”: Scenario 2.....	232
Figure 6.4: Theory of practice and the practise of theory – the “silo” model .....	240
Figure A4.1: Percentage of students per occupational category per institute.....	309
Figure A4.2: Percentage of students enrolled within different occupational categories.....	310
Figure A4.3: Percentage of dental assisting students and matriculation grades .....	311
Figure A4.4: Percentage of dental technology students and matriculation grades.....	311
Figure A4.5: Percentage of oral health students and matriculation grades .....	312
Figure A4.6: Percentage of dental therapy students and matriculation grades.....	312
Figure A4.7: Percentage of dentistry students and matriculation grades .....	313
Figure A4.8: Free-time on the time-table.....	314
Figure A4.9: Profession is hierarchical with dentists at the top (%)?.....	315

## List of appendices

Appendix 1: Ethical Clearance .....	270
Appendix 2: Interview schedule .....	271
Appendix 3: Questionnaire.....	275
Appendix 4: Tables and Figures .....	284
Appendix 5: Glossary.....	316
Appendix 6: Regulations defining the scope of the profession of oral hygiene .....	323
Appendix 7: Regulations defining the scope of the profession of dental therapy.....	324
Appendix 8: Regulations defining the scope of the profession of dentistry .....	326
Appendix 9: Document output .....	328

# Chapter One

## Challenges faced by educators in the context of the changing higher education landscape

### 1.1 Introduction

Bryan Nicholson, Chairman of the National Council for Vocational Qualifications in the United Kingdom, writes in the foreword to the book *Developing Professional Education* (Nicholson, 1992, pp.2-5)

*as we approach the end of the twentieth century, higher education and the world of work are increasingly being urged to work together to meet social and economic priorities. Training, directed towards the acquisition of skills and competences, and education, directed towards acquisition of knowledge and development of self-critical reflection, are also on a converging and mutually reinforcing path..... When we get behind the data war of the government and educational statisticians, it remains true that education, industry, and the professions must work together to fill the skills gap and to supply people of vision and judgement in order to meet our immediate and long-term objectives.*

Lockett and Sutherland (2000, p.98), in connecting issues of globalisation and the massification of education specifically, refer to the implications in South Africa in particular

*massification of higher education has particularly moral dimensions, as it implies the need to respond to the gross historical inequalities of the past, by making the higher education sector accessible to previously disadvantaged black and working class communities.*

The challenges faced by universities and higher education, would mean that it would have to be more

*open, flexible, transparent and responsive to the need of under-prepared, adult, lifelong and part-time learners (ibid).*

Bundy (2002, p.1) describes the *tough dual mandate* that universities face, adding that

*they are called on to broaden **access**, address **race and gender imbalances**, improve **success** rates and inculcate **democratic values**. Simultaneously, they are required to excel in the marketplace and **produce employable graduates**. Second, there is a clear moral and political imperative to fashion a higher education system in contradistinction to its past. Yet to take education out of apartheid may be easier than taking apartheid out of education (my emphases).*

These issues will be referred to again in this study.

With a flurry of activity the new South African government produced the all-encompassing and founding policy framework document – the Reconstruction and Development Plan (RDP), dealing with all aspects of socioeconomic change to transform government and society towards nation building – that came through the Minister Without Portfolio's Office (African National Congress, 1994). From the Ministry of Education, the National Commission of Higher Education (1996c) provided the basis of the Education White Paper (Department of Education, 1997a) *A Programme for Transformation of Higher Education*. Later the Ministry of Health responded with the National Health Bill *Health For All* (National Health Bill, 1996) which formed the basis of its White Paper (Department of Health, 1997b).

In 1999, President Thabo Mbeki, as reported by Cloete (2001, p.1) asked:

*Is our education system on the road to the 21<sup>st</sup> century?*

Cloete (2001, p.1) responded by saying:-

*What does this question mean for higher education in South Africa? In brief, higher education can be regarded as being on the road to the next century if it is making progress with the "double transformation" task facing it. The double transformation challenge deals on the one hand with issues which are particular to the history of South Africa, and on the other hand with the developments related to the expansion of higher education, globalisation and the role of knowledge in the economy and culture.*

Bundy (2002, p.1) also refers to a third factor which, although not part of this study, is a significant point that should act as a constant reminder to any sphere of our daily lives and which will have a major impact in the way that the education system responds. He states thus:

*there can be little doubt that HIV/AIDS is the most pressing issue facing South African education.*

## **1.2 Purpose of this chapter**

The purpose of Chapter One is to unearth and then delineate the forces – as Newman (1994) calls it *defining the enemy* – that lie beneath the surface of the education landscape in order to develop the concepts, introduced in subsequent chapters that will inform the critical questions of this study.

**Section one** outlines the purposes of this study. **Section two** gives a synopsis of personal experiences as they relate to my educational and professional development in a diverse

cultural, social and political milieu. In **Section three** the rationale for this study is developed whilst **Section four** explores further the context within which this study is placed. The chapter concludes with a summary of the issues discussed.

### **1.3 Section one: purposes of study**

The **purposes** of my study are to:

- 1.3.1 **explore the nature of professional competence** within dental health science studies
- 1.3.2 **analyze current dental health science curricula**, and in particular those submitted by dental training institutes to the South African Qualifications Authority (SAQA)
- 1.3.3 **identify the underlying educational philosophy and concepts** that inform the planning and design of a relevant curriculum for the education and training of dental health science students
- 1.3.4 **develop a theoretical curriculum foundation** for dental health science studies.

### **1.4 Section two: biography**

#### **1.4.1 Introduction**

Since no research, however “objective”, can truly be separated from the writer, it is appropriate at the outset to describe the formative experiences that are the sum of the influences, some profound and some fleeting, that have, upon reflection, added to my own personal and professional development. Reflecting on these have helped me to realise that each professional, apprentice or master, is also the sum of not only institutionalised learning but also the biographical complexities of their lives. These experiences will inevitably impact upon the choices and questions that inform this study.

#### **1.4.2 Primary and secondary education in South Africa (1953-1964)**

Between 1947 and 1964, living in a very small Indian community in the Southern Suburb of La-Rochelle and Rosettenville - an area designated a “White Area” in terms of the dominant regime’s ideology - schooling and other social activities had to be pursued in an area which had a sizeable Indian community. I therefore attended the Gold Street Indian Government School in City and Suburban near Doornfontein. The school had a teaching force of coloured and Indian teachers. As I was progressing, and as the apartheid system was being

strengthened, teachers and pupils who belonged to the other race groups were being forced to move into their own facilities. Teachers from other parts of South Africa (mainly Durban) were now employed. It was quite a novelty to see Indians who were “different” from Indians in the Transvaal (now Gauteng). Getting to school was always a dramatic issue as no public transport was provided. Families with sufficient means could get us to and from school. The end of day found us about a mile and a half away in Doornfontein where I attended an Islamic School (Madressa), designed to teach us to read and memorise sections of the Q’ran in Arabic although not necessarily knowing what the words meant. When high school beckoned, the policy of separate development was beginning to gain momentum. People of the various race groups were being forcibly shuffled and relocated into areas which were set aside for them. With the restructuring of residential provisions went the social amenities. Schools designated for Indians living in the East of Johannesburg were widely dispersed to areas about 20 to 30 kilometres away from Johannesburg. Benoni was chosen for me. Since the relocation of my residence from what was a “White Area” did not come into force until I completed high school, travelling to Benoni by means of public transport in semi-“Whites only” vehicles was a degrading experience and served to reinforce my feelings of belonging to a group with “inferior status”.

Learning, on the whole, was a matter of sitting and listening and writing and regurgitating. Examinations happened at the end of the year and one was promoted to the next standard if one passed. Apart from the three compulsory subjects of English, Afrikaans and Mathematics, subjects were selected from what resources were available. When the School Leaving Certificate time arrived pupils were placed either in the A stream class and entered for the final Matriculation examinations for university entrance or in the B stream class and entered for the Secondary School Certificate (without University Exemption). At that time Indians were allowed to write the same public examinations as the “Whites”. I only just passed the Matriculation examinations by being awarded a “concessionary” School Leaving Certificate after having entered for the University Exemption Examinations. The implication for further studies meant that I could not gain admission into a university, which for the majority of “Indians” was limited to a rudimentary one called “Salisbury Island” in Durban (later the University of Durban-Westville and now merged with the University of Natal to form the University of KwaZulu-Natal), or a Technical College (ML Sultan – now merged with Natal Technikon to form the Durban Institute of Technology and later renamed the Durban University of Technology). My father and grandfather, despite not being formerly educated to

high school level, knew the value of education. My father had the courage and foresight to send me to the United Kingdom in 1965 to pursue an academic and professional future. Thus I experienced certain difficulties in accessing my schooling which gives me an understanding of students who still struggle in sub-standard educational facilities and to overcome barriers to continuing their education. It was my own determination, coupled with the support of my family, that lifted me over potential obstacles.

### **1.4.3 Further and higher education in the United Kingdom (1965-1976)**

Arriving in London in 1965 as an “alien” meant that I had to contend with the harsh climate, absence from home, a country in the fever of massification of higher education and relaxation of moral standards. In addition there was hostility from some local communities towards the arrival in large numbers of immigrants from the “darker” countries, limited financial resources and the knowledge that I had to go to the next level of further education to be admitted into a university in the United Kingdom. For admission to a biological science qualification the requirement was Advanced Level passes in the three science subjects of physics, chemistry and biology/zoology/botany. I pursued the difficult task of registering for a two-year programme in Advanced Levels in physics, chemistry and zoology in a College of Further Education. Having struggled through the two years in facilities which were excellent but with very little academic support I realised that I had to manage my own learning. I realised that I had to work through past examination papers and text books with study guides one for each subject, and memorise huge chunks of information.

Access to university had to be pursued through the University Central Council of Admissions (UCCA) whereby one had a choice of application to five universities. If this failed then one was placed in a “clearing scheme”. In the meantime, I secured a place to study for an honours degree in Physiology and Biochemistry. Learning at university entailed following time-tables, listening to lectures, taking notes and carrying out supervised experiments in the laboratory. I graduated in 1972 but by that time I realised that I preferred to work with my hands and with people.

I wrote directly to King’s College Hospital and secured a place to study for dentistry in London in 1972. As an “alien” in the United Kingdom I could not engage in full time employment and had to show the Immigration Authorities that I was in full-time studies. At the same time I was eligible for and was the beneficiary of a full financial grant from the

Local Authorities through the United Kingdom grant awards scheme. These grant awards were available to all British students - a system of financial support that provided a crucial anchor and encouragement for engaging in studies in higher education. Again, I overcame potential obstacles in the determination to achieve my goals.

Dentistry through the colleges of the University of London consisted of a course of studies which lasted four and half years. The first year, as is conventional in medical and health science studies, consisted of courses in the Applied Clinical Sciences of Anatomy, Physiology (with Biochemistry) and Special Dental Anatomy. The next three and half years, which were the clinical years, consisted of learning facts and honing one's skills in the hospital setting. The different aspects of dentistry were divided into clear departments and these were located in separate floors of the multi-storey building. "Professional" values were inculcated through strict dress codes of white coats and ties (for men) with neatly groomed hair and a "starchy" and "clean" appearance and acting "professionally". Assessment criteria consisted of final examinations of mainly written essay questions and combinations of courses had to be passed at the end of a particular year. We were uninformed about the examination rules except that one had to pass the terminal examination of a particular course. At the end of the examinations oral examinations played a significant and frightening role. Teaching or more appropriately, training, consisted of attending lectures and being questioned about procedures and often humiliated at the chair side if the answers were not to the liking of the lecturer/supervisor. Teaching also appeared to be "territorial" both between departments and within departments. A lot of peer learning went on – we students became comrades-in-arms to share the formal learning and to develop strategies to beat the system. If key text books were studied from cover to cover then passing the examinations was relatively easy. I later identified many gaps in my initial training and reflected on the chance nature of my training. Things don't seem to have changed much in the ensuing thirty years.

#### **1.4.4 Professional career and continuing education in the United Kingdom (1977-1980)**

I look at my career in the United Kingdom as developing in three phases so they are described as such below.

#### 1.4.4.1 The first phase (1977-1978)

Most of my contemporaries entered private practice straight from finishing university. I am sure that the lure of a handsome income after impoverished student days played a significant part in this choice as it still does today. I had an opportunity to enter into a “selected” practice that participated in the first “experimental” vocational training scheme in 1977 through the British Postgraduate Medical Federation. The newly qualified practitioner would attend a “day release” course to discover and share the knowledge and experiences in coping as an independent private practitioner. In essence, it was designed to bridge the gap between working as a student under strict supervision and working independently as a practitioner. Knowledge such as interpersonal skills, business and financial skills and techniques deviating from “text book” ways were discussed in these sessions. There was a debate about whether this knowledge should not form part of the undergraduate curriculum. This experience is one that I now recommend for all qualifying health professionals. Having worked for over a year in private practice I decided that the salaried dental service and dealing largely with children in a community setting had a greater attraction for me. Furthermore the - to me - troubling ethical dilemmas of “fee for item of service” could be sidestepped. My personal inclinations were towards a health service that was free at source. Although I did not realise it at the time, the combination of the personnel, the opportunities and the structured training would influence my thinking about professional training and development far in the future.

#### 1.4.4.2 The second phase (1978-1980)

My experience in the Community Service in London was largely of one of honing the skills that I acquired in university, acquiring new clinical and administrative skills and observing how the service was organised. There was no formal training at this stage - the development that took place was largely through one’s own initiative and observations.

#### 1.4.4.3 The third phase (1980-1988)

Working in the Community Dental Service in Warwickshire was where I began to establish myself as a practitioner with particular skills in children’s dentistry and learning to work in a team of members with varying behaviours and personalities. It was here, within a well - organised service looking at the oral health status of children and gearing service towards the community “needs” (as looked at professionally), that I learned about the organisation

of the services, partly through staff development programmes and partly by experience. Staff were also encouraged and released to pursue further studies in the discipline. I was fortunate enough to pursue a one-year full-time Master's degree in Children's Dentistry in 1985/1986. It was only in this particular course, and largely through the mentoring of the principal lecturer, that I really began to question and critically reflect on the fundamental principles and skills that I was trained to use.

Meanwhile, the promise of the end of the apartheid regime in South Africa and the possibility of an academic career was a lure to return home and play a small part in the restructuring and transformation process.

Inevitably, my experiences at this time acted as a subliminal background against which to hold up and compare and contrast dental service provision in South Africa and to inform my thesis.

#### **1.4.5 Academic and professional career and continuing education in South Africa (1989-present)**

In 1989 I arrived at the Faculty of Dentistry of the University of Durban-Westville and the Oral and Dental Training Hospital of the House of Delegates (the Indian version of parliament in the tri-cameral system of the political dispensation in South Africa). I faced a number of personal challenges. The first challenge was to establish my own academic career. This included dealing with "curriculum" issues, in matters of organising courses, access, and success of students as well as relating to the professional regulating body. Secondly I needed to adapt to local health service delivery which was largely based on "pain and sepsis" treatment. This also meant re-acquiring the skills of dental extractions. I was inexperienced in the latter as my training and practice in the United Kingdom, focussed as it was on conservation, did not adequately prepare me for this form of "treatment". My third challenge was a compound "political" one - to become an active part of the institutional task of establishing a fully fledged dental faculty; to cope with increasing political meddling in the management of the faculty and hospital, particularly by the House of Delegates who funded both programmes, and finally to play a role in the general transformation process.

It was necessary to become a quick learner in order to both take my place as an active senior member of the academic team as well as to co-ordinate my thinking about what could be a more meaningful dental health science education, both in the sense of developing

relevant dental professionals and a relevant dental service for the South African population.

This thesis is the culmination of that thinking.

It is inevitable that these intense experiences must impact on my perceptions of what education and training should – or should not – be. It is not only my academic experiences – the formal curriculum - but also my social and cultural experiences – the hidden curriculum - that have become part of my academic and professional life and affect the choices and questions that surface in this thesis. I am able to compare my own experiences of access, methods of teaching, learning and assessment to what I discovered in my literature review and research for this study.

### **1.5 Section three: rationale for study**

During the years leading to the demise of the apartheid system and the installation of the new order in South Africa, the terrain of education and health - the focus of this study - has seen its share of what Jansen (2001, p.12) calls the *race for policy production*. This terrain has been a battleground of opposing forces and ideologies. Within this contested field, the development of the dental health professional also came under scrutiny.

As has been implied above, dental practitioner professional development results, in part, from an amalgam of the complex history and experiences of the individual. However, this development happens within a context of an interlocked territory of education and training, reinforced or disrupted by a rapidly changing social, economic and political landscape. These forces are examined in the following section.

### **1.6 Section four: the context - education in transformation (regulating education and training)**

What then are the forces and tensions within and between the major features of that landscape - the professions, the professional, the patient, the policies and the practice? The purpose of this section is to map the constituents of these forces in order to initiate a process of deeper reflection and theorizing which will be developed in subsequent chapters. It will be suggested that there is interconnectedness between the many roads that are travelled. How does one locate dental practitioner development within the context of international changes and transformations and local changes and transformations, especially within the resources

that are available? South Africa is trying to manage dual pressures, both international and local. Internationally it is trying to catch up with changes that took place two decades ago whilst at the same time keeping up with current changes. Locally it is attempting to address transformatory policies to redress the past inequities and simultaneously attempting to carve a "South African" identity.

Jansen (2003; 2004) locates the context aptly. He cites the major factors that create the context of higher education in South Africa and then goes on to describe how institutes have responded to these contextual issues which accelerated the *declining state of universities in South Africa* (2003, p.9).

He lists the major factors as:-

- *international influences*
- *the changing size and shape of higher education*
- *the changing meaning of autonomy and accountability*
- *the changing nature of higher education providers*
- *the changing character of student distribution and characteristics in higher education*
- *the changing organisation of university management and governance*
- *the changing roles of student politics and organisation*
- *the changing models of delivery in higher education*
- *the changing notion of higher education – between free trade and the public good*
- *the changing value of higher education programmes (the rise of the economic sciences and the decline of the humanities)*
- *the changing nature of the academic workplace* (Jonathan D Jansen, 2004, p.293).

Some of these issues will be examined in this chapter and will form the contextual setting for this study.

### **1.6.1 International issues**

Before examining national and local issues it is appropriate to examine the apparently ubiquitous phenomenon of globalization and its potential impact on what is going on in South Africa. There is ongoing debate and contention around this phenomenon but the broad consensus suggests that there is an increasing integration of much of the world with significant economic, political and cultural effects. Amin and Thrift (1994, pp.2-5) list a

number of aspects that, in combination, define globalization. Those specifically related to education include:

- cultural globalization

There are two extremes of the cultural globalization debate – those who suggest that, before long, there will be a world culture, probably dominated by American norms and values. An opposing view is a resistance-scenario – *new forms of parochialism and ethnic and minority divisions which counter global tendencies and may eventually resist them* (Stewart, 1996, p.327).

- globalization of values including gender equality and democracy.

Ideas now flow more freely across national boundaries and affect the political decisions made in many countries. Most of these are positive, and values like democracy, feminism, concern for the environment, international law and the rejection of war are making themselves felt in and among nations.

- globalization of people

It has further been suggested that ethnic and cultural groups are no longer bound to geographical locations. The physical movement of people as well as the use of telecommunication technology has broken down boundaries and barriers and should, in theory at least, reduce misunderstanding and prejudice between the citizens of the world. These processes – the interdependence and dependence of countries – which affect every citizen whether they are aware of it or not – has far reaching implications for education and training in South Africa. These include the:

- concept of adult education as a right
- massification of higher education
- over-arching neo-liberal ethos that has increased the costs of higher education to the consumer as well as the demands to make higher education self-supporting (Stewart, 1996)
- funds that are allocated to education are likely to be diverted to primary education since the prime motive which informs the international monetary organizations is directed by the rate of return on education (Psacharopoulos, 1987).
- need to educate/train adults to compete in the global market and to promote an ethos of lifelong learning
- the loss of trained and skilled workers/professionals into the global market.

## **1.6.2 Education in transformation (regulating education and training)**

### 1.6.2.1 Pressures for change

We are living in a time characterised by significant societal and political challenges. Education and health are major sites on which challenges impact and changes are engaged, both internally and as a response to the phenomenon of globalization. Not only are there marked demographic shifts in all areas of South Africa but also significant changes in the way that the workforce is employed and developed. If traditional curricula have tended, as this study demonstrates, to produce dental health professionals to service a narrow spectrum of the population – mainly the urbanized and the affluent - then a new curriculum will have to address the needs of the disadvantaged, the rural population and clients of varied cultures, languages and belief systems.

Present and future educators cannot, on their own, solve those issues which confront both higher education and the health sector professions. They must, however, know what these issues are, have a sense of their own belief systems around these issues, and understand how these issues affect and are affected by their own institutes and occupations. Only by understanding and reflecting on these issues can the present dental educators and trainers hope to produce the dental professionals of the future. In addressing the critical questions, this thesis draws attention to these issues.

In South Africa, education has been part of the liberation struggle and this tradition continues to impact on current education policy. Recent South African policy on education stems from protest politics from the 1970's student-led protests against Bantu education to the formation of the National Education Crisis Committee (NECC). In spite of repressive state measures the first People's Education Conference was held in December 1989 culminating in the formation of the National Education Policy Unit (NEPU) that commissioned a National Education Policy Investigation (NEPI) which offered feasible policy options.

Meanwhile, state proposals and reforms around education were developed as a response to the growing unrest and vocal demands for change. A National Training Board was set up in 1983 by the Department of Manpower to be an advisory board on education and training to the Minister of Education. It had little power until the Council of South African Trade Unions (COSATU) climbed on board. When the National Training Board's National Training Strategy

(NTS) Report was published it strongly influenced the education policy-thinking of the African National Congress (ANC).

Following the NTS report, the ANC set up the Centre for Education Policy Development (CEPD) in 1992/3. The CEPD-ANC working group drafted a policy document for consideration - the Implementation Plan for Education and Training (IPET). In 1991 COSATU, adopted a resolution on the basic principles of the education and training system and demanded urgent steps be taken to provide adult basic education and skills which would enable workers to benefit from industrial skills-training programmes and generally benefit the economy and society in general. COSATU underlined the linkage between education and training, insisting that both should be given joint emphasis rather than the traditional "brain and brawn" divide. In 1994 the ANC became the majority party within the Government of National Unity and the IPET document was adopted and became the White Paper on Education and Training (Department of Education, 1995).

Since 1994, we have seen a number of policy proposals, which impact significantly on higher education in general and on the development and training of health professionals in particular. Analysis of these policies by some commentators has led to the following conclusions:

*Instead of the popular or social ethos of People's Education, and the implementation of the principles of the National Education Policy Investigation (NEPI), the master narrative of educational reform has, to a large extent, been framed by the international, neo-liberal guidelines of the World Bank and the International Monetary Fund. Instead of the vision promoted by People's Education for People's Power, the defining concepts of the new education have been rationalization, downsizing, line management, efficiency, equivalencies and outcomes-based education (Kallaway, Kruss, Fataar, & Donn, 1997, p.1).*

The policies or policy statements that impact on the education, training and development of dental health personnel, will be summarized in the following section and carried into the next chapter.

#### 1.6.2.2 Some landmark policies and proposals in education and health in South Africa since 1994

▪ The South African Qualifications Authority (SAQA) Act. No. 58, 1995; The National Qualifications Network (NQF)

The NQF arose from the demand for a fundamental restructuring of the education and training system. The NQF is a framework of this restructured system which allows for lifelong

learning opportunities in accordance with nationally agreed qualification levels. Table 1.1 from the Department of Education and Labour and cited by Gravett and Geysler (2004, p.16) clearly demonstrates that the NQF is a “ladder” which suggests a hierarchical arrangement of standards and qualifications which can be obtained formally or non-formally. This structure is made up of eight qualification levels accommodated in three bands. The education and training bands accommodate already recognized qualifications and allows for the registration of new qualifications. In terms of the NQF, all learning will be recognized through a single system. It enables learners to be assessed against clearly defined standards in order to earn credits.

Table 1.1 also shows the possibilities for the portability of credits from different sections and levels of education through a clearly defined structure of education and training programmes of multiple exit and entry points.

**Table 1.1: The revised National Qualifications Framework**  
(reproduced from Gravett & Geysler, 2004, p.16)

<b>NQF Band</b>	<b>General Pathway</b>	<b>Articulation column</b>	<b>General and vocational/career-focused pathway</b>	<b>Articulation column</b>	<b>Trade, occupational, professional pathway</b>
Higher Education and Training	Discipline based qualifications	Articulation credits	Career focused qualifications	Articulation credits	Occupational recognition or context– based qualifications unique to the workplace
Further Education and Training	Discipline based qualifications	Articulation credits	General vocational qualifications	Articulation credits	
General Education	General education and training qualifications				

The Council on Higher Education (CHE) (see below) is signalled through the Higher Education Qualifications Framework (HEQF) to have the

*responsibility for co-ordinating and generating standards for all higher education qualifications and for ensuring that such qualifications meet the criteria for registration by SAQA and the NQF (Department of Education, 2004a, p.2).*

The HEQF, which should be an integral part of the NQF, will aim to determine the qualification types, characteristics and purposes of all higher education qualifications in South

purpose and rationale for study – educational challenges

Africa. Understanding and implementing this framework, I will suggest, is the responsibility of all educators including dental educators. I therefore describe here, in some detail, the mechanisms put in place to implement this policy.

▪ The South African Qualifications Authority (SAQA)

SAQA was established in terms of the SAQA Act No. 58 of 1995 by the Minister of Education in consultation with the Minister of Labour, in order to implement the NQF. It is a juristic body with legal capacity to carry out its functions in terms of the Act. It consists of a chairperson and members nominated from diverse interest groups including labour, business, educators, universities and technikons, the adult basic education sector and, in addition, the Minister of Education has the discretionary power to appoint up to six more members. Consultation with the Minister of Labour is to ensure the inclusion of the training component to ensure that qualifications address the needs of the job market.

SAQA's mission is to oversee the development and implementation of the NQF on a consultative basis as well as to advise the Minister of Education on all matters affecting the registration of standards and qualifications.

This policy also impacts on dental education curricula. How it is, in practice, understood and implemented is a key issue to be investigated.

In order to carry out these functions, a number of structural elements and underlying ideologies have been established associated with SAQA

▪ Outcome-based education and training (OBET)

*Possibly the most significant educational trend operating in the world today is that of Outcomes Based Education (OBE). The concept of the learning outcome is itself not difficult to grasp. In higher education, teaching has traditionally focused on areas of content-knowledge which it is assumed students need to understand in order to perform the higher order tasks expected of graduates. The aim of higher education has therefore been to get students to understand content on the assumption that, once they understand, they will be able to apply this knowledge and achieve the sort of performance which characterises the graduate. Outcomes based education questions the assumption that simply knowing or understanding disciplinary content enables a person to apply knowledge and argues instead that students actually have to be taught applications and capabilities. Learning outcomes are the things we want graduates to be able to do as a result of their learning. An outcomes based approach involves using the discipline to teach them to do these things. Merely understanding disciplinary content is not an outcome. An outcome is something else which the understanding of content allows the learner to do. To give an example, one of the things most frequently expected of graduates is the ability to work independently to*

*solve problems, and in the past, it has usually been assumed that studying within a disciplinary area will naturally lead to the development of this ability. Complaints from employers have shown that this is often not the case, however, and the move towards an outcomes-based approach to education is an attempt to ensure such competencies actually are developed within institutions of higher education"..... ... **The shift towards an outcomes based approach to education obviously has implications for, amongst other things, the way academics design curricula, the way in which lectures are run and the way in which students are assessed** (my emphasis) (Boughey, 2000, p.10).*

Underlying the NQF is the notion of an outcomes-based education and training system which is driven by a philosophy that places a greater emphasis on competences. This system impacts significantly on the way we teach and learn. The principles embedded in the policies underlying these structures should be considered as revolutionary rather than evolutionary since the pedagogical orientation underpinning OBET suggests significant changes in the relationship between educator and learner, and between the learner and knowledge. The focus in education has shifted from a purely "input" orientation to one which focuses on the "outcomes" of educational intervention. Such outcomes are defined as extending beyond content-disciplinary knowledge to include practical use of that knowledge (skills) in a variety of social settings within a framework of a social reconstructionist agenda (values, attitudes, disposition). OBET bridges the gap between mental and manual labour by recognising and certificating skills and making it easier for learners to articulate between the formal academic system and the informal training system. A token acknowledgement of learning acquired outside the formal education and training system has been propounded – recognition of prior learning (RPL). In order to develop a curriculum which encompasses these principles, including OBET, portability of credits and so on, the new professional is one who has to be prepared to develop new insights into her/his own prejudices and practices. Such a professional would be expected to reflect continually on a lifelong journey of critical engagement with his/her own professional practice encapsulating the ideas of what Schön (1987) refers to as the *reflective* practitioner. The notions underlying this philosophy should have significant impact on dental science curricula, producing a demonstrably competent health professional. This study will investigate whether these have been put into practice. The implementation of OBET was current at the time of the research for this study. However, at the present time it has been heavily critiqued and indeed abandoned at some levels.

▪ Standards Generating Bodies (SGBs) and National Standards Bodies (NSBs)

SGBs are bodies registered by SAQA in terms of Section 5 (1) (a) (ii) of the SAQA Act to set standards in particular areas of learning and to monitor and audit achievements in terms of such standards or qualifications. An SGB, found in any sector or industry, is responsible for generating standards for that sector or industry and then to forward these standards to the NSBs. The NSBs are registered in terms of the same Act. Each NSB will recommend qualifications and standards and write and review them for its own field of learning. The composition of each NSB must be as broad as possible and include all stakeholders who have a genuine interest in the standards being generated.

▪ Education and Training Quality Assurance Bodies (ETQAs)

ETQAs are statutory bodies accredited by SAQA for the purpose of monitoring and auditing achievements in terms of national standards and qualifications; the registration of national standards and qualifications and the accreditation of providers of education and training. The registration of assessors to function within a variety of learning environments, the evaluation of standards and the certification of learners are also within the ambit of the ETQAs.

▪ Sector Education and Training Authorities (SETAs)

Numerous SETAs, consisting of representatives from the employers, organized labour and government departments have been established covering all sections of South Africa. SETAs were established by the Minister of Labour in terms of the Skills Development Act, No.97 of 1998. The functions of a SETA include the development and implementation of sector skills plans, registering and promoting learnerships and applying to SAQA for accreditation as an ETQA for qualifications in its sector. SETAs are represented on one or more of the NSBs as a member of a critical interest group. SETAs ensure integrated education, training and employment opportunities.

▪ The report of the National Commission on Higher Education (NCHE): A framework for transformation (1996a)

The NCHE report stressed the need for increased participation, co-operation and partnerships between higher education institutions. It gave support to the integration of education and training through a national qualifications framework which would encompass all levels of

education including higher education. This report flagged prominently the need for quality and for quality assurance in a transformed higher education system.

A brave and far-reaching attempt was made by the Health Sciences Working and Reference group to look at the health sciences and its role in higher education (National Commission on Higher Education, 1996b). Eleven main elements of a future model were addressed. These included the revision of the structures governing health care personnel training; the revision of funding mechanisms; curriculum review; access to health personnel education and training; reforming admission procedures; continuing education. The working group was the first of its kind to address the policy issues involved in the education and training of health personnel and involved a comprehensive strategy which brought the departments of education and health and the professional regulating bodies together. At the time of writing the issues which were shelved and still remain to be addressed comprehensively.

The report of the NCHE - minus the report on the health sciences and silence on curriculum matters - is the founding policy document on higher education in post apartheid South Africa and went on to form the framework of the Higher Education Act from the Education White Paper 3.

▪ Education White Paper 3 (Department of Education, 1997a): A programme for the transformation of higher education

The White Paper built on the NCHE's recommendations by emphasising the need for higher education to become more responsive to the nation's social and economic needs. This, the White Paper stated, should be achieved through a single national state system which would co-ordinate planning, funding, co-operative governance and quality assurance. It proposed a planned, coherent, programmes-based higher education system which would

*...promote diversification of the access, curriculum and qualification structure developed and articulated through the National Qualifications Framework, encouraging an open and flexible system based on credit accumulation and multiple entry and exit points for the learners* (Department of Education, 1997a, section 2.6)

The NQF would, the paper claimed, promote lifelong, career-orientated learning as well as redressing equity issues by allowing increased access through the framework to higher education.

▪ The Higher Education Act No 101: (Republic of South Africa, 1997)

This Act put the recommendations of the White Paper into the statute books. It also provided for the registration of private providers of higher education as long as their qualifications are registered on the NQF through SAQA and their accreditations approved by the Higher Education Quality Committee (HEQC). The CHE through the HEQC has the overall responsibility for quality assurance and promotion, and accreditation

▪ National Plan for Higher Education (NPHE) (Ministry of Education, 2001)

Following on from the above legislation, a task team (Size and Shape Task Team) was formed at the request of the Minister of Education through the Council on Higher Education to conduct

*an overarching exercise designed to put strategies in place to ensure that our education is indeed on the road to the 21<sup>st</sup> century* (Council on Higher Education (CHE) - Shape and Size of Higher Education Task Team, 2000, p.5).

The report, Council on Higher Education, 2000, (2000) was highly contentious. It made proposals to reconfigure institutes into different types along the lines of their abilities to engage in research and postgraduate activities, whilst all would engage in undergraduate activities.

The Minister of Education launched the National Plan for Higher Education (Ministry of Education, 2001) that

*provides the strategic framework for re-engineering the higher education system in the twenty-first century*

The NPHE identified

*five key policy goals and strategic objectives necessary for achieving the overall goal of the transformation of the higher education system.*

It proposed the following:

- With reference to access, the participation rate in higher education should be increased from 15% to 20% within 10 to 15 years and shifting the balance in enrolments over the next 5 to 10 years away from the humanities to business and commerce, science, engineering and technology.
- In terms of equity, institutions should ensure the demographic composition of the student body and should focus on targets for black and women students.

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purpose and rationale for study – educational challenges

- The development of distinct missions and academic programme profiles to ensure diversity in the system
- The building of high-level research capacity
- The restructuring and consolidation of the institutional landscape of the higher education system.

▪ The Restructuring of the Higher Education System in South Africa – Technikons and Universities in South Africa and the Report of the National Working Group to the Minister of Education (Department of Education, 2001)

Even though the distinction between technikons and universities is dissolving - the legacy of the “culture” formed by each type of institute over years will, I suggest, be difficult to shake off.

Technikons in South Africa consisted of fifteen public institutes of which seven are historically white, seven historically black and one which is classed as distance learning. They are higher education institutions whose

*purpose is to provide appropriate, technological career-focused education in co-operation with commerce, industry and government at tertiary levels (Koen, 2003, (August) p.3).*

As institutions of technological higher education, their tertiary educational programmes provide for a variety of specialised occupations and careers in the industries and vocations. There is now a shift in technikon offerings in the recent past from the science, engineering and technology (SET) to the finance and management fields (Koen, 2003).

As stated in the policy document (Department of Education, 1997b, item 2)

*Technikons have two broad educational objectives, namely:*  
*a) to support and guide students at the tertiary level towards greater maturity and*  
*b) to prepare people for the practice, promotion and transfer of technology within a particular vocation or industry.*

These institutes provide for one-year National Certificates, two or three year National Diplomas, three to four-year Degrees, Honours, Masters’ and Doctoral qualifications. Technikons introduced degrees in 1995 (Council on Higher Education (CHE), June 2000, p. 15).

Universities in South Africa, prior to the restructuring process described below, consisted of twenty one public institutes of which ten are referred to as historically advantaged universities (HAUs) (six Afrikaans and four English) and eleven as historically disadvantaged

universities (HDUs) or historically black universities (HBUs) (nine of which are African, one Coloured and one Indian).

Ironically, I had to turn to the Committee of Technikon Principals (CTP) document who offered the following pithy definition of a university:

*The university is an academic institution at which research is conducted and teaching/learning is offered within the organised cadre of the contact between lecturer and student, and supported by networking, co-operation and collaboration with external academic partners to create, develop and transmit new knowledge* (Committee of Technikon Principals (CTP), 2004, p.8).

The distinction between these higher education institutions implies that the universities are “academic” and that “research” forms a key element of their activities, whereas the technikons are engaged mainly in vocational training providing people with “technical” skills for the industry.

*Technology straddles two issues: Firstly the skill to fabricate things and secondly, following on it, the skill to manage the fabricated products* (Committee of Technikon Principals (CTP), 2004).

Why one group of the dental profession is located under the auspices of the university and the other in technikons is a lot more difficult to explain but it challenges not only the definitions of universities and technikons but also the influence that these institutions have on the development and the status of the different professions. It also posits the question of where the different programmes should be located. This will be revisited in Chapter Six. For the health professions in general, and for dental health science in particular, the technikons provide training in careers which were not involved in direct patient intervention. These include dental assisting and dental technology. Oral hygiene, dental therapy and dentistry differ broadly from dental assisting and dental technology in that the operators of the former work directly “in the mouth” and the latter work “around the mouth”. It must be remembered that dentistry is a relatively new profession that “splintered” off from medicine. Dentistry then gave rise to the other occupational categories. Dentistry in South Africa as a university qualification was first introduced in the University of Witwatersrand in the early 1930s followed by the second school (faculty) in the University of Pretoria in the late 1940s. Oral hygiene and dental therapy, as university qualifications, only arrived in South Africa in the early 1970s.

I would suggest that the answer to why dentistry, closely followed by oral hygiene and dental therapy in its slipstream, is located in universities probably may lie in the perceptions of

purpose and rationale for study – educational challenges

universities and technikons, their histories and their ability (initially) to provide certificates, diplomas and degrees.

Prior to the restructuring of higher education - and at the time of this study - the Certification Council for Technikon Education/Sertifiseringsraad vir Technikononderwys (CERTEC/SERTEC) which had been engaged in programme accreditation since 1988, was responsible for comparable standards of teaching and examination across the technikons. SERTEC, in the report by the committee evaluating SERTEC and the Quality Promotions Unit (QPU) of the Council on Higher Education (CHE), provides this insight into its operations from the following statement:-

*SERTEC ran a lean and efficient office which provided good administrative support for its operations. In particular, it efficiently organised teams of panel members with which to make its many site visits. The panels comprised representatives of industry, potential employers of students, professional bodies, students, and academic staff of technikons. They did not generally contain staff from universities. Panels consistently sought the views of students (Council on Higher Education (CHE), June 2000, p. 37)).*

Like the Committee of Technikon Principals (CTP) of the Technikons, universities gained co-operation at the broader level through the Committee of University Principals (CUP) and now through its successor, the South African Universities Vice-Chancellors Association (SAUVCA). Note: The successor to the two statutory representative organisations for universities and technikons (now universities of technology), the South African Universities Vice-Chancellors Association (SAUVCA) and the Committee of Technikon Principals (CTP) is now called Higher Education South Africa (HESA).

Following the example of SERTEC/CERTEC (a certification council which in some ways acted as a quality control unit) for technikons, the CUP formed the Quality Promotions Unit (QPU) only in 1996 intended as a peer group engaged in institutional audits. Unlike SERTEC/CERTEC the QPU terminated its activities in 1999. SERTEC/CERTEC was disbanded in 2002 with the restructuring of higher education and following the recommendations of the Council on Higher Education (Council on Higher Education (CHE), June 2000). Attention is drawn to these two units and, as mentioned above, they had an impact on the delivery of programmes at the two types of institutions.

Following the release of the NPHE document, the then Minister of Education appointed a committee to

*advise me on the appropriate arrangements for restructuring the provision of higher education on a regional basis through the development of new institutional and organisational form, including mergers and rationalisation of programme development and delivery.*

As a result the restructuring process saw the emergence of a new type of comprehensive institution that would allow for the offerings of technikon-type programmes alongside a limited number of university-type programmes and the blurring of the clearly demarcated universities and technikons boundaries. The recommendations also resulted in the reduction of the number of tertiary institutes, through a process of mergers and incorporations, from thirty-six to twenty-one institutes (Department of Education, 2001; Ministry of Education, 2002). Three institutional types were recognised, viz., the traditional universities, universities of technologies (renaming the merged technikons) and the comprehensive university (a merger of universities and technikons) (Department of Education, 30 November 2004). At the time of writing 24 institutes, with 11 Universities, five Universities of Technology, 6 Comprehensive Universities and 2 National Institutes (Mpumalanga and Northern Cape) were proposed with Mangosuthu Technikon destined for merger with the University of Technology in KwaZulu-Natal (Council on Higher Education (CHE), November 2004).

Interestingly for dentistry, specific recommendations were made which resulted in the incorporation of the Faculty of Dentistry of the University of Stellenbosch into the Faculty of Dentistry of the University of the Western Cape. A recommendation much closer to home, and still to be implemented, was that *serious consideration should be given to the establishment of a fully-fledged dentistry school for KwaZulu-Natal* (Department of Education, 2001; Ministry of Education, 2002, p.19) - the University of KwaZulu-Natal is the merged institute of the Universities of Natal and Durban-Westville.

These Acts and their proposals inevitably impact on the student population, its make-up and its academic levels. How deep this impact has been will be evidenced in my research.

▪ The Health Act (National Health Act, 2004)

After many delays, the Health Act of 1977 - which was considered by the then Minister of Health as a *vestige of apartheid in health policy* - was finally replaced by the National Health Act, Act 61, 2003 (National Health Act, 2004). The cornerstone of the Act is the

establishment of the District Health System based on the principles of primary health care, promoting universal access to quality, equitable, responsive and efficient health care services that are accountable to the communities they serve. Chapter Seven of the Act, which is more pertinent to this study, deals with Human Resources Planning and Academic Health Complexes. The minister may, in consultation with the Minister of Education establish Academic Health Complexes. (According to the Act, *academic health complexes, which may consist of one or more health establishments at all levels of the national health system, including peripheral facilities, and one or more educational institutions working together to educate and train health care personnel and to conduct research in health services.* (National Health Act, 2004, section 52). I refer to this proposal again in Chapter Six.

If there is to be an increase in dental health establishments, then there will obviously need to be an increase in “relevant” trained personnel to staff these complexes. Where are these dentists, dental therapists, dental hygienists and chairside assistants to come from? How are they to be trained? How are they to be allocated? I will respond to some of these conundrums in Chapter Six.

South Africa has a mixed economy and the private sector plays an important part in health care delivery. Shevel writing in the Sunday Times (Shevel, 2005) reports that

*the South African private health-care service is ranked the fourth-best in the world whilst at the same time citing that the public health service is ranked amongst the lowest rungs.*

The statement by the Deputy Director-General of health that the membership to medical aid schemes is diminishing and becoming unaffordable is also reported in this article.

This mix of public and private services, and its influence on education and health care delivery, adds a further dimension to the debate and development of policies as well as the allocation of trained dental personnel to provide a public health service throughout South Africa. This will be a referred to again.

▪ The Draft South African Oral Health Policy and the Draft National Oral Health Policy for South Africa

None of the circulated drafts (National Health Bill, 1996) of the National Health Bill contained reference directly to the oral health sector. However, the White Paper on Health (Department of Health, 1997b) does give a unified vision of the transformation of health services based on the primary health care approach.

In 1995, a committee chaired by Moola (1995) saw the first attempt to draft a National Oral Health Policy through the Department of Health. It saw oral health integrated with the primary care services and suggested that there should be a minimum package of services. These could be delivered by *mid-level* dental personnel (i.e. oral hygienists and dental therapists). This document also provided *rhetoric* (Owen, 1995) on a wide range of issues including education and training (the education and training of all “cadres” of oral health personnel take place in an Academic Oral Health Centre), curriculum-development (implementing the recommendations of the Committee of Dental Deans) (Dreyer et al., 1992), and admission of students (to represent gender and demographics). Subsequent drafts in 1996/7 (Department of Health, 1997a), provides personnel norms detailing the numbers and categories of oral health resources needed in South Africa. Many issues, however, needed clarification especially mechanisms for ensuring that the determinants of oral health are addressed in an integrated fashion across all appropriate sectors. In 2001 the Department of Health circulated a document entitled *Draft South African Oral Health Policy* (Department of Health, 2001). This document deviates in its approach by placing emphasis *upon flexibility and customisation to match local circumstances.*

It proposes a

*simple set of guidelines to enable local health care providers to make the best decision they can on what health strategies to implement within the available resources.*

van Wyk (2002) comments on the draft plan by saying that it would be impossible to manage a health system without clear goals. He also argues, that, for equity in the oral health system a basic oral health care package, as proposed in the first recommendation, is essential. A further comment he makes is that *the reality at clinic level is that for more than 90% of their time in the clinic, oral health workers are confronted with sequelae of dental caries and periodontal diseases.* The Draft South African Oral Health Policy sidelines the importance of these two common diseases.

▪ The reorganisation of the Professional Regulating Bodies

Different professional bodies regulate the dental health professions and the curricula for each of these occupational groups. SADTC presently regulates dental technicians. Dental surgery assistants are in the process of being regulated. The other four categories fall under the newly re-organized Health Professions Council of South Africa (HPCSA) – formerly the South African Medical and Dental Council (SAMDC) - consisting of twelve professional boards which

excludes pharmacists and nurses who have their own councils. Within the HPCSA, the oral hygienists and dental therapists are regulated by the Professional Board of Oral Hygiene and Dental Therapy, and the dentists by the Professional Board of Medicine and Dentistry. It is the councils and the professional boards that have traditionally guided curricula for their own categories of dental health professionals. They lay down criteria, regulate, monitor and accredit programmes, through “inspections” of institutes in the name of serving its prime purpose - that of protecting the public.

The roles of SAQA, CHE and the professional bodies are discussed in the next chapter.

## **1.7 Summary of Chapter One**

### **- the challenges faced by educators in the context of the changing higher education landscape**

This chapter has drawn attention to three relevant aspects of the infinitely variable process of making the professional.

The first strand in this process is the personal biography of the individual. The upbringing, social positioning, education and educational opportunities as well as the personality of the individual inevitably impact on all learning, attitudes to learning and application of learning that make the trained professional – what Sinclair calls the professional *disposition* (Sinclair, 1997, p.12). The personal experiences obviously shaped my disposition and provide a focus to me for this study on the challenges specifically on access, teaching and learning and assessment as well as the broader issues that framed my training. The learner – and the educator - brings to the learning situation an established perspective or way of thinking and reacting.

The second strand presented the general education and training that the individual is exposed to. I argue that it is not necessary for the finished professional to have had the “best” education in “prestigious” educational institutions. It is, as stated, the personal application and attitude to educational opportunities, however excellent or limited, that serve to develop the learner. There are manifest curricula that the individual is exposed to in order to create the competent professional. There are also the hidden curricula that cannot but impact upon the developing professional to varying degrees.

The third strand, that cannot be denied, is the opportunity to train and to practise as a rounded, competent and self-regarding professional in whatever field. These opportunities are supported – or possibly curtailed - by the professional context in which s/he operates. This context is structured and directed by policies – social, legal and professional. The major policy changes that have taken place over the past dozen years have been described in some detail so that it will be possible to show how effective, or how far-reaching, these policies have been in practice. Once again, the disposition of the professional will influence how those policies are received, interpreted and implemented.

These policy initiatives may be characterised as a “revolutionary” system since it bears very little relationship to the way I was taught and the way I learned at any level – in South Africa and in the United Kingdom. My learning was strictly of the input, front-end mode and, I venture, so was the learning and training of the majority of educators in South Africa at the imposition of OBET. Most educators in South Africa have been asked to adopt and adapt to OBET with very little outside help. My research will touch on how the contextual changes I have listed in this chapter have, in practice, impacted on dental professional training and development.

In order to understand the context of dental practitioner development, I explored the two parts of practitioner development - that is issues around education and training in general (Chapter One) and health in particular. Health education and training, with a special focus on dental health, forms the basis of the next chapter and at the end of **Chapter Two** I bring the two poles together. For the purposes of understanding and organising the relevant information these two large areas are artificially separated although, in practice, they intermesh.

## Chapter Two

### Challenges for the dental health sciences in the context of the changing education and health landscape

*When the difficulty  
Of the mountains is once behind  
That's when you'll see  
The difficulty of the plains will start.*

(quoted by Kader Asmal, Minister of Education, South Africa, 1999-2005, from Berthold Brecht's Songs of the Soldier of Revolution, (Asmal, 2000))

#### 2.1 Introduction

In any country, the prime goal of the education of the dental practitioner must be to develop future dental practitioners to provide responsible, effective and efficient practice and services - be these purchased/used in the private or in the public sectors. The means to achieve this goal is to

- *educate students to serve their patients and communities well, and*
- *prepare students to continue to grow in skill and knowledge over their lifetime in practice* (Field, 1995, p.88).

This somewhat simplistic mission statement is more problematic than it appears and this chapter examines the complex policy issues, which underlie and impinge on the development of the dental professional. Although the smooth contours of the dental landscape might appear peaceful and unchanging, major forces are at work, which threaten to disrupt, distort, or even destroy the surface. In order to anticipate possible – or probable - eruptions these forces need to be foregrounded. They include tensions within and between the different foci of the profession; the challenges being faced by the education and training institutes; the challenges faced by the consumer system. Unlike the profusion of policies emanating from the Department of Education and its links through the CHE and SAQA, the Department of Health - which has a strong influence on the education and training of dental health personnel - is relatively silent in stating its case.

## 2.2 Purpose of this chapter

The contextual issues discussed in the previous chapter impact on the shaping of the landscape of dental practitioner development. The challenges posed, and the impact of these challenges, can be better understood by describing this contested terrain in South Africa. Some of the landmarks and pitfalls that appear along the journey across this territory are signposted, as are some of the contours and shifting plates that underlie the major structures. This chapter will develop the contextual issues raised in Chapter One and relate them specifically to health and dental practitioner professional development. As has been stated, it is not simply a matter of applying educational theory and principles, but is an amalgam of the complex history and experiences of the individual who is being developed, reinforced or disrupted by a rapidly changing social, economic and political landscape reflected in the policies that are reviewed.

Attention is drawn to the forces and tensions within and between the major features of the landscape, including the professions, the professional, the patient and the policies and proposals. This study draws attention to the constituents of these forces in order to throw open a challenge for greater dialogue and theorizing.

The purpose of **Chapter Two**, then, is to chart the wider environment of dental practitioner development and bring it into dialogue with the conceptual and contextual issues around both education and training and the dental professionals as these forces can impact in a number of ways on both the development of the dental practitioner, the practise of dental health care and the services provided. There are significant uncharted areas that needed to be explored and these are described below.

### **Organisation of the rest of this chapter**

A snapshot of the dental health science landscape is provided as a background in order that the issues raised in this study can be placed in context.

The chapter is divided into **four themes**.

The **first theme** deals with the **provision** of education and health care services; who provides the education; where the institutes are located; what are the present occupational categories and, finally, the numbers of dental professionals to be developed.

The **second theme** deals with the **funding** of institutes.

purpose and rationale for study - challenges for dental health sciences

The **third theme** looks at the **regulatory** forces that impact on the development of dental health professionals.

The **fourth theme** dwells on the **interplay** between health and education and within the dental profession itself through the tensions between the various occupational categories within.

All these themes are informed by policy and practice.

## **2.3 Education provision: the topography**

This section details the make-up of the dental profession in South Africa today as well as describing the departments in technikons and schools in universities which provide education and training as their main responsibilities.

**Note:** The terms **departments** in technikons and **schools** in universities have been adopted for this study where opportunities for dental training are provided in these higher education institutes (HEIs). However, the terms faculties, departments, schools and institutes, particularly at the time of restructuring, used in reports are sometimes in conflict with the terms adopted here. These are quoted as they appear in the various documents. (See Appendix 5 for a clarification of these terms).

### **2.3.1 Opportunities for learning within South Africa: the land**

South Africa, with a population of around 45 million people, is divided administratively and politically into nine provinces. The subdivision of the population into the nine provinces and the distribution of the population within the land area of the provinces are shown in Table 2.1 below

purpose and rationale for study - challenges for dental health sciences

**Table 2.1: The nine provinces of South Africa and population distribution**

<b>Province</b>	<b>Population</b>	<b>Land Area</b>
Eastern Cape	13.9%	13.9%
Free State	6.0%	10.6%
Gauteng	19.7%	1.4%
KwaZulu-Natal	21.0%	7.6%
Limpopo	11.8%	10.2%
Mpumalanga	7.0%	6.5%
North West	8.2%	9.5%
Northern Cape	1.8%	29.7%
Western Cape	10.1%	10.6%
Total	<b>44,819,778 (100%)</b>	<b>1,219,090 sq km (100%)</b>

Source: Statistics South Africa (2001)

This table does not give any indication of the diversity of the South African population in terms of wealth, education, health provision and so on. It is understood that these factors inevitably impact upon health in general and, in the context of this study, on dental health. For details of the distribution of dental practitioners per region see Section 2.4.2 and Tables 2.5, 2.6 and 2.7 together with Section 2.8.

At the time of the data gathering, there were schools in six universities and departments in five technikons in South Africa that offered opportunities for education and training programmes for the five vocational and occupational categories in dental health science. Three universities - MEDUNSA (Medical University of South Africa), Wits (The University of the Witwatersrand), and Pretoria University are located in Gauteng. Two universities - Stellenbosch and UWC (the University of the Western Cape) in the Western Cape and one university, the University of Durban-Westville (UDW) in KwaZulu-Natal. The technikons were Free State Technikon in the Free State; Pretoria Technikon in Gauteng; Pentech (Peninsula Technikon) in the Western Cape; ML Sultan Technikon and Natal Technikon in KwaZulu-Natal.

Two important points emerge from this information. All the institutes are located in four out of the nine provinces where just over 50% of South Africa's population live. Interestingly, the institutes offering education and training opportunities in dentistry are located in two of the nine provinces which together have a population of 30% of the total South African population. It will be seen from this that these higher education institutes are located in more urbanised settings and, in what were formerly white dominated areas. This has significance

purpose and rationale for study - challenges for dental health sciences

to both the access to higher education and for service provision. For example, KwaZulu-Natal has no school for dentistry although it has the largest population. This means, that 50% of the population does not have direct geographical access to these institutes. Unless this is redressed, inequities will persist in both the training and provision of trained health personnel and the provision of health resources – particularly in the rural areas. There has been an attempt to redress this situation. In terms of the proposals of the *Transformation and Restructuring: A New Institutional Landscape for Higher Education* (Ministry of Education, 2002) and *The Restructuring of the Higher Education System in South Africa* (Department of Education, 2001), two landmark proposals were made which specifically affected the landscape of dentistry. These are referred to in Chapter One (see 1.6.2.2).

purpose and rationale for study - challenges for dental health sciences

**Table 2.2: Dental health science offerings in institutes in South Africa**

- Names of the institutes where programmes were studied and their new names following the restructuring of higher education institutes in 2003/4 source: (Department of Education, 2004b)

<b>Institutes (names at the time of data collection)</b>	<b>New dispensation</b>	<b>Dental programmes offered</b>
Free State Technikon	Merged with Vista University Welkom Campus. No change in dental offerings. Now known as <b>Central University of Technology – Free State</b>	Dental Assisting
ML Sultan Technikon	Now known as <b>Durban University of Technology</b> . The two programmes continue to be offered in this combined institute.	Dental Assisting
Natal Technikon		Dental Technology
Pretoria Technikon	Merged with Technikons Northern Gauteng and North-West. No change in dental offerings. Now known as <b>Tshwane University of Technology – Pretoria campus</b>	Dental Assisting Dental Technology
Pentech (Peninsula Technikon)	Merged with Cape Technikon. No change in dental offerings. Now known as <b>Cape Peninsula University of Technology – Belville campus</b> .	Dental Assisting Dental Technology
UDW (University of Durban-Westville)	Merged with the University of Natal and now known as the <b>University of KwaZulu-Natal – Westville Campus</b> . No change in dental offerings. Recommendation for a “fully fledged dental faculty”	Oral Health Dental Therapy
MEDUNSA (Medical University of SA)	Now known as <b>University of Limpopo – MEDUNSA Campus</b> from a merger with the Universities of Venda and The North. No change in dental offerings.	Oral Health Dental Therapy Dentistry
Wits (University of the Witwatersrand)	No change in dental offerings.	Oral Health Dentistry
Pretoria University	No change in dental offerings. Incorporated Vista University Mamelodi campus.	Oral Health Dentistry
Stellenbosch University	Stellenbosch University Dental Faculty only incorporated into <b>UWC</b> . No change in dental offerings at UWC.	<i>(Oral Health Dentistry)</i>
UWC (University of the Western Cape)		Oral Health Dentistry

**For the purposes of this study the original names prior to the formal processes of mergers will be used.**

purpose and rationale for study - challenges for dental health sciences

Thus this study was conducted in a climate of rapid governance changes which included a reconstitution of the identity of former separated homelands, racialised providers, racially divided student populations. These reconstructions have obvious impact on curriculum delivery and will be considered in the research findings

### **2.3.2 Occupational categories of dental practitioners: the lie of the land**

At present, mainstream dentistry in South Africa consists of the following occupational groups, categories, sub disciplines or occupational groupings:

- dental surgery assistants
- dental (oral) hygienists
- dental therapists
- dental technicians and technologists
- dentists
- dental specialists

The training and scope of practice of each category will be detailed below.

### **2.3.3 The institutes, the courses offered and the duration of the course of studies**

The table (Table 2.3) below shows the various institutes in South Africa offering courses leading to qualifications in the various occupational categories and the duration of the course of studies.

purpose and rationale for study - challenges for dental health sciences

**Table 2.3: Institutes in South Africa and their dental health science offerings**

Institute	Dental Assisting	Dental Technology	Oral Health	Dental Therapy	Dentistry
Free State Technikon	•1yr – Nat Cert in Dental Assisting				
ML Sultan Technikon	•1yr– Nat Cert in Dental Assisting				
Pretoria Technikon	•1yr – Nat Cert in Dental Assisting	•3 yrs Nat Dip & 4 Yrs B Dental Technology			
Pentech (Peninsula Technikon)	•1yr – Nat Cert in Dental Assisting	•3 yrs Nat Dip & 4 Yrs B Dental Technology			
Natal Technikon		•3 yrs Nat Dip & 4 Yrs B Dental Technology			
UDW (University of Durban-Westville)			• 2yrs UDip Oral Health	•3yrs B Dental Therapy	
MEDUNSA (Medical University of SA)			•2yrs UDip Oral Health	•3yrs B Dental Therapy	• 5yrs BDS
Wits (University of the Witwatersrand)			•2yrs UDip Oral Health		•5yrs BDS (6 <sup>th</sup> yr phasing out)
Pretoria University			•2yrs UDip Oral Health		•5yrs BChD
Stellenbosch University			•2yrs UDip Oral Health		•5yrs BChD
UWC (University of the Western Cape)			•2yrs UDip & 3yr B Oral Health		•5yrs BChD* (5 ½ 6 <sup>th</sup> yr phasing out)

- Nat Cert = National Certificate
- Nat Dip = National Diploma
- B = Bachelor
- UDip = University Diploma
- BDS = Bachelor of Dental Science
- BChD = Bachelor of Dentistry
- BChD\* = Baccalaureus Chirurgiae Dentium

Note: 1. see table 2.2 for the names of the restructured institutes 2. abbreviations for qualifications as used in institute yearbooks/handbooks

purpose and rationale for study - challenges for dental health sciences

### 2.3.4 The total number of students registered per occupational category in all the institutes in South Africa

It should be noted that a national data base does not exist for obtaining information of this nature, and data was collected:

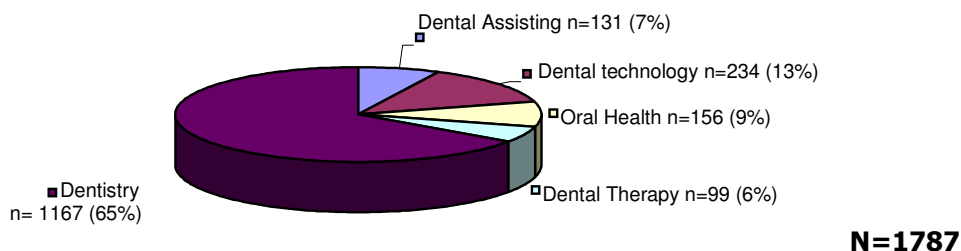
- through heads of departments in technikons and chairs of the schools in the preparation of administering questionnaires for this study and its subsequent analysis
- a combination of information available, for varying purposes, from the Oral Health Directorate in the Department of National Health (DoH), the Health Professions Council of South Africa (HPCSA) and the Medical Education for South African Blacks (MESAB).

#### 2.3.4.1 Student numbers obtained from own study

Before questionnaires were administered to the students and interviews conducted in the different institutes, the numbers registered for the different programmes were obtained from the chairs or facilitators involved in curriculum planning/facilitating in the schools in universities and heads of departments in the technikons. The data obtained from this process for the number of students enrolled for the different occupational categories are shown in the figure below.

**Figure 2.1: Students enrolled for dental courses in tertiary institutes in South Africa in 2002**

- No. and percentage of total for all years of study (source: own data – see also Table 2.4)



It can be seen that the largest proportion of the total student population in dental health science is enrolled for dentistry - about 65%. Dentistry is a five year programme whilst dental assisting is a one year programme; oral health, 2 years; dental therapy and dental technology (national diploma) are 3 year programmes and dental technology (degree) is a four year programme.

purpose and rationale for study - challenges for dental health sciences

#### 2.3.4.2 Comparison of students registered: own study and other sources

MESAB, which provides funding to black health science students, also obtains the student enrolment per category on an annual basis from technikons and universities. In addition the Department of National Health, Oral Health Directorate, has some data on student numbers. Both sources have incomplete information. MESAB obtains its information by contacting the Registrars of institutes through whom details of student numbers are obtained (personal communication). The Oral Health Directorate of the National Department of Health does not collect this type of data on a regular basis (personal communication). However in preparation for a workshop it obtained the data regarding student numbers and made these available to all stakeholders.

purpose and rationale for study - challenges for dental health sciences

**Table 2.4: Number of students enrolled per programme in 2002**

- Figures obtained from this study, MESAB (2000/2001) and DoH (Department of Health)

Course of studies	Institute	Own	MESAB	DoH
dental assisting	FS Tech	24	26	
dental assisting	MLS Tech	36	0	
dental assisting	Pret Tech	36	38	
dental assisting	Pen tech	35	36	
total dental assisting		131	100	0
dental technology	Pret Tech	70	90	
dental technology	Pen tech	82	82	
dental technology	Natal Tech	82	88	
total dental technology		234	260	0
oral health	UDW	9	9	12
oral health	MEDUNSA	14	13	18
oral health	Pret Univ	40	42	42
oral health	Stell Univ	31	32	31
oral health	UWC	43	25	47
oral health	WITS	19	0	0
total oral health		156	121	150
dental therapy	UDW	58	58	64
dental therapy	MEDUNSA	41	58	60
total dental therapy		99	116	124
dentistry	MEDUNSA	227	224	268
dentistry	Pret Univ	297	280	277
dentistry	Stell Univ	243	291	292
dentistry	UWC	217	235	235
dentistry	WITS	183	353	0
		1167	1383	1072
Total for all categories	ALL	1787	1980	1346

(Note: see also Tables in the appendices: A4.3, A4.4, 4.5, A4.6 and Figure A4.2)

The information relating to student enrolment obtained from MESAB for 2002 and the Directorate: Oral Health of the Department of National Oral Health was for 2000/2001 but is incomplete. Possible reasons for this are suggested below.

Data obtained from the HPCSA and not indicated in the table above for the number of dental hygiene and dental therapy students as at 30<sup>th</sup> September, 2002 are 356 and 284 respectively. This vast difference is difficult to explain but it is possible that students registered may not be deleted from the list if they leave prematurely from the programmes in institutes.

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purpose and rationale for study - challenges for dental health sciences

The variations in the data shown in Table 2.4 above can be explained by the different times the data was gathered and that there are fluctuations in the year depending on when students are leaving or entering programmes. Furthermore, the data obtained for this study was obtained personally and directly from staff who are involved in the respective programmes whereas that obtained by MESAB and the DoH was reportedly obtained through the technikon and university administrators.

This discrepancy casts doubt upon the credibility of the accuracy of data sources related to dental health science. Moreover the implications for service provision based on flawed data is a matter of national concern.

There seem to be few publications around the education and training of all dental health professionals other than of dentists. Chikte and Brand's (1996) analysis of the demographic distribution of undergraduates in South African dental schools, for example, deals exclusively with "dental" students as if the "imbalances" of any other occupational category dental trainees is of little significance.

There is an obvious need for a reliable mechanism for data collection, storage and dissemination (see also Section 2.4.1).

Discrepancies apart, it can be seen that there is a skewed number of the types of practitioners that are developed and in their geographical locations.

## **2.4 Service provision**

### **2.4.1 Oral health status**

Chikte, in his contribution to the Health Review of South Africa (U. Chikte, 1997, p.166) states

*that oral health status is traditionally measured by clinical indicators that do not capture the suffering and consequences of oral diseases.*

Nevertheless, as a benchmark, the common indicators of oral health status that are overwhelmingly reported in any population are dental caries (tooth decay) and periodontal disease (gum disease) and, to a lesser extent, the use of services. The method of measurement is well documented by Moola (1997).

Although many independent studies were conducted in South Africa to determine the oral health status of specific populations only two "national" surveys were conducted. They were the 1988/1989 (Department of Health, 1994) and the 1999/2002 National Children's Oral

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purpose and rationale for study - challenges for dental health sciences

Health Survey (Department of Health, 2003). These surveys were fraught with difficulties. The former was conducted in "apartheid" South Africa and was seen not to be representative as populations in the "independent" countries in South Africa were not included. However, the first survey included all age groups whereas the second only included children under the age of 15 years (6, 12 and 15 year-old age groups were surveyed). The latter was also problematic since one province chose to conduct its own survey. Furthermore, the surveys were not conducted through a central statistical department who would only co-ordinate and present the data without any conclusive analysis as, for example, the Child Health Surveys which are conducted every ten years. The two South African surveys were largely managed by a handful of individuals in the Community Dentistry departments of the five universities. Reports of these surveys were compiled by these academics and then presented to the Department of Health. The general pattern of dental caries was similar in both surveys and similar to the many independent studies. Some of the reported figures for the 1999/2002 survey are as follows:-

- dental caries is more severe in the primary (deciduous) dentition than in the permanent dentition
- 40% of the six year-old age group are caries-free. This is below the target of 50% which was set by the Department of Health in 1994 for the year 2000
- for the 12 year-old age group the average number of Decayed, Missing and Filled Permanent Teeth (DMFT, a measure used as an indicator of caries experience) - was 1.05 – meaning that on average one tooth per child in this age group experienced caries in the permanent dentition which is well below the target of 1.5 set by the Department of Health in 1994 for the year 2000
- for the 15 year old age group the DMFT was 1.86 – meaning that on average two teeth per child in this age group experienced caries in the permanent dentition which is regarded as "low" in terms of the World Health Organisation classification of dental caries (World Health Organisation (WHO), 1995).
- in terms of normative care and with implications for services, (see below), the number of children requiring care ranges from 45-60% and *the number of teeth needing care per child ranges between 2 and 3.*
- most of the caries is untreated and if treated the method usually involves extractions.

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purpose and rationale for study - challenges for dental health sciences

- there is a regional variation, with, as an example, the Western Cape where between 73% and 86% of children needing attention as opposed to a national figure of between 46% and 60%

With regards to periodontal (gum) disease the dominant pattern in this and the previous survey is that less than 15% of 15 year old children presented with healthy periodontal tissues. The implications for services are discussed below.

Another indicator of caries experience and periodontal disease acting in combination is the level of edentulousness (i.e. no teeth present in the mouth). The National Oral Health Survey reported edentulousness to be in the region 11% of the whole population (Department of Health, 1994). In a separate survey, South African Demographic Health Survey, the level of edentulousness was reported to be between 7% and 9%, and that a quarter of the 65 and above age group who participated in the survey were edentulous (South Africa Demographic Health Survey, 1998).

One wonders why these surveys were undertaken. Flawed as they are, they nevertheless represented the folly of apartheid mentality which, even in its research methodology and sampling, excluded whole sections of the population beyond its interest and concern. A further factor is that these surveys appeared to be the intellectual property of the report authors and were not immediately in the domain of a "National Data Base" similar to the one in the United Kingdom (National Statistics). They should have proved a valuable tool to plan training and service provision.

As described below it will be seen that there is a marked disparity between dental need and service provision.

#### **2.4.2 Health service provision**

Price (1996) described these disparities as *incongruities* when he issued a challenge to the Dental Association of South Africa. This incongruous situation sums up the service delivery issues in South Africa. It is the incongruities between the public/private mix of services; supply of personnel in the public sector; the reliance by 90% of the population on the state for services; the education and training of the "correct" mix of the different occupational categories; the availability of "high tech" services in the public sector; the provision of services for pain and sepsis limitation; the balance between promotion and curative treatment and the declared intention of the Health Act that permeates the dilemma against a

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purpose and rationale for study - challenges for dental health sciences

backdrop of multidimensional social issues of health and welfare for the majority of the population. Outstanding incongruities challenging oral health care delivery can be summarised as follows:-

- van Wyk (2003) extrapolating from the 1999-2002 survey for children under 15 years of age calculated that *there may be thirty-five million teeth needing care for dental caries alone*. A further calculation performed by him revealed that, with the workforce in place in the year 2000, *it would take one year to satisfy the current needs for the treatment of dental caries for children under the age of 15 in South Africa*. Of course, the need mentioned here is normative.
- It is worth repeating Shevel writing in the Sunday Times (Shevel, 2005) who reports that *the South African private health-care service is ranked the fourth-best in the world* whilst at the same time citing that the public health service is ranked on the *lowest rungs*. The statement by the Deputy Director-General of Health that the membership to medical aid schemes is diminishing and becoming unaffordable is also reported in this article and is also relevant to service provision planning.
- Although the reasons for usage of services is debatable, the South African Demographic Health Survey supports the commonly held belief that *the majority of South Africans are dependent on the state for oral health care services, yet less than 10% of the population utilises public oral health care services. This under utilisation is due to limited resources and inaccessibility* (South Africa Demographic Health Survey, 1998).
- There is an oversupply of dentists generally, with shortages and declining numbers of dentists filling posts in the public sector for therapist and dentists (Health Systems Trust, 2003, ch.22, p.308). At the same time only 11% of oral health professionals are in the public sector (South Africa Demographic Health Survey, 1998, ch.14, p.250). See also below for a distribution of dental practitioners together with the demographics discussed in Section 2.3.1 above and the "territorial disputes" referred to in Section 2.8.
- The contradictions as Singh (2005) points out on policy development around outdated epidemiological data with *scant* notice of oral diseases *such as oral manifestations of HIV/Aids*.
- One of the stated objectives of the Health Act (National Health Act, 2004, ch.2, item 2(a)ii) - to provide

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purpose and rationale for study - challenges for dental health sciences

*in an equitable manner the population of the Republic with the best possible health services that available resources can afford.*

This is an on-going issue within this study.

#### Practitioners in the private and public sectors

It is difficult get accurate figures for the distribution of dental practitioners operating regionally in the private and public sectors. However, from the addresses and numbers of practitioners on the register obtained from the HPCSA and the report of the Health Systems Trust, the following details for 2004/5 are compiled.

Note: There is a slight variation in the HPCSA data as the register is dynamic and there is constant movement in the capturing and recording of data.

#### **Table 2.5: Dental practitioners registered with HPCSA in 2004**

- The total number and percentage of dental hygienists, dental therapists and dentists registered with the Health Professions Council in South Africa (as at 8<sup>th</sup>, November, 2004)

Category	No	%
Hygienists	874	14.5
Dental Therapists	368	6.1
Dentists	4377	72.9
Dental Specialists	389	6.5
Total	6007	100

Source: HPCSA – IT Help Desk  
[yvetted@hpcsa.co.za](mailto:yvetted@hpcsa.co.za)

purpose and rationale for study - challenges for dental health sciences

**Table 2.6: Dental practitioners per region registered with HPCSA**

- The number and percentage of dental health practitioners per region registered with the HPCSA 2004/2005

	Non RSA	E Cape	Free State	Gaut eng	KZN	Mpu	NW	N Cape	N Prov	W Cape	TOT (N)
Hygienists (n)	16	36	42	332	72	36	28	11	30	275	878
%	1.8	4.1	4.8	37.8	8.2	4.1	3.2	1.3	3.4	31.3	14.2
Dental (n)	n/a	9	15	141	111	31	24	6	50	3	390
Therapists %	0	2.3	3.8	36.2	28.5	7.9	6.2	1.5	12.8	0.8	6.3
Dentists (n)	154	226	157	1881	601	171	139	66	137	982	4514
%	3.4	5	3.5	41.7	13.3	3.8	3.1	1.5	3	21.8	73.2
Dental (n)	13	13	6	214	32	4	2	n/a	3	102	389
Specialists %	3.3	3.3	1.5	55	8.2	1	0.5	0	0.8	26.2	6.3
Total (N)	183	284	220	2568	816	242	193	83	220	1362	6171
All %	3	4.6	3.6	41.6	13.2	3.9	3.1	1.3	3.6	22.1	100

Note: Mpu = Mpumalanga; N Prov = Northern Province (now Limpopo); NW = North West Province.

Source: HPCSA – IT Help Desk- February 2005, [yvetted@hpcsa.co.za](mailto:yvetted@hpcsa.co.za)

**Table 2.7: Dental professionals in the public sector**

- Dental therapists, dentists and specialists per 100 000 population in the public sector: 2003

	Dental Therapists	Dentists	Specialists
Eastern Cape	0.12	0.99	0.00
Frees State	0.17	1.50	0.00
Gauteng	0.42	2.79	0.17
KZN	0.34	0.70	0.04
Limpopo	0.62	1.01	0.00
Mpumalanga	0.30	1.75	0.08
Northern Cape	0.13	1.87	0.00
North West	0.52	1.49	0.00
Western Cape	0.06	3.35	0.39

Source: Health Statistics: Health Systems Trust – <http://www.hst.org.za/healthstats/71/data/12/29/2004>

**Note:** Only about 11 percent of oral health professionals are in the public sector, of which the greatest proportion is located in Gauteng (47%) and the Western Cape (23%).

Source: South Africa Demographic and Health Survey 1998, Chapter 14, p.250

<http://196.36.153.56/doh/facts/1998/sadhs98/index.html>

purpose and rationale for study - challenges for dental health sciences

*South Africa (SA) faces a variety of health personnel problems. These include an overall lack of personnel in key areas of the health sector; an inequitable distribution of those health personnel who are available; and a significant attrition of trained personnel from the health sector and from the country (South African Health Review 2003/2004, Chapter 22, page 300, 2004, Health Systems Trust).*

It is only through a significant governmental initiative and significant input into the relevant education and training of dental health professionals that these “incongruities” can be redressed.

The next section examines present funding of dental education and training, the foundation stone of personnel provision.

## **2.5 Present funding of dental education and training**

The funding of dental programmes provided by the technikons comes via the Department of Education and is managed within the framework of the technikons. That provided by universities filters down from the Department of Health and from the relevant Provincial Health Administration. It is intended that the funds should be managed by the universities and the departments of Provincial Health through a *Joint Agreement*. In most cases the Provincial Departments of Health control these budgets solely and, in one case in particular, KwaZulu-Natal, this has been under the sole discretion of the Superintendent General of the Provincial Health Services. No uniformity seems to exist between Joint Agreements and institutes. Myburgh (1997, p.13) concludes that *current Joint Agreements have little to offer the new vision for health in South Africa and are not amenable to the change process going on*. Staff engaged in teaching are largely employed and wholly paid through the Department of Health and various formulae have been worked out for the reimbursement by the institutes to the Department of Health for the teaching activities. These are not clear cut and are often contentious. Additional difficulties are imposed through the service arm of the teaching hospitals as these are almost entirely financed by the Department of Health at the provincial level. It can be seen, then, that funding of dental education is fragmented and much depends on the political wills and/or administrative abilities of the managers concerned.

## **2.6 Professional regulation: the gamekeepers**

As well as anomalies in the funding of dental education programmes, further disparity and fragmentation occur in the professional regulation as well as the professional groupings of dental health professionals. Each category of dental practitioner has its own demarcated scope of practice and area of expertise with some overlap. Different professional bodies regulate the professions and the curricula for each of these occupational groups. SADTC presently regulates dental technicians. Dental surgery assistants have yet to be regulated. As stated in the previous chapter and repeated here for continuity, the other four categories fall under the re-organized HPCSA consisting of twelve professional boards exclusive of pharmacists and nurses who have their own councils. Within the HPCSA, the oral hygienists and dental therapists are regulated by the Professional Board of Oral Hygiene and Dental Therapy, and the dentists by the Professional Board of Medicine and Dentistry. It is the councils and the professional boards that have traditionally laid down criteria, regulated and monitored, through "inspections" of institutes, for the curricula for their own categories of dental health professionals.

Note:

1. In terms of the South African Medical and Supplementary Health Service Professions Amendment Bill of 1997, which was introduced in Parliament in May 1997, the Bill amended the previous Act of 1974. The Bill made provision for the establishment of a Health Professions' Council of South Africa, which would be the permanent statutory Council overseeing the health professions. The Dental Technicians' Amendment Bill, Act 9 of 1979 was also introduced and the representation of dentists on the Dental Technicians' Council was reduced and they no longer formed the majority. Thus, the regulatory changes have softened the grip of dentists over technicians, oral hygienists and dental therapists.
2. The Health Sciences Working Group (HSWG) of the National Commission on Higher Education (NCHE) whose work was referred to in the previous chapter, attempted to address the issue of the responsibility of the education of health professionals for a restructured health system for South Africa. They (HSWG) concluded that a close partnership between the four sectors, namely, the Departments of Education and Health, the tertiary institutes and the professional councils, which operated in a fragmented fashion, needs to be resolved in order for the health system to work successfully (Shear, Sanders, van Niekerk, Hobdell, & Reddy, 1997). They further recommended that no legislation relevant to health personnel education should be passed by parliament until agreement has been reached on the question of *close co-operation between the Departments of Education and Health for the balanced,*

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purpose and rationale for study - challenges for dental health sciences

*efficient training of health professionals* (Shear et al., 1997, p.1107). At the time of writing this matter remains unresolved.

## **2.7 Professional associations: the territories**

The professional categories group themselves and form associations. The main associations of the different occupational groups are listed below.

- Dental Surgery Assistants – Dental Assistants Association of South Africa (DAASA)
- Oral Hygienists – Oral Hygienists Association of South Africa (OHASA)
- Dental Therapists – Dental Therapy Association of South Africa (now DENTHASA)
- Dental Technicians – Whilst no formal association of professionals is organised, an association of laboratory owners, known as the South African Dental Laboratories Association (SADLA now known as DENTASA – Dental Technology Association of South Africa) exists.
- Dentists – South African Dental Association (SADA - formerly DASA)

Needless to say the major influence on dental health provision by practitioners is applied by SADA, through its well organized association, strength in numbers, monthly publication of refereed journals, regular local and national meetings and memberships at various local, provincial, national and international levels of dental organizations, for example the International Association of Dental Research (IADR) and the International Dental Federation (FDI).

## **2.8 Territorial and border disputes**

Among the issues dealt with by the Professional Board of Oral Health and Dental Therapy of the HPCSA between 1998 and 2002, four are highlighted here in order to illustrate the nature of the “border disputes”.

- the formalization of the expanded functions in the scope of practice for oral hygienists
- the drive for the regulation of the profession for dental assistants
- the support sought by the dental technicians’ group in their quest to be permitted to not only fabricate dentures in a laboratory but also to be permitted to carry out the clinical procedures to provide these dentures

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purpose and rationale for study - challenges for dental health sciences

- formal links to be established, by the Professional Board of Oral Health and Dental Therapy with the Medical and Dental Professional Board of the Health Professions Council of South Africa.

(Personal knowledge as chairperson of the Education Sub-Committee)

The training of dental health science professionals in South Africa has been dogged with the three interlinked issues of the occupational categories to be trained; the numbers of these to be trained and in the scope of practice. Each of the three occupational categories - oral hygienists (N. A. Gordon, Rayner, & Wilding, 1998), dental therapists and dental technologists - wants to extend its boundaries to encroach upon the fiercely guarded borders of the dentist occupational category whilst dental assistants were seeking for formal regulation of their profession and also to establish a broader scope of functions. Since the time that the dental therapist was permitted to work independently, and to work privately, the contestation became even more volatile (SADA, 2000) and has added a further dimension to this vexed problem. The dental technologists, in their turn, are seeking to enter the prohibited territory of the mouth (Malherbe, Steyn, Du Plessis, & Fatagodien, 1998) . The Committee of Dental Deans (CDD) (Dreyer et al., 1992) took the initiative to address the issues of the occupational categories, albeit only the clinical entities, the numbers to be trained and their competences. In the paper published by this committee they added yet another occupational category, that of Health Educator/Community Health Worker working at the interface between the community and the rest of the health services.

DASA (Dental Association of South Africa - DASA Health Services Report, 1996) using a needs-based model - the National Oral Health Planning Model - contributed to this debate. The document prepared on its behalf recommended that overall fewer dentists would be required and that the number of dentists from the black population group should be increased.

The CDD, whilst challenging the DASA study, responded by stating that *the training facilities be expanded to accommodate a larger output of dental therapists and oral hygienists* (Dreyer, Rossouw, & Chikte, 1997, p.586). Furthermore a demands-based calculation was made that the number of dentists to be trained should be increased. DASA, in a guest editorial in the J:DASA (DASA, 1998) refuted the arguments of the CDD for the increase in the number of dentists to be trained. Here DASA also proposed another category of oral health personnel - the oral therapist - effectively a fusion of oral hygienists and a dental

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purpose and rationale for study - challenges for dental health sciences

therapist, thereby obliterating the troublesome occupational category of dental therapy and its right to practise privately and independently.

There followed a lull in the debate until the Department of Health, after intense lobbying and in a bid to give direction and lead, commissioned a task team to look into the human resource needs for health in the year 2000 (Pick, Nevhutalu, Cornwall, & Masuku, 2000). At a special workshop a task team was constituted under the Chairmanship of William M Pick, to provide a draft national strategy for human resources for health (HRH). It was composed of *South African nationals, supported by international experts* (Pick et al., 2000, p. i) (experts on what, one asks?). Views were solicited from; inter alia, the HPCSA and SADTC.

In a highly detailed report the following findings have been foregrounded by this writer for their relevance to, and their impact upon, the education and training of dental health science professionals. The draft report (Pick et al., 2000) and the final report (Pick, Nevhutalu, Cornwall, & Masuku, 2001) were both examined as crucial elements for debate may be missed.

*One of the pillars of South Africa's primary health care (PHC)-driven services is the provision of a package of PHC services for all its inhabitants. A major problem has been the provision of health personnel to deliver this package... It is the "staffing gap" which needs to be addressed. The derivation of skills and knowledge required for each service was the result of extensive consultation with a diverse group of health professionals* (Pick et al., 2000, p.iii). *It is recommended that the provision of PHC services can only be guaranteed to all by reassigning some of the tasks traditionally carried out by highly skilled or highly specialised professionals with adequate training and supervision to workers at a different professional level ...* (Pick et al., 2000, pp.ii-iv).

- In making recommendations for the supply of health service personnel, an average annual population growth of 2% over a 30 year period to 2029 was assumed with variable net loss rates of graduates at each professional category.
- The report found that whilst the supply of dentists is exceeding population growth, the distribution between the public and private sectors:-  
*is extremely unequal... It is hoped that the introduction of community services will provide an additional 200 dentists into the public sector* (Pick et al., 2000, p.viii).
- The report goes on to suggest:  
*This could reduce the need for dental therapists, whose creation has largely failed to fill the oral health gap in the public sector...*(Pick et al., 2000, p.viii).

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purpose and rationale for study - challenges for dental health sciences

Notably no dental therapists were consulted for this report – Dental Deans who are mainly dentists - many of them specialists with perhaps little understanding or sympathy for the role of independent dental health personnel - were consulted!

- *The creation of a single dental auxiliary should be embarked upon. Information to hand indicates that this could be achieved without any additional cost and is pedagogically feasible. It is also recommended that a downward revision of the annual intake of dental students be considered (Pick et al., 2000, p.viii).*
- Later in the report it is proposed that:  
*the oral hygienist and dental therapist categories be discontinued.*
- The task team were undecided about what to do with (existing) dental therapists.  
They could not decide  
*whether dental therapists, who want to be trained as dentists, will have to complete the entire course in dentistry. If more dental therapists are trained, fewer dentists will be trained (Pick et al., 2000, p.103).*
- As far as education and training is concerned, the Task Team conceded that education and training issues are crucial in contemplating a national strategy for HRH and that it is also an area of great complexity. Concern was expressed regarding Continuing Professional Development (CPD) leading to:  
*fragmentation and duplication of in-service training programmes ...the lack of adequate co-ordination among various training agencies has been of concern for programme managers. Furthermore, some concern has been expressed regarding the extent to which training activities lead to improvements in performance of health workers once they return to their workplace. A strong perception exists that those who organise training do not assess its relevance to the work situation in terms of skills required or its impact on service provision ...*  
The *provision of continuing professional development with a minimum disruption in service delivery (Pick et al., 2000, pp.xi & 105)* was recommended.
- Among other recommendations regarding HRH development, the Task Team recommended multi-skilling:  
*...that under-utilised health professionals and assistant health professionals be trained to provide those service elements of the PHC package which are unavailable because of lack of trained staff. An inventory of training needs should*

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purpose and rationale for study - challenges for dental health sciences

*be compiled in all health districts in order to determine the number and type of staff requiring multi-skilling.*

- A final recommendation of note was,  
*the attraction and retention of previously disadvantaged persons, first as students and then as staff* (Pick et al., 2000, p.xiii).

No suggestions were made about the implementation of these recommendations.

Neither report convincingly addresses the issues of the categories of dental personnel to be trained, and they are still entrenched in the superior category of dentists paradigm whilst making significant policy recommendations around the other occupational categories of the oral health team. As an example the following appears in the section on training and education:-

*The universities are planning to train additional dental technicians (**incorrect**) in three year programmes and add specialisation to the basic courses. Five out of six academic institutions train dentists and two out of the six train dental therapists. MEDUNSA does not train dental therapists (**incorrect**) and the University of the Western Cape does not train oral hygienists (**incorrect**), while the other institutions have a two year programme for oral hygienists.....dental therapists.....and must be under direct supervision of a dentist (**incorrect** – my insertions) (Pick et al., 2000, pp.103 & 181).*

This confused set of statements, particularly when dental technology, dental assisting and the technicians are not explicitly mentioned, makes one wonder about the value of their (Pick et. al.) pronouncements. Further, whilst subscribing to the ethos of PHC, the report calls for the demise of dental therapists who are trained to provide the basic dental care, which is absent for the majority of the population, and juggles with the numbers of dentists to be trained and at the same time ignoring the work of the Education Ministry in respect to institutional restructuring (Ministry of Education, 2002).

Veres and Ruck add to this discussion (Veres & Ruck, 1996, p.740) in their vision for the future of educating health professionals conclude that the *widely diverse health needs of our population can no longer be attended to by a single professional: the dentist.*

Owen (1995, p.30) best summarises the issues around categories of oral health personnel and their numbers thus

*None of the documents adequately address the implications of their proposals with respect to the costs of implementation, their likely impact on oral health, posts, training institutions and curricula, certification etc. The complex problem of how to*

purpose and rationale for study - challenges for dental health sciences

*deal with the territorial imperative and vested interests of different stakeholders is not addressed, and needs to be.*

To this can be added the voice of Price (1996, p.719) who, in an address to DASA, issued a challenge to the profession to look

*beyond structure and numbers to values and policies.*

Here, I will enter into the fray by raising the issues of placing and labelling the occupational categories on the hierarchy of the care-continuum. I question what it reflects. The descriptors used in placing occupational categories - other than dentistry - range from "auxiliary", "paramedical", "allied", "complementary" and more recently "professionals complementary to dentistry (PCDs)" (General Dental Council (GDC), 2004) (see also 2.6 above). These terms evoke sensitivities and feelings of "turf protection". The hierarchical relationship between the different occupational categories, with the dentist in "pole position", and the rest as "appendages", that may or may not be useful, impact on the education and training of the different occupational categories. (This is further discussed in Chapter Three in relation to the roles and identities of professions).

Underlying the current disparities between the different occupational categories are documents that offer guidelines to the curricula designed to develop the professionals. These are described in 2.9 as well as the traditional regulation by separate bodies described in 2.10

## **2.9 Curriculum guideline documents**

The elements of these guideline documents will be examined in relation to the development of the different occupational categories in South Africa and relate them to the findings in the relevant sections of the report.

### **2.9.1 Dental assisting and dental technology**

Technikons operate through a system of "convenor technikons". A department from a particular technikon programme is elected, under the umbrella of SERTEC/CERTEC, as a convenor for that programme in order to convene regular meetings with related programmes from other technikons and to discuss issues relating to their common programmes.

Additionally, the general policy for *technikon instructional programmes* (Department of Education (DoE), 1997b, item 2.2.2) stipulates the percentage, through SERTEC/CERTEC, of

purpose and rationale for study - challenges for dental health sciences

the types of *content* matter that each *subject* must have. The types are classified into A, B and C categories and are discussed in Chapter 3.

### **2.9.2 Dentistry, oral hygiene and dental therapy**

Aspects from five sets of guideline documents – four (three of which are closely linked) relating to dentistry and emanating from the professional body, the CDD and the Department of Health, and one for oral hygiene and dental therapy emanating from the professional body - will be highlighted here as they serve as good benchmarks from which to report on the data collected for this study and analysed in Chapter 5.

#### **2.9.2.1 Dentistry**

During the process of conducting this study, the undergraduate curriculum of dentistry and its regulation was reviewed at the national level and was a subject of much debate that resulted in four key publications. It is pertinent to foreground aspects of these documents and then relate the goals outlined in the documents to the data that was collected for this study.

The process - a result, I would suggest, of the incestuous interplay between the DoH, the Medical and Dental Professions Board of the HPCSA and the dental schools through the CDD - provides guidelines and strategies for a curriculum for dental schools.

The four documents referred to seem to feed into and off each other. Close examination suggests an uncanny resemblance to each other as well to the document issued by the General Dental Council of the United Kingdom (General Dental Council (GDC), August 2002 (second edition)).

The four documents referred to are:-

1. Department of Health (2005) HPCSA - Regulations relating to the registration of students, undergraduate curricula and professional examinations in dentistry.
2. HPCSA - Medical and Dental Professional Board (2001) Undergraduate Dental Curriculum.
3. Snyman, W. D., & Gugushe, T. S. (1999). The first five years: The undergraduate Dental Programme, Compiled on behalf of the Committee of Dental Deans, as requested by the Medical and Dental Professional Board.
4. Department of Health (2004) – HPCSA - Regulations defining the scope of the profession of dentistry.

purpose and rationale for study - challenges for dental health sciences

Documents 1, 2 and 3 deal with the curriculum and Document 4 deals with the scope of the profession. (There is one common denominator in three of the documents, hence the resemblances. They embrace the current "speak" by saying the "correct things" and using all the "buzz words" which have been accepted in a "wholesale" form (errors and all) and promulgated as a regulation. A paradigm shift is called for and yet the documents lapse into traditional prescriptive ways. This is a classic case of "talking the talk and not walking the walk".

Several requirements are listed and outlined in the section *Curriculum in dentistry and professional examinations for students in dentistry* of Document 1 (Department of Health, 2005). Tying in with this is Document 3, adopted by the Medical and Dental Professional Board of the HPCSA and Document 2 which outlines the *strategic framework for dental education* and the *requirements for the recognition of a first degree in dentistry*. These interrelated documents, which outline the policies, regulations and guidelines for developing dentists appear to be "politically and educationally correct" in that they claim to recognise that the traditional curricula are *teacher centred, discipline or speciality based* and depend to a large extent on *information gathering* (Health Professions Council of South Africa - Medical and Dental Professional Board, 2001).

They also highlight four premises within the context of the missions of the provision of education and training. The four premises are that:

- *undergraduate education and training must make provision for and be sensitive to both academic demands and the unique needs of the South African society*
- *dental education and training at both undergraduate and specialised levels must meet modern global standards of professional excellence in practice*
- *dental education and training institutions are responsible for the development in future graduates of a high standard of ethical principles and a healthy outlook on life*
- *as it is impossible to equip a dental student with knowledge still to be discovered, a culture of lifelong learning must be cultivated*

(Health Professions Council of South Africa - Medical and Dental Professional Board, 2001, April, section 2.1; Snyman & Gugushe, 1999, section 2.1).

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purpose and rationale for study - challenges for dental health sciences

### 2.9.2.2 Oral Hygiene and dental therapy

Nationally a move is now being attempted through the Professional Board of Oral Hygiene and Dental Therapy to bring about greater coherence between oral hygiene and dental therapy as described in the following paragraph.

In the years 1999/2000, the first Professional Board for Dental Therapy and Oral Hygiene adopted a previously commissioned document on the work of the *Ad Hoc Committee on a Competency-Based Laddered Training System for the Oral Health Professions* (Professional Board for Dental Therapy and Oral Hygiene of the Health Professions Council of South Africa, 1999). This system directed at dental assisting, oral hygiene and dental therapy, was designed for *personnel on each step of the ladder have all the competencies(es) of the step below them*. The competences were broadly grouped as *General Competencies(es)*, *Support Competencies(es)*, *Clinical Competencies(es)* and modules were included in each group. Two of the institutes offering dental therapy and oral hygiene adopted and implemented this model in their course design. These will be revisited in Chapter Six.

## 2.10 Education and professional bodies

Traditional regulation by separate Health Councils and Professional Boards has led to differing, and potentially divisive, curricula in the various schools and departments. The accreditation of programmes, setting of standards and to some extent the registration of qualifications were largely the domain of the HPCSA in its role as the “protector of the public” and to some extent the SADTC. Moreover

*separate and parallel qualifications structures for universities and technikons have hindered articulation and transfer between institutions and programmes* (Department of Education, 2004a, p.i).

These functions, particularly of the HPCSA are now being challenged by the bodies emerging through the education sector – that is the CHE through its HEQC and the HEQF and SAQA – discussed in Chapter One (1.6.2).

SAQA is responsible for the recording and registration of qualifications.

The CHE is anticipated through the HEQF to have the

*responsibility for co-ordinating and generating standards for all higher education qualifications and for ensuring that such qualifications meet the criteria for registration by SAQA by SAQA and the NQF* (Department of Education, 2004a, p.2).

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purpose and rationale for study - challenges for dental health sciences

The HEQF, which should be an integral part of the NQF, will aim to determine the qualification types, characteristics and purposes of all higher education qualifications in South Africa.

The CHE through the HEQC has the overall responsibility for quality assurance and promotion and accreditation.

The challenge faced by the HPCSA, SADTC, CHE through the HEQC and HEQF and SAQA is to harmonise - without duplicating - the curriculum and the qualification which will

*guide the development of higher education qualifications and programmes for years to come* (Department of Education, 2004a, p.i)

It can be seen that, these complex and often incestuous groupings, are principally concerned with their own professional status rather than with active participation in promoting the dental services and human resources.

The issues described in 2.9 and 2.10 have a major influence on the curriculum debate that can only be touched upon in this study (limitations Chapter Six).

## **2.11 Continuous professional development (CPD)**

Before leaving the description of the current context of dental health education, it is appropriate to refer briefly to what happens – or should happen – after graduation. The graduate has, I suggest, only reached the first hurdle to establishing her/himself as a professional offering the best possible service to the community. Section 2.11 describes initiatives purporting to improve service delivery and the competence of the practitioner. I suggest that they are in practice little more than another way of *personal* development rather than *personnel* development.

In its annual report the Registrar of the HPCSA states that *our war against perverse incentives and unethical behaviour is raging vehemently* at the same time citing that *99% of our practitioners... continuously put the needs and interest of the patients first*

HPCSA (Health Professions Council of South Africa, 2004a). Whilst the “rogue elements” seen from this perspective are in the minority, the central concern of the public should be that professionals provide the best level of service to the community.

The Health Professions Act , 1974 (Act No. 56 of 1974) endorses CPD as the means for maintaining and updating professional competence and for ensuring that the public interest will always be promoted and protected in achieving this goal.

purpose and rationale for study - challenges for dental health sciences

In 2004 a media statement was issued with a draft proposal for a *new reconfigured Continuous Professional Development system on the table* which is *guided by the principle of beneficent health professionals aspiring to standards of excellence in health care provision and delivery* and which encourages *active learning* (Health Professions Council of South Africa, 2004b). The proposed system allowed for recognition of attendance in activities which range from traditional didactic learning and study groups, to formal higher qualifications. It is an attempt to standardise CPD across all twelve Professional Boards.

The Medical and Dental Board of the HPCSA - the forerunner of CPD activities from 1999 - embarked on a system of awarding one point per hour for attendance to accredited CPD activities. Practitioners had to gain fifty points per year and there was allowance for rolling over surplus points acquired in any one year. Providers and Accreditors of CPD activities introduced sophisticated ways, including "swipe cards" to register attendance by practitioners for these activities. CPD almost became an industry. Points had to be earned in three categories of activities, viz., individual, small group and organisational. A minimum number of points had to be earned in activities relating to ethical issues. There was a flourish of activities complemented by inactivity in monitoring them by the HPCSA. However, the HPCSA just did not have the capacity to manage this activity.

Whilst the contextual setting, where the upheavals of the administrative and process that followed after the regulatory announcements have been highlighted above, the rationale for CPD is outside the remit of this study. However, the development of dental health personnel with a predilection for lifelong learning is highly relevant.

A distinction is made here between life-long learning - a matter raised in the next chapters in the context of teaching and learning methods that encourage lifelong learners so that they can retain control of their expertise (Eraut, 1994) - and CPD and formal postgraduate programmes in the development of professional expertise which are elements of lifelong learning.

Yielder (Yielder, 2004) defines professional expertise as that which

*is embodied by practising professionals who work with consistently high standards of knowledge, performance and process. These high standards include their professional attitudes, and the manner in which they conduct intra and interpersonal relationships. They integrate and transform these into flexible, fluid practice, working effectively with change* (Yielder, 2004, p.78).

## 2.12 From policy to practice

Chapters One and Two have reviewed a variety of policies and documents that will inevitably impact on the social and political life of every South African and, in the context of this study, on health science education and provision. The dissemination and application of policy brings us to the interface of theory with practice – with policy making and its implementation.

However, the innovative policies that have been described in this context should, in practice, bring about change in the dental health education curricula and the resultant development of the dental health professional.

However relevant or far-reaching the policy, it is the capacity – or lack of capacity - of its management and implementation that can manifest itself as *weaknesses, failures or breakdown of service delivery* (Motala, 2001, p.240). Has the trickle-down of policy to implementation been distorted, diluted or, completely disregarded? What are the barriers to policy implementation – the policy-gap?

Policy as a concept, policy making and the management of policy as a principle is outside the remit of this report and although this study focuses on curriculum matters and professional development the ever present effects of policy and its management cannot be totally disregarded.

I will suggest, and later demonstrate, that the trickle-down effect of policy to implementation is distorted, diluted or, in some cases, completely disregarded. What are the barriers to policy implementation?

In my structured interviews I have attempted to explore the following aspects of policy implementation in the context of dental education.

- Are practices and procedures set up by management to facilitate and monitor the implementation of policy?
- Is the policy understood by everyone?
- Do practitioners “buy into” the new policies – were practitioners involved in the policy making process?
- Is the policy considered coherent, complete and appropriate at practice level?
- Does the policy relate to the interests and priorities of the practitioners?
- How are staff made aware of the policy?
- Are they trained and supervised in the application of policy?
- Has new policy changed practice?

purpose and rationale for study - challenges for dental health sciences

In Chapter Six I revisit this aspect of the dental health curriculum.

## **2.13 Summary of Chapter Two**

### **- challenges for the dental health sciences in the context of the changing education and health landscape**

Thus it can be seen that the dental profession, together with the Departments of Health and Education and the departments and schools located in 11 institutes currently engaged in the education and training of the different cadres, are faced with a variety of challenges. These include sociological changes, the need for rationalisation; the need to come into line with the educational trends of outcomes-based education and recognition of prior learning entrenched within present education policies (mentioned in Chapter 1).

I have described the structures and distribution of dental health provision across South Africa. I have also attempted to explain the potentially divisive nature of the regulation of the different categories of dental health personnel.

The guideline documents that emanated around curricula from the regulating bodies for the different dental health science programmes were reported as the issues selected inform the analysis of the data in Chapter 5. It would seem that these often conflicting and confusing policy initiatives must impact on dental health personnel training and development producing significant change in the way that institutes are organised and curricula are designed.

Health ideology is moving from the medical model, and the new government, through the Department of Health (DoH), embraces the principles of primary health care which now form the cornerstone of health planning and education and training.

Thus, the health professions, and, in the context of this study, the dental professions must deal with a number of issues (Veres & Ruck, 1996), including:

the number and categories of personnel to be trained (DASA, 1998; Dreyer et al., 1992; Dreyer et al., 1997; Reddy, 1985; SADA, 2000; Veres & Ruck, 1996, citing the Committee of Dental Deans (1994), p.737 ) the scope of their practice (Dreyer et al., 1992; Dreyer et al., 1997) and how they are going to be prepared to meet the dental health needs of the

purpose and rationale for study - challenges for dental health sciences

changing population. Above all, the size and shape of Academic Oral Health Centres, entry to oral health training, and the form curriculum development should take (Owen, 1995).

It is not just the technical innovations that should be the focus of continuous professional development referred to in 2.11. It is the significant policy and structure changes that should be influencing the development of the professional.

Chapter Three moves away from the context to examine and review concepts directly related to curriculum and professional development.

## Chapter Three

### Principles and concepts: curriculum and professional development

#### 3.1 Introduction

The educational, health and political struggles, particularly of the 1970s, 1980s and early 1990s, placed enormous pressure on the new democratically elected government to transform the health and education systems since the inherited social and systemic structures were uneven and skewed. Coupled with this were significant socio-economic pressures both within and beyond South Africa. As I described, the newly elected government responded with a flurry of activities. These activities can be organised into differing foci. Muller (2004) defines three “phases” in the reform process. Phase 1 - the 1980s-1994 leading up to the birth of the new democratic state in South Africa. He identifies phase 2 – from 1994-2000 with the flurry of policy reform and increased tension. Interestingly he classifies phase 3, the period after 2000 as the advent of *systemic reform* and *quality assurance*. My findings suggest otherwise as I will report in Chapter Five.

#### 3.2 Purpose of this chapter

This study is located within the context described in the first two chapters. This chapter, using literature research, examines principles and concepts as they relate to the complex notions of curriculum and professional development in the arena of education and training, the focus of this study. The purpose of this chapter is to examine the concepts, at various levels, underlying the complex notion of curriculum - **Section One** - and that of professional development - **Section Two** - and how they interact to develop the professional. The theoretical concepts relating to curriculum will then, along with the contextual issues discussed in Chapters One and Two, be used to pose the critical questions for this study.

#### 3.3 Guide for the theoretical framework

At the outset of this study, my understanding of what constituted curriculum was conventional, based on what I read in university handbooks. This, together with the sum of

the activities engaged in the teaching, learning and assessment of dental health science students served as my foundation knowledge. A list of subjects or modules, formed as a result of bringing specific content-matter together, and arranged sequentially in year-order leading to a qualification and placed under the heading **curriculum** and a brief synopsis of each subject or module constituted the **syllabus** for that course of studies together with the **rules** relating to admission, selection, examinations and promotion,.

I reviewed numerous texts - in the words of Becher (1978, p.11) – to stake out *the territory to which the curriculum developer lays claim* and to disconnect and reconnect well-debated and formulated concepts. As this search is by a health professional straying into the territory of education, it is anticipated that the readers of this study will be from the fields of education and/or health. It is hoped that the experiences reported here will be acceptable to either group without being over- or under-simplified.

Using an extensive research of the literature, I expanded my understanding of the term curriculum and other concepts relating to education and training, largely from the works of Barnett and Coate (2005), Biggs (Biggs, 2003), Entwistle (1988), Kelly (1999), Marsh (2004), Samuel (1998), Tight (1996) and Toohey (1999).

I began with an examination of concepts and principles which Tight (1996, pp.2-3) defines as being

*... in essence.... labels for ideas that are of importance to us ....*

which

*... have a resonance that goes beyond that of many ordinary words.....*

and

*.... that the understanding of concepts will vary across time and space.*

I am strongly influenced by the synoptic accounts of Tight (1996). Tight, whilst acknowledging the many ways in which concepts can be “grouped and labelled”, provides me with a sound grounding from which to launch this search and to seek the connections. For the organisation of his book, Tight grouped together forty-five terms into seven broad concepts which are borrowed and shown below.

**Table 3.1: Grouping together concepts**  
- Tight (1996)

<b>Core Concepts</b>	adult, education, training, learning, teaching, development
<b>International Concepts</b>	lifelong, learning organisation, the learning society
<b>Institutional Concepts</b>	further and higher, adult and continuing education, community, formal, non-formal, informal
<b>Work-related Concepts</b>	human capital, human resource development, career, professional, social capital
<b>Learning Concepts</b>	distance, open, flexible, experiential, problem-based, independent, self-directed, andragogy, conscientization, communities of practice
<b>Curricular Concepts</b>	knowledge and skill, capability and enterprise, competence, quality
<b>Structural Concepts</b>	access and participation, accreditation and modularization, success and dropout, social inclusion

A further grouping provided by Tight *are the most common and central* (1996, p.7), and consists of the concepts of adult, education, training, learning, teaching and development and **qualifying concepts** – derived from the concepts shown in Table 3.1. They form the basis of this search.

These are summarised as follows:

theoretical framework – curriculum, professional development and the critical questions

**Table 3.2: Core and qualifying concepts**  
- from Tight (1996)

Qualifying Concepts	Core Concepts
Lifelong	
Further Higher	
Adult Continuing	
Community	
Formal Informal Non-Formal	
Human resource	
Career	<b>Education</b>
Professional	<b>Training</b>
Distance Open Flexible	<b>Learning</b>
Experiential Problem-based Independent Self-directed	<b>Teaching</b>
Knowledge Skill	<b>Development</b>
Capability Enterprise	
Competence	
Quality	

Marsh (2004), in order to describe the material available around curriculum, divides it into two broad categories – firstly, *generic issues and curriculum* and secondly, *alternative perspectives*. Within each of these broad categories he provides sub-categories or themes and then lists topics within these themes. Of course, these are not “stand alone” topics and any combination can be made to form a theme but they form a logical sequence from which sense can be made. Neither is it an exhaustive list. From Marsh (Marsh, 2004, pp.10-16), the following list has been compiled:

theoretical framework – curriculum, professional development and the critical questions

**Table 3.3: Groupings of concepts around curriculum**

<b>Generic Issues and Curriculum</b>	
Curriculum planning and development	What is curriculum? Curriculum frameworks Objectives, learning outcomes and standards Selecting and organising teaching modes and learning modes Assessment, grading and reporting Curriculum implementation
Curriculum management	Innovation and planned change Leadership and the school principle School-based management School evaluations/review
Teaching perspectives	Learning environments Teacher appraisal
Collaborative involvement in curriculum	Collaborative teacher planning and environment Decision-makers, stakeholders and influences Action research/teachers as researchers Parent-teacher participation
Curriculum Ideology	Curriculum theorising Gender inequalities and the curriculum Postmodernism and the curriculum
<b>Alternative perspectives</b>	
Student centred perspectives	Student outcomes Student oriented modes of learning Authentic assessment Classroom and out-of-school learning environments Collaborative planning Students as stakeholders Gender inequalities
Politics of curriculum perspective	Restrictions of curriculum frameworks Standards and political mandates Assessment uses and accountability Measuring curriculum implementation Change leaders School-based management Reform reports Why do teacher appraisals? Decision-makers and influences Critical exploratory theorists Poststructuralism and postcolonialism
Future Studies and the Curriculum Perspective	Making use of technology Change strategies and tactics Categories and reform Learning settings outside school Decision-makers Critical exploratory theorists Gender analysis and feminist pedagogy Gender analysis and male identity Postmodernism and schooling

Theory is a guide to practice so in **Sections one** and **two** of this chapter I explore the theoretical concepts and principles that underlie the education, training and development of health professionals. Put into practice, these theoretical concepts inform curriculum.

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theoretical framework – curriculum, professional development and the critical questions

Curriculum is a wide and complex issue and defining it, as Marsh states, *is no easy matter* (Marsh, 2004, p.3).

To make sense of any field we have ways of categorising, listing and developing concepts which will enable us to remember and also communicate these to others. From the eclectic mix of concepts listed above, I will select those that will guide this study. My two broad groupings are **curriculum** and **professional development**.

### **3.4 Section one: curriculum**

*As the diversity and pace of change in curriculum policy and implementation continues unabated in many countries* (Marsh, 2004, p.xvi), this chapter draws on the key questions which he (Marsh) poses about researching the phenomenon of curriculum for the new millennium.

- *Are we developing a more relevant curriculum for students - a curriculum that has the power to make a difference?*
- *Are we really addressing complex curriculum dilemmas in a clear and unambiguous fashion?*
- *Are we becoming more successful at integrating theoretical issues and practical positions?*

(Marsh, 2004, p.xvi)

#### **3.4.1 What is "curriculum"?**

It seems that there are almost as many definitions of the much debated concept of curriculum as there are writers about the subject. The

*field appears to be muddled by the diversity of seemingly conflicting positions put forward by highly respected and persuasive scholars and practitioners* (Klein, 1990, p.4).

No two writers can agree on the precise definition and, as Bell (1971, p.8) comments, it *appears to have a high level of generality, but a rather low level of precision*. For the purposes of this study I will present some of the debate around this concept and then clarify my own definition by which to measure the rest of my research findings on this issue. Definitions vary according to changing fashions in education; by the philosophical or political perspectives of the writer; by what the writer wants it to mean; by practice. The conventional

definitions of curriculum suggest that curriculum is a course of study that is “run” over a specified term. This is the definition that informs the University Handbook. This definition refers in a limited way to the content, structure and teaching methods involved in a certain subject or area of study. Other narrow definitions often used refer to the *content or body of knowledge or a list of subjects to be taught or both* (Kelly, 1999, p.3), or one that limits it to content, *that is, subjects on the time-table and what is taught under each of those subject headings* (Lawton, 1983, p.1). Less formal, and at the extreme end of the continuum of definitions, would be *who teaches what, how, why and to whom* and would include *curriculum evaluation, control and classroom interaction* (Lawton, 1983, p.1) or *courses and subjects which comprise the intended outcomes of teaching, the knowledge and skills which it is the business of education to transmit* (Griffin, 1983, p.12) which Griffin commented was the most *influential view (ibid)*. Such traditional models of curriculum are based on the view that learning only takes place within this very narrow and controlled ambit.

These narrow definitions are meaningless but some of the broader definitions are equally problematic.

Broader, more perceptive and realistic definitions include Griffin’s (1978, p.5) who states that it is *the entire range of educational practices or learning experiences* and Sookraj (1998, p.332) who points out that *curriculum is viewed as continuously evolving from the educational context with the four commonplaces that constantly interact with each other: the learner, teacher, community and the subject matter* - to this I would add “the institute” and “the regulators” – which includes the policy-drivers.

Kelly (1999, p.3) provides a comprehensive understanding of the term when he states that *we will understand by the term ‘curriculum’ the overall rationale for any educational programme, including those more subtle features of curriculum change and development and especially those underlying principles which..... are the most crucial elements in curriculum studies.*

In this study I refer to aspects of these broader definitions and suggest that curriculum is multi-faceted and that many forces act and shape both professional development and curriculum, from within and without.

The model that I am pursuing, then, is not the only model but appears to form a good basis on which to develop the theoretical constructs for this chapter. Kelly, whose statement has been mentioned earlier, goes on to suggest that a narrow definition is problematic and *that*

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theoretical framework – curriculum, professional development and the critical questions

*it is likely to hamper rather than to assist the planning of curriculum change and development* (Kelly, 1999, p.3)

As a working definition, for the purposes of this thesis, I will take **curriculum** to mean: **a living system which includes the forces within the conventional definition referred to above and the forces that are at play in shaping the course of study in any given area.**

Even when a workable definition has been established, it must also be recognised that there may be more than one curriculum taking shape. In any curriculum, I would argue, learning takes place on many levels, some intended and some unintended; some consciously aimed for and some unconsciously achieved. Kelly (1999) looks at the totality of the learning experience and draws a distinction between what is **planned** and written down, and what actually happens - the **received** curriculum.

Another distinction may be drawn between the **formal** - what is timetabled - and the **informal** - what happens in the spaces between the timetabled programme. The formal curriculum is the overt, usually written down, schedule of timetabled activities that are offered to potential or actual learners, funders, evaluators, senior academics and so on. Beyond this, an informal curriculum impacts on the learners – the sum of peer inputs, social contacts, recreational activities, personal history and so on. This informal curriculum may enhance or conflict with the formal one. Pillay (1997) speaks of the **official** curriculum - being what is both documented and approved; the **espoused** curriculum - what is the curriculum claimed to be in practice - and the **actual** curriculum - what actually occurs in the classroom (or clinic in the context of dental health science education) - during the course of the implementation stage of the programme. Unplanned-for events may displace, distort or divert the planned programme. Such events are not necessarily negative and may, indeed, be of positive value in achieving the broad aims of the planned curriculum. Subsequent evaluation may lead to a re-designing of the curriculum.

Less obvious but as significant is the **hidden curriculum** which refers to the often unrecognized or unexpressed objectives that may underlie the overt curriculum. These objectives may belong to the designer, the implementer, the learner, the funder, the policy-maker or any individual or group that impacts on curriculum design or its implementation. The hidden curriculum is not inevitably sinister. If the objectives are compatible with the

official curriculum they will impact positively. If they are not compatible, if for example they send a conflicting message to the learner, then the learner may become cynical and disillusioned and alienated from the overt curriculum.

To conclude this section:

I examined the difficult concept of curriculum and highlighted its broad nature. I separated out the two main elements of curriculum into:-

- **the central activity or the core activity that is carried out on a daily basis with the educator/facilitator and the student/learner meaning the teaching, learning and assessment that is operational within a course framework and**
- **the numerous additional and multifactorial forces ranging from access to finance, biographies of the institutes and the students that are at play and which make up what could be called the total curriculum.**

### 3.4.2 Curriculum development

The definition of **curriculum development** - as a concept - is as contested as curriculum. Tight (1996, p.122) gives one option for the understanding of the concept of curriculum development which is that curriculum development *is concerned with the aims, processes and outcomes of educational provision...* and this provides the impetus for this section. It has thus been established that curriculum development is not a hard and fast science. Not only are definitions contested but the act of developing any curriculum is a subjective one – the product of the ideology or mind-set/s of the designer/s. A useful ideological categorisation, proposed by Brookfield (Brookfield, 1988) is that educational programmes fall under four major discourses, **technological, humanist, liberal** and **radical**. The technological discourse for the production of human skills is best understood in terms of assembly lines. The practitioner's role is viewed as that of a technician. Learning is broken down into measurable and testable units or skills. The aim is the production of human capital. The humanist discourse is to do with wholeness, and the practitioner is seen as healer. In this discourse self-improvement and actualization of the individual are key outcomes. The liberal discourse is about entry into established forms of knowledge. The practitioner is seen to be representative of an elite group and having the monopoly over a particular set of skills or body of knowledge. The learner is seen as an acolyte to be inducted into the mysteries. The radical discourse is explicitly political and sees education as part of social transformation and the role of the practitioner as a liberator and conscientizer. The

learner is seen as a member of a class or group to be set free of the hegemonic values of the ruling group or class. Each mind-set produces a curriculum that reflects its own priorities, objectives and values.

Part of this study will be devoted to deconstructing the discourses in current curricula.

Anyone constructing a learning experience needs to look long and hard at the underlying purposes of that construction and the purposes of the intended learning outcomes.

Describing the process of curriculum construction can help to make apparent the conflicting interests, needs and desires which drive it. The needs of those involved in the planning and implementation must be examined and set against the perceived needs of the learners and of the “clients” of the outcomes of the learning.

Thus far I have examined curriculum development as if it is a process driven by “the educator” or a small group of educators. In practice it is impacted on by a much broader spectrum of stakeholders – the ruling party in government who make policy; the economists who prioritize the allocation of funds; business and the professions who impose demands related to the sort of worker they need; the institutions of education who have their own “personality profiles” of the sort of graduates they require; the individual educators with their biographies; the learners themselves with their particular biographies and needs and the public who are the ultimate consumers of the end products of the curriculum. These are all active agents in the production of curricula rather than mere consumers of the professional knowledge produced by academics and educational researchers (Edwards & Brunton, 1993).

In the context of South African education, we have fairly recently been handed a new curriculum - an outcomes-based curriculum strongly influenced by the needs of “political ideologists” in industry rather than “educators”. South Africa is at a point in her history where catching up with the world economy is taking precedence and, it has been claimed that the underlying motif of the curriculum is “learning to earn” rather than “learning to learn”. The objectives of this new curriculum are to produce workers who are technologically literate and multi-skilled. Human capital theory – a market-friendly concept – has become a driving force in South Africa as it has in most of the industrialised countries of the world. In post-apartheid South Africa, struggling to be economically competitive in a world market, there is

*a simultaneous existence of a skilled labour shortage and an unskilled labour surplus*  
(Bhorat, 2004, p.54).

Chisholm (2004, p.4) suggests that

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theoretical framework – curriculum, professional development and the critical questions

*human capital theory posits that improving individual educational attributes will lead to economic growth*

but argues that

*as an analytical tool and basis for making educational decisions it is deeply problematic.*

Thus curriculum and curriculum development are complex issues, and as has been suggested, are shaped, not only by the elements mentioned above, but also by the historical, social and political culture of the institute as well as by the biographies of all the participants. Curriculum development then, is a process, a dynamic and evolving one that involves planning, consideration of a wider range of stakeholders, and plans for feedback and adjustment. It should be enacted to ensure maximal student learning.

Social policy in general and educational policy in particular, is the overarching influence on curriculum development. Policy makers would have the curriculum manipulated to achieve social and economic ends. However, the implementation of curriculum is in the hands of the practitioners who either do not agree with or do not fully comprehend the larger issues. This may be particularly so when curricula are implemented by practitioners who are skilled and experienced in their professional discipline but not in the discipline of education. This view is based on observations made during the course of my research.

Chapters One and Two have examined the social and political changes that have impacted on every aspect of South African life and, in the context of this study, on health science education and provision. The dissemination and application of policy brings us to the interface of theory with practice – with policy making and its implementation. I will be examining whether these innovative policies have, in practice, brought about changes in the dental health education curricula and the resultant development of the dental health professional.

However relevant or far-reaching the policy, it is the capacity – or lack of capacity - of leadership and management that manifests itself as *weaknesses, failures or breakdown of service delivery* (Motala, 2001, p.240) . This section seeks to examine the delivery and implementation end of the theory-practice praxis.

I will suggest, and later demonstrate, that the trickle-down effect of policy to implementation is distorted, diluted or, in some cases, completely disregarded. What are the barriers to policy implementation?

In my structured interviews I have attempted to explore the following aspects of policy implementation in the context of dental education.

- Are practices and procedures set up by management to facilitate and monitor the implementation of policy?
- Is the policy understood by everyone?
- Do practitioners “buy into” the new policies – were practitioners involved in the policy making process?
- Is the policy considered coherent, complete and appropriate at practice level?
- Does the policy relate to the interests and priorities of the practitioners/
- How are staff made aware of the policy?
- Are they trained and supervised in the application of policy?
- Has new policy changed practice?

In Chapters Five and Six I revisit these aspects of the dental health curriculum.

### **3.4.3 Characteristics of curriculum**

Marsh (2004) reviews some of the characteristics of curriculum from “experts” and these are summarised in a table form below. These characteristics go beyond basic definitions by drawing attention to the values underlying the principles and concepts of curriculum. It is a good point from which to launch my own understanding of this thing called curriculum.

theoretical framework – curriculum, professional development and the critical questions

**Table 3.4: Value orientations from conceptions of curriculum**  
- as reviewed by Marsh (2004, pp.7-8) and adapted here.

Walker (1990)	Beane, Toepfer and Alessi (1986)	Longstreet and Shane (1993)	Eisner and Vallance (1974)
<p>Walker argues that the fundamental concepts of curriculum include:</p> <p><b>content:</b> which may be depicted in terms of concept maps, topics, and themes, all of which are abstractions which people have invested and named; <b>purpose:</b> usually categorised as intellectual, social and personal; often divided into superordinate purposes; stated purposes are not always reliable indicators of actions; <b>organisation:</b> planning is based upon scope and sequence (order of presence over time); can be tightly organised or relatively open-ended</p>	<p>These writers produce principles of curriculum but they are more value-oriented and less generic. For example, they list five major principles about curriculum:</p> <p>Concern with the <b>experiences of learners</b>; Making decisions about both <b>content and process</b>; Making decisions about a variety of <b>issues and topics</b>; <b>involving many groups</b>; <b>decision-making</b> at many levels</p>	<p>These authors refer to four major conceptions of curriculum:</p> <p><b>society-oriented</b> curriculum: the purpose of schooling is to serve society; <b>student-centred</b> curriculum: the student is the crucial source of all curriculum; <b>knowledge-centred</b> curriculum: knowledge is the heart of curriculum; <b>eclectic curriculum:</b> various compromises are possible including mindless eclecticism!</p>	<p>Marsh remarks that these conceptions and orientations are often cited in literature.</p> <p>a <b>cognitive</b> process orientation: cognitive skills available to a wide range of intellectual problems; <b>technological</b> orientation: to develop means to achieve prespecified ends; <b>self-actualisation</b> orientation: individual students discover and develop their unique identities: (Vallance deleted this in 1986 and added personal success orientation: pursuing a specific practical end); <b>social reconstructionist</b> orientation: schools must be an agency of social change; <b>academic rationalist</b> orientation: to use and appreciate the ideas and works of the various disciplines</p>

Whilst Marsh reminds us that some may argue that *these conceptions are stereotypes and of little value*, I agree with him that the understanding of these value orientations is *useful in that it reminds people about what they may be following either directly or indirectly* (Marsh, 2004, p.8). *If the curriculum is to be the instrument of change in education, its meanings and operational terms must be clearer than they are currently* (Toombs & Tierney, 1993, p.175).

### 3.4.4 Interaction between curriculum and professional development

Much of the theoretical framework for this study, focussing on the curriculum design for dental health science professionals, is drawn from discourses around teacher education and

development (Zeichner (1983); Schön (1987); Eraut (1996); Brookfield (1988); Cowan (1998); Samuel (1998)). These discourses are as relevant to the development of any professional and will be used as a basis for my conceptual understanding of this field and will also be used to develop a theoretical curriculum foundation for dental health science studies. Such a foundation will be organised to broaden the understanding of what “curriculum” entails as well as models of how professional development can be incorporated into the process of curriculum design. I will suggest that traditional dental education has emphasised the “dental training” at the expense of “education”. Education principles would appear to be common across the professional disciplines.

*Too much is made ... of the alleged distinctness of our disciplines, which some would claim are so fundamentally different that we cannot learn much from educational practice outside our own area (Cowan, 1998, p.4 see also Chapter 8 pp.94-104).*

The overt objective of the curriculum is to create learning opportunities in an orderly and measurable way – in the context of this study to produce a competent, confident and ethical dental professional.

This will be revisited in Chapter Five and Six.

### **3.5 Section two: professional development**

Having carefully navigated the minefield of the terms and concepts relating to curriculum, I now begin a search for an understanding of the nature of professional development since the dental curricula I examine in this thesis all purport to have professional development as their core purpose.

“Professions” and the linked ideas of “professional” are also heavily contested terms both within and without the professions generally and the dental professions particularly. These as Tight (1996) remarks – also have *class and gender connotations*. I am sidestepping this debate and entering directly into the notion of professional development. I highlight what Eraut relates of the argument that Johnson (Eraut, 1992, p.98) makes that

*instead of what constitutes a profession, we should regard “professionalism” as an ideology and “professionalization” as the process by which an occupation seeks to advance its status and progress towards full recognition within that ideology (Eraut, 1992, p.98).*

In other words “professionalism” is a complex concept embodying the persona of the person who is identified as a professional whilst professionalization is the social process

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theoretical framework – curriculum, professional development and the critical questions

by which a category of worker seeks the status, elitism and rewards that are usually granted to a “profession”.

As a point of entry, this section examines and reflects upon a model of the forces that are at play in developing the practitioner (teacher) proposed by Samuel (1998). This provides a guide to understanding the direction of educational reform (Samuel, 2000) and is borrowed here and adapted for understanding dental health science education. Samuel (2000, p.1) argues that a model, which he calls a

*force field model is a more robust representation of the kind of theoretical environment within which teachers (read as dental health professionals) develop their professional competence to make their school (practice) work... (my insertions).*

In this model of teacher development, Samuel (1998) identifies three forces, which are “multi dimensional” and must be understood to act in a “holographic” way. These forces and some of their constituents are summarised in Table 3.5 below:-

**Table 3.5: The Force Field model of practitioner development**

- adapted from Samuel (1998, p.571)

FORCE	ELEMENTS
Inertial/biographical	The forces that the learner experiences as a result of his/her own biography and the perspectives gained from role models, culture and the media
Programmatic	The forces of the educational programmes and their underlying ideologies and delivery
Contextual	The macro and micro forces of the social, historical, political and economic contexts within which the learning institute is located

At this point my thesis borrows elements of this multi-dimensional model and suggests that these same forces act and shape both professional development and curriculum, from within and without. The model that I am pursuing is not the only model but appears to be all encompassing and therefore forms a good basis from which to develop the theoretical constructs for this section.

If curriculum is the building then professional development is one of the rooms with inter-leading corridors to other rooms within the building of curriculum. Within this room of professional development I will examine the underlying concepts that give rise to the “programmatic force”. What happens when a prospective health professional enters into a contract through the institute, with a school or department, with the expectation of obtaining

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theoretical framework – curriculum, professional development and the critical questions

a recognisable qualification? This should happen by living through a programme consisting of formal teaching, learning and assessment activities and expectations of support being provided by the school or department and institute with the resources and a well designed course of studies that is monitored for quality purposes. The key concepts that fall within this scenario (which are largely the curricula concepts categorised by Tight and shown in Table 3.2) are discussed below.

### 3.5.1 Professional knowledge, roles and identities

#### 3.5.1.1 Describing professional knowledge: breadth and types of knowledge

##### Breadth of knowledge

If, as I have proposed, the objective of the curricula I have studied is to produce the dental professional, it is necessary to consider some of the concepts relating to the professional identity and to professional knowledge. The nature of professional knowledge and expertise has been widely debated in the literature. Eraut (1996) defines professional knowledge as *the knowledge possessed by professionals which enable them to perform professional tasks, roles and duties with quality*. He classifies knowledge along two dimensions: the first indicates the context within which professional knowledge is used. The second deals with the specific areas of knowledge of the profession. He further divides professional knowledge within these two dimensions as listed in the Table 3.6 below.

**Table 3.6: The context and specific areas of professional knowledge**

- adapted from Samuel (1998, p.127)

PROFESSIONAL KNOWLEDGE	
Context	Specific Areas of Knowledge
1. Classroom knowledge	5. subject matter knowledge
2. Classroom related knowledge	6. educational knowledge
3. Management knowledge	7. situated knowledge
4. Other professional roles	8. societal knowledge

Although Eraut's classification has been used widely in education research (Samuel, 1998), it was originally formulated within the context of review of the professional training of nurses. He concludes this classification with the interesting and significant comment that once we recognise the breadth of a professional's knowledge, it becomes apparent that much of it is acquired outside the zone of the professional educator's, even during the period of formal preparation of the professional.

### Types of knowledge

Writers on the types or kinds of knowledge or ways of knowing have different ways of distinguishing them.

Luckett and Sutherland quote Perkins (Luckett & Sutherland, 2000, p.107) on the four categories used to describe different types of knowledge in which the learner within the discipline:

- acquires facts, concepts and routine procedures of the discipline – as **content knowledge**,
- learns how to solve typical formulaic problems in the discipline – as **problem-solving knowledge**,
- gains awareness of what learning and understanding in the discipline demands and conduct justificatory and explanatory *understanding performances* – as **epistemic knowledge**,
- understands how to challenge results and assumptions and can construct new knowledge within the discipline – as **inquiry knowledge**

The concept of *applied competence* (see below), incorporates the notion that there are different kinds of knowledge.

Biggs (2003, p.42) groups the kinds of knowledge into knowing, when, why and how to use it categories. He describes these as follows:

- **Declarative or propositional (*knowing about things*)** knowledge which is characterised as factual and academic and it is that which is codified and stored in places like libraries, data bases and books.
- **Functioning (*knowing about things, when, why and how to use it*)** - knowledge which is within the experience of the learner, who can put declarative knowledge to work by solving problems. It requires a sound foundation of declarative knowledge.
- **Procedural (*knowing how*)** knowledge which is skill-based and is the *functioning knowledge without the conceptual foundation* and relies on having the right “competencies” to deal with a situation when it arises.
- **Conditional (*knowing about things, how and when to use it*)** knowledge that is a combination of procedural and declarative *so that one knows why, and under what conditions, one should do this as opposed to that.*

Eraut (1997, p.552) distinguishes two broad types of knowledge, namely, propositional as **Type A** and personal as **Type B**. The acquisition of the latter Eraut describes as including propositional knowledge

*along with procedural, and process knowledge, tacit knowledge, and experiential knowledge in episodic memory* (Eraut, 1997, p.552).

Gibbons (Gibbons et al., 1994) and Leinhardt, McCarthy Young and Merriman (1995) provide an alternative perspective on the groupings of knowledge. These recognise the roles of institutes and the professional and make a distinction between the two types of knowledge demonstrated by these categories.

Leinhard et. al. (1995, p.403) argues that knowledge acquired in the settings of the *practice* or the *academy* can vary in the types of knowledge (declarative or procedural), the generality of knowledge (abstract or specific), and the nature of principles (conceptual or pragmatic).

The types of knowledge acquired are therefore:-

- professional knowledge that tends to be procedural, specific and pragmatic and deals with executing, applying and making priorities, whereas
- university knowledge that tends to be declarative, abstract and conceptual and deals with labelling, differentiating, elaborating and justifying.

In present day practical terms the general policy for *technikon instructional programmes* (Department of Education (DoE), 1997b, item 2.2.2) stipulates the percentage, through SERTEC/CERTEC, of the types of *content* matter that each *subject* must have. The types are classified into A, B and C categories, where the different types are classified as follows:  
Type A – subject content *that which is aimed mainly at the practising and mastery of manual skills or crafts, ways of doing things and techniques which amount to their application and practice* (skills, knowledge, learning and memorising).

Type B - *that which is aimed mainly at the practising and mastery of the application of existing knowledge, technology, results and formulas relating to a specific vocation/industry segment* (application).

Type C - *that which is aimed mainly at the practising and mastery of a basic theoretical substructure and the inculcation of the fundamental principles of scientific thought and method. This presumes mastery of basic and contextually-basic subject contents* (evaluation and analysis).

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theoretical framework – curriculum, professional development and the critical questions

*The profile for each technikon programme instructional programme, up to and including the higher diploma, it is stated, should have credits consisting of 20% of Type A, 60-80% for Type B and 20% of Type C subject content knowledge.*

What I have thus far avoided is a direct confrontation with the concept of skill and where it fits into the categories of knowledge listed above. Tight (1996, p.127) highlights the point that skill, like the concept of knowledge, is *socially constructed and a political term* and that it is not just *multi-valent but multi-level*. It is a challenging and emotive concept open to different interpretations and contestations depending on the disciplinary interests. I will return to this viewpoint.

Attempting to define skill can stir up issues of the dichotomies between universities and technikons; academic and vocational; education and training; degrees and diplomas or certificates; theory and practice, particularly in disciplines like dental health science where students acquire knowledge and a great deal of practical experience (skills?) through steady and prolonged exposure to actual supervised practice.

Toohey (1999, p.124) draws attention to a useful way of thinking about skills by placing them on a continuum ranging from *reproductive* skills to *productive* skills, or - as she calls it - skilled performance. Looking closely at productive or skilled performance, she identifies four stages which a student must master in order to be able to perform tasks in a skilful fashion. She describes them as follows:-

- a) **interpreting situations** and recognising characteristics of typical problems,
- b) **calling up one's knowledge** of the full range of strategies and procedures which could be considered,
- c) **planning a response** – evaluating the options and choosing one strategy or procedure or a combination,
- d) **performing** – carrying out the planned actions with the necessary degree of dexterity, strength, fluidity, self control, sensitivity to others or whatever may be the characteristic of skilled performance in this particular situation.

In summary, *skills are actions (and reactions) which a person performs in a competent way in order to achieve a goal* (Hart, 2001, p.364).

*In sum, if the target is functioning knowledge, the theoretical (declarative) knowledge needs to be developed to relational/extended abstract levels in order to provide both the knowledge of the specific context, and conditional knowledge that enable the skills*

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theoretical framework – curriculum, professional development and the critical questions

*to be performed adequately. It is a matter of addressing and integrating several domains of knowledge. In designing our objectives, we should be ensuring that by the exit level at graduation, students' knowledge is alive and functioning* (Biggs, 2003, p.43).

I will be discussing the skill-based nature of dental training in Chapters Five and Six. I will argue that much of the training of dental personnel is aimed at the basic level of skills rather than the more profound interpretation posited by Toohey (1999) cited above.

### 3.5.1.2 Professional roles and identities

One of the characteristics of a profession is that its members assume a role or identity which is perceived as the norm, both among members of the profession and its clients. The professional-client relationship has been an integral one in the identification of the professional. In the traditional professional/client relationship, the professional is expected to deliver services to the client to the best of her/his ability and competence and to respect and not take advantage of the details of this special relationship. This assumed role is rarely questioned and the "cultural identity" of the profession is passed on from generation to generation as an implicit part of the curriculum. This hegemonic paradigm is established by the dominant group in any organisation and accepted uncritically by the majority. These roles are often very resistant to change (Beecham, 2000).

Traditional professional education *continues to be dominated by information-giving and awareness-raising, short and one-shot activities* (Day, 1997, p.195). Day, goes on to claim that this traditional stance is *(mistakenly) viewed as cost-effective from a managerialist perspective associated with a belief in the effectiveness of an input-throughput-output model of curriculum delivery* (Day, 1997, p.195). Day describes this non-reflective model of professional education as creating *restricted professionalism* that will *diminish the capacity for ... sustained professional development*. (Day, 1997, p.197).

Schön (1987, p.4) points out that *we grant professionals extraordinary rights and privileges* but goes on to describe how there has been an increasing

*loss of faith in professional judgement* and he calls for *external regulation of professional activity*.

In his book *The Reflective Practitioner*, Schön (1987) postulates that the once-off professional education is now recognized as inadequate. The professional must continuously investigate her/his own practice in order to make it relevant to the changing knowledge-base and social context. The social context includes a better-educated and more aware client-base

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theoretical framework – curriculum, professional development and the critical questions

who may challenge the professional rather than offer the former unquestioning deference. Thus, Schön says, professionals are becoming increasingly and more directly accountable to the consumer/client. Stenhouse (1975, p.144) elaborates the notion of the

*extended professional who demonstrates the commitment to systematic questioning of one's own teaching as a basis for development.*

He argues

*that the outstanding characteristics of the extended professional is a capacity for autonomous professional self-development through systematic self-study, through the study of the work of other teachers and through the testing of ideas by classroom (practice) research procedures (ibid).*

Pascale (1990, p.13) posits

*that self-renewal as an underpinning purpose of professional development is essential because, in changing times, our existing mental maps or frames may 'cease to fit the territory'.*

These developments obviously have significant impact on the education and training of the professional as s/he continues to develop new competences in response to new challenges. Beckett and Gough (2004) question *how can teaching construct professional identity?* They conclude that the students they interviewed admitted that they gained a certain amount from the tutoring they received but more meaningful was the students' own biographies and personalities that mediated their response to the workplace experiences and shaped their transformation to professionals. This certainly confirms both my own experience and my findings in my research.

In Chapter Six I return to these arguments and suggest that current dental education curricula fall short of preparing all categories of dental health professionals for these challenges.

### 3.5.1.3 Models of professional development

Thus, it is not only the revolution that is taking place in education in South Africa that must have a major impact on dental education and training. Significant changes in social identities also impact on the sort of professional that will be needed. Without a clear idea of what professional identity is, it is difficult to design a programme for professional development. Any new curriculum must take on board the major transformational agenda, manifested in the principles underlying SAQA, White Paper on Education and Training (WPET: 1995) (Department of Education (DoE), 1997a) and OBET. Outcomes-based education and training

focuses on enabling the learner to achieve competency in outcomes specified and negotiated by a much broader spectrum of "curriculum designers". Education and training are seen not as once-and-for-all, "front-end learning", but are intended to produce a learner who takes charge of her/his own learning, is confidently able to make decisions and has the skills to identify and solve future problems. It is important, at this juncture, to point out that, whilst certain aspects of the OBET philosophy may be of value to underpin a new curriculum, the concept, as a whole, is highly controversial and its implementation has been critiqued by educationalists inter alia (J. Jansen & Christie, 1999; Young, 2005). In Chapter Six the writer will examine and suggest how certain of these principles can be used to underpin curricula for dental education and training that will provide the dental professional with not only career-specific skills but also with a career-long development/learning mind-set.

In this section, various models of professional development are examined. Samuel (2000) describes professional development along three dimensions: the *articulate*, the *active* and the *activist*. The *articulate* professional teacher is one with insight into her/his own belief-systems and methods and is able to articulate them – that is, one who is able to articulate the kind of educational platform/educational foundation/ professional teacher knowledge that s/he operates within or from. The *active* professional teacher is one who is able to see her/himself not as a victim of circumstances, but as an agent who is able to challenge the stereotypes of convention and conservative practice and action. Such a professional is eager to continuously upgrade her/his knowledge base and that of others. The *activist* is one who is not content about 'what is', but 'what could be' and is prepared to push back the boundaries of her/his profession in the interests of equity.

Samuel goes on to look at Stuart's (1997) model on teacher education and Zeichner's (1983) paradigms on teacher education and relates these teacher roles and identities. Bines (1992, pp.12-27) identifies three main models of education which are labelled the *pre-technocratic or apprenticeship model*, the *technocratic model* and the post-technocratic model. I describe them here as I believe they illuminate present day curricula for dental education.

In the first model (pre-technocratic or apprenticeship)

*professional education takes place largely on the job but some instruction may be given through block and /or day release in an associated training school or institute of further or higher education (Bines, 1992, p.12).*

The curriculum largely comprises the acquisition of 'cookbook' knowledge embodied in practice manuals and the mastery of practical routines. Instruction is largely provided by

experienced practitioners, although subject specialists may make a contribution, either to liberalize the curriculum or to make specified or strictly limited contributions on particular knowledge elements. This is primarily a model for initial rather than continuing professional development, characterized by a tight and instrumental focus on professional requirements and competences which are not seen as problematic.

The second model, *the technocratic*:

*has become the pattern of professional education for a large number of professions in recent years. It has tended to take place in schools associated with, or incorporated in, institutions of higher education. It is characterized by the division of professional education into three elements.*

- *the development and transmission of a systematic knowledge-base, largely, though not exclusively, based on contributing academic disciplines, such as the natural and social sciences, including both 'pure' and 'applied' dimensions.*
- *the interpretation and application of the knowledge-base to practice, including coverage of the range of professional activities and their contexts, problem-solving principles and processes and socialization into particular values and behaviours. Presentation is often multidisciplinary and/or may be based on theoretical models of practice, for example, 'the nursing process' in nurse education.*
- *supervised practice in selected placements.*

*This model also represents a shift in control towards the educational institutions who run the courses. Employer and national bodies may select and accredit institutions and their courses and may be involved in course design and validation. However, curriculum content and delivery are largely the responsibility of course providers, who also usually play the dominant role in the final assessment of professional competence (Bines, 1992, pp.12-13)*

Bines (Bines, 1992) points out some of the weaknesses with the technocratic model, in that:-

- there may be variations in concepts of professional competence, the knowledge base that is transmitted and the approaches to teaching both theory and practice and degrees of student's choice,
- it can easily fragment overall learning into unrelated parts,
- it fails to reflect on the nature of professional knowledge and action and the ways in which professionals actually develop their practice.

A third model is proposed (Bines, 1992): the *post-technocratic model* which emphasizes the acquisition of professional competences through practice and reflection, with students having skilled practitioners as coaches or mentors. Accepting that professionals, like all workers, can no longer expect to be prepared for their whole careers during their initial education this model emphasises this aspect of “continuous professional development” and that life-long learning should be a feature in the development of the potential professional.

Samuel (1998, pp.135-136), referring to Eraut, divides knowledge into codified or propositional (see also types of knowledge in 3.5.1.1 above) and private, whilst cautioning that overlaps between the two forms are not excluded. *Private knowledge is the kind of knowledge that individuals privately form, despite the publicly agreed upon propositions.*

Using the following illustration (figure 3.1) it is suggested that the

*formal academic propositional knowledge represents only the tip of the iceberg above the surface of the water in relation to what knowledge (student) teachers (health professionals) require in order to execute professional practice (my insertion).*

He further adds that this propositional knowledge on the “tip”

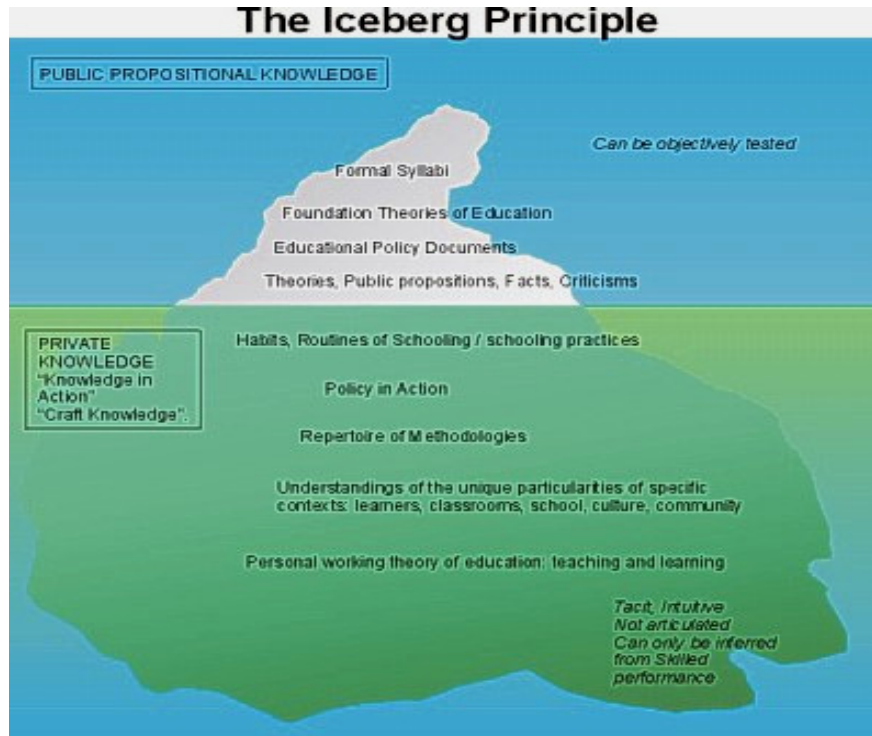
*can be objectively tested and therefore finds favour with teacher education curriculum designers, academics or policy makers who seem preoccupied with providing evidence of student teachers (health professionals) having grasped teaching competence (ibid) (my insertion).*

The *knowledge in action* or *craft knowledge* operate below the sea level of the iceberg is what is acquired in the *everyday of classroom interaction* and involves

*developing deep personal understanding about how to deal with the unique particularities of specific contexts, specific learners, classrooms and schools cultures. This form of knowledge is potentially a highly individualistic perspective on the nature of teaching/learning processes.*

theoretical framework – curriculum, professional development and the critical questions

**Figure 3.1: The Iceberg Principle**



reproduced from Samuel (1998, p.136, 2007 )

Notwithstanding the impact of the forces mentioned above in developing the professional, the styles and mode of delivery (referred to in 3.5.2.2) of teaching, learning and assessment and the effects it has on the learner influence the type of practitioner that is to be developed. What models of professional development are promoted in dental health science education and training and what lies *below the surface*?

### 3.5.2 Qualifications and pedagogy

#### 3.5.2.1 Building for qualifications

Traditional ways of signifying/measuring certification following assessment after completing a course of studies consists of three elements, time spent studying the units, units of study completed and the levels and rigour at which the units were studied and assessed. These do not actually signify certification and they do not follow completion. Traditionally, the units are grouped into larger units, usually called subjects or courses, and assessment is conducted in these courses, usually at the end of the year for those in full-time studies. The assessment

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theoretical framework – curriculum, professional development and the critical questions

may consist of one or more methods – written, practical, OSCE (Objective Structured Clinical Examination), oral. Passing all courses leads to promotion into the next year of studies. At the end of a period of studies, qualifications are usually awarded – one year for a certificate, two years for a diploma and three years for a degree. The dominant mode of teaching is to get through as much content as possible and to examine (assess) as much as possible.

Promotion into the proceeding year is dependent on passing individual courses which in turn are dependent on passing components (papers) of the courses or group of courses. The way the courses are grouped and divided over years is generally known as the “curriculum”, and the “syllabus” provides the contents for the courses.

An alternative approach is to introduce a degree of flexibility in the manner in which the student progresses over a period of time to accumulate enough credits to merit the award of a qualification. This is known as the modular programme. In essence this consists of credits obtained from building blocks, called modules or units of study, which are discrete entities, with a degree of coherence, and the learning outcome can be assessed within this block. The accumulation of the correct number of blocks obtained from within a faculty, or across faculties within the same institute, would lead to a qualification.

Regardless of the approach, the unit of study is a relative size which has to bear a currency with which the module could be equated and the accumulation weighed to gain a qualification. The currency has a time element and a degree of complexity and way of rating it.

In South Africa, *in terms of the Higher Education Act, institutions have to redesign all their academic courses into coherent programmes* (Du Pré, 2000, p.39). This was reflected in a burst of activity by institutes to “modularise”.

The following key features and concepts were used in determining modules in “refashioning” courses

- the credit allocation determines its size
- the level is determined through the medium of level descriptors
- the credit rating of a module is arrived at through the concept of notional study hours (NSH) and the notional hours of the module is linked with the credit rating (i.e. one notional hour of study is equal to one credit point)
- modules are described as core/compulsory/foundational, optional or elective

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theoretical framework – curriculum, professional development and the critical questions

programmes - which are defined as a *purposeful structured set of learning experiences that leads to one or more qualifications* (Department of Education (DoE), 2002) - consist of modules.

One major criticism of modularised programmes over traditional ones is that modularisation does not *encourage deep engagement with a discipline* (Toohey, 1999, p.116).

### 3.5.2.2 Teaching/learning/assessment

These three concepts are dealt with together since, I argue, it is inappropriate to discuss them separately. In order to teach or train – or to learn - it is necessary to establish perceptions of what learning should be. In the context of this study the term “learning” – so frequently and loosely used – has many levels of meaning. Certainly at higher education levels it must mean more than superficial change in knowledge and/or behaviour. Learning is a multi-level process that implies a deep understanding and an irreversible ability to transfer and apply knowledge above and beyond the original context. Martin (1999) summarises comprehensive and layered approaches to learning thus

Surface approach:

- learning as a quantitative increase in knowledge
- learning as memorising and reproducing
- learning as applying facts, skills and methods

Deep approach:

- learning as understanding
- learning as seeing something in a different way
- learning as changing as a person

Martin (Martin, 1999) debates the common perceptions that surface learning is more appropriate to science and related fields whilst deep learning more appropriate to the humanities. She argues that learning in all areas and all academic disciplines should be concerned not just with superficial details, facts and figures, but with the underlying concepts, principles and applications.

Van Rossum et. al. (1985) report five different views of students on their conceptions of learning. These are:

- learning as acquiring knowledge
- learning as memorizing and long term retention
- learning as application

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theoretical framework – curriculum, professional development and the critical questions

- learning as insight or understanding
- learning as personal development

A sixth was added and as noted by Toohey (1999, p.13)

- learning as transformational

The educator and the student need to share and agree on those perceptions. The research reported by Martin showed that students using – or being exposed to - deep learning approaches were more likely to describe their learning as meaningful and satisfying whilst those employing – or being subjected to – surface learning methods and approaches were more likely to complain of overload, frustration and dissatisfaction.

Surface approaches to learning, Martin claims, are fostered or supported by:

- assessment methods emphasising recall, rote learning or the reproduction of trivial detail
- assessment methods that create anxiety
- cynical or conflicting messages about rewards
- an excessive amount of material in the curriculum
- inadequate feedback
- lack of independence in studying
- previous experiences of educational settings that encourage these approaches

Deep learning is more likely to be engendered by:

- assessment methods that foster active and long term engagement with learning tasks
- stimulating and considerate teaching
- clearly stated academic expectations
- opportunities to exercise responsible choices in the method and content of study
- previous experience of educational settings that encourage these approaches (Martin, 1999, p.28).

Biggs cites research that seems to suggest that such complex and deep definitions evaporate when it comes to assessment (Biggs, 2003, p.35). Conventional and persistent assessment methods focus on the easily tested superficial learning of “facts and figures”. Most assessors find it much more difficult to design (and mark) assessment that examines deeper learning.

*Large classes that pre-empt in-depth teaching, jam-packed curricula that attempt to cover too much and the apparatus surrounding accreditation – the reporting of*

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theoretical framework – curriculum, professional development and the critical questions

*assessment results, concerns about security – all make assessment for in-depth understanding difficult (Biggs, 2003, p.36).*

Thus it can be seen, assessment is intimately allied with the two levels of learning. Indeed it can be argued that

*assessment defines for students what is important, what counts, how they will spend their time and how they will see themselves as learners. If you want to change students' learning, then change the methods of assessment (cited in Lockett & Sutherland, 2000, ch. 4, p.98 quoting Brown, Bull and Pendlebury (1997)).*

Important for the processes of learning and assessment is the biography of the learner. This includes not only their learning experiences but also their family setting and their resulting personalities, their economic circumstances and their levels of advantage. Biggs, (2003) describes the interface of what he calls "presage" factors– the linking of student-based characteristics and the teaching context. These factors, as discussed, interact positively or negatively at the learning level so that the previous learning experiences or skills of the learner may promote or interfere with deep learning as well as the assessment styles applied. Biggs says

*the students bring in their abilities, personalities and motives; the teachers bring in theirs and they make decisions about teaching and assessment (Biggs, 2003, p.19).*

Thus, no group of learners responds the same way to a programme, even if it has the same components and is taught the same way and assessed the same way. The learning outcomes are likely to be different. In South Africa, it is undeniable that inequity means that learners' personal and educational experiences reflect significantly on their tertiary education careers. Since the White Paper on Education and Training (Department of Education, 1995), there has been a pedagogic shift from the teacher-dominated model of education to the learner-centred model, and from front-end education to a proposed culture of lifelong learning. Teaching, learning and assessment strategies have had to undergo a complementary transformation.

The mode of delivery, which includes teaching/learning/assessment strategies, is inevitably harnessed to achieve what is valued as the underpinning of professional knowledge. The different methods for engaging with learners, and thus influencing a particular kind of practitioner, are tabulated below:

theoretical framework – curriculum, professional development and the critical questions

**Table 3.7: Methods of engaging with learners**  
Philosophical, epistemological and pedagogical underpinnings

<b>View of</b>	<b>Traditional Vocational/neo Classical (technical interest)</b>	<b>Hermeneutic Liberal Progressive Interaction (practical interest)</b>	<b>Critical Socially Critical Critical-Emancipatory (emancipatory interest)</b>
<b>Philosophical orientations</b>	e.g. Knowles	e.g. Mezirow	e.g. Friere
<b>Knowledge</b>	Objective: a public matter; exists in books, performances: mostly described as skills and information, (facts, concepts) which have their meaning and significance in occupational or disciplinary contexts; special concern is for the technical/rational/scientific/managerial interests of knowledge (knowledge for control). Strong split between 'mental' and 'manual' (skills) aspect of knowledge	Subjective: a 'private' or individual matter: exists in an accomplishment or 'in the head' of the individual; mostly described as learnings, attitudes and living skills which have meaning and significance in the individual's life context and the culture; special concern is for the practical/expressive/cultural interests of knowledge for communication, deliberation and refinement. Integration of mental/manual in individual work	Dialectical: an interplay of subjective views of the world and the historical and cultural frame-works in which they are located. Sees knowledge as constructed through social interactions and thus as historically, culturally, politically and economically located. This kind of knowledge is not easily specified: it has its meaning in actions or projects whose significance is in specific historical, political and economic contexts. It places a central value on the role of knowledge in social action: the emancipatory interests of knowledge (knowledge or social justice through critique and collaboration). Mental and manual aspects of knowing are integrated in group work
<b>Broad curriculum - organisation</b>	rigid subject differentiation and timetabling; stringent selection of students based on performance criteria	Weak subject differentiation and timetabling: selection of students on basis of interests and readiness	Differentiation of subjects and use of time based on negotiation between community, teachers and learners about the whole curriculum as a 'project'; 'selection' is based on commitment to tasks, the limits of resources, expertise and capacity to participate productively in common activities
<b>Learning theory</b>	Behaviourism; deficit models of the learner: 'transmission' theories of learning e.g. Skinner, Ausubel, Gagne	Constructivist-interactionist; models of the learner as building cognitive structures through interaction e.g. Dewey, Piaget	Social constructivist-interactionist model of the learner as reconstructing in his/her own knowledge a social reality that is socially constructed and subject to reconstruction through historical and political processes e.g. Berger and Luckman, Foucault, Gramsci, Habermas
<b>Teacher-learner (TL) relationship</b>	An authority figure who controls the learning process in a hierarchical relationship: status = power	A leader who progressively yields control of the learning process to learners within a mentoring relationship; status and power based on merit	A co-ordinator with emancipatory aims who emphasises commonality of concerns within an open and democratic relationship;

theoretical framework – curriculum, professional development and the critical questions

<b>View of</b>	<b>Traditional Vocational/neo Classical (technical interest)</b>	<b>Hermeneutic Liberal Progressive Interaction (practical interest)</b>	<b>Critical Socially Critical Critical-Emancipatory (emancipatory interest)</b>
			deliberately aims at power-sharing and participatory control
<b>Dominant theory</b>	<b>Behavioural</b>	<b>Constructivist</b>	<b>Social constructivist</b>
<b>Teaching (T) method/s</b>	Lectures	Discussion groups, workshops	Platonic/Freirian
<b>Role of learners (L)</b>	A receiver of transmitted knowledge who can produce correct information within the framework of what is taught; often instrumentalist attitude to learning; tends to adopt a surface approach to learning	An active constructor of his/her knowledge who builds it via experiential and enquiry-based learning activities; tends to adopt a deep approach to learning	A co-learner who participates in socially significant collaborative projects with a view to furthering social justice and critiquing and reconstructing received knowledge
<b>Learning (L) method</b>	Listening	Engaging, self directed	Critiquing
<b>Assessment (A) strategy</b>	Test the 'what'; summative; exams to test acquisition of propositional knowledge and mastery of skills; feedback often limited	Tests the 'how'; summative and formative; varied procedures – open book, projects, orals, etc. to assess learner growth and effectiveness of teaching; emphasises feedback as part of the learning process; encourages a deep approach to learning	Negotiated assessment; peer assessment; goal-based assessment – i.e. learners' critical response and contribution to action
<b>Assessment (A) examples</b>	Exams, tests, practical's	Assignments, projects	Portfolios, assignments, collective learning, journals
<b>Effects</b>	Transmission (T) Rote (L) Summative (A)	Knowledge construction (T) Interpretive (L) Summative and Formative (A)	Contestation of existing concepts (T) Social Justice (L) Formative (A)
<b>Desired learner's outcomes</b>	finding one's place in society, having the skills to fulfil work roles	The 'educated person': one who is self actualising, reflective, and potent as a human being who has learned how to learn and pursue his/her own vision of the true and the good	a critical and constructive co-participant in the life and work of society, who sees self-actualisation in a social context, who pursues the true and the good in transforming and being transformed by society, not purely individualistically
<b>Practitioner conceived as</b>	<b>Technician</b>	<b>Facilitator Thinker</b>	<b>Liberator</b>

Adapted from Kemmis, Cole and Sugget, (Kemmis, Cole, & Suggett, 1983, pp.17-27) Tisdell and Taylor (Tisdell & Taylor, 1999, p.7) and Luckett – as cited in Mothata, van Niekerk and Mays (Mothata, van Niekerk, & Mays, 2003, p.83)

By articulating and tabulating the different models and paradigms of pedagogy, this writer does not mean to claim that these are exclusive one of the other. Rather, as Knight (1997, p.3) claims

*a strategic view of learning leads to the conclusion, that different learning methods are more or less suited to different learning goals.*

Thus, any curriculum framework must represent a broad view of available pedagogical theories and approaches.

### 3.5.2.3 Competence, outcomes and performance

The literature seems to use the term *competence* and its plural *competences*, and *competency*, with its plural *competencies* interchangeably. Mahomed (1996) draws attention to some of the often inconsistent terms used in this area.

It is not the intention here to debate the linguistic connotations of the terms nor is it the intention to debate the “contested” concepts (Chappell, Gonczi, & Hager, 1995) implied by competence or competency but to highlight some broad issues and their implications in relation to assessment, and, by corollary, the intended teaching and learning.

For the purposes of this study the conceptual understanding of this term is best captured by Wolf (1995, p.3) who defines the term that *encapsulates* both the inseparable nature and elements of competence-based education and competence-based assessment that it is used here as a working definition. That is:

*Competence-based assessment is a form of assessment that is derived from the specification of a set of outcomes; that so clearly states both the outcomes - general and specific - that assessors, students and interested third parties can all make reasonably objective judgements with respect to student achievement or non-achievement of these outcomes; and that certifies student progress on the basis of demonstrated achievement of these outcomes. Assessments are not tied to time served in formal educational settings.*

Though the intention in this section was not to engage in the philosophical aspects of competence-based education - and competence-based assessment with which it is inextricably linked - it is difficult to resist the temptation to dip into some of the thoughts from respected writers. One such writer who expresses some thought-provoking ideas is Barnett (1994) who intimates that:-

- This (competence and outcomes) is part of the new vocabulary that has arisen in higher education *concerning the relationship between knowledge, higher education and society* (Barnett, 1994, p.69),
- This vocabulary he analyses as having two strands, that of the state’s *steering needs and motivation* and the demands of the learning society.

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theoretical framework – curriculum, professional development and the critical questions

The new vocabulary - which Barnett states as being *an epistemological assault on the very character for what counts as reason in the university* - include transferability, competence, outcomes, experiential learning, capability, performance and enterprise. He brings in another dimension to the competence debate. Barnett states that there are two parts, viz., epistemological and ontological, in the problems with competence and that it *sits uneasily with understanding*. Understanding can be *present without it being demonstrated* (Barnett, 1994, p.75).

However, as Wolf (1995, p.31) points out, the core of competency-based approaches has greater meaning in vocational and professional education and training and despite the extreme positions on the effects of competence and the widespread critique of OBET, *the ideas on which competence-based assessment is founded are unlikely to disappear* (Wolf, 1995, p.138).

The language of competence and outcomes gained momentum in the U.S.A., U.K. and Australia in the late 1980s and early 1990s and from the late 1990s in South Africa with the foundations laid in the promulgation of the South African Qualifications Authority Act, 1995 (SAQA, 1995). With the overwhelming documents that emanated from this authority came additional words to some of those already discussed. In the South African Outcomes Based Education and Training, (OBET) as it came to be known, with its commitment to learning outcomes and critical cross-field outcomes (referred to below), the concept "applied competence" was introduced.

In the many SAQA publications the terminology is well defined, for example in (SAQA & Nkomo, 2000, p.16). Applied competence is defined

*as the ability to put into practice in the relevant context the learning outcomes acquired in obtaining a qualification.*

Furthermore, the concept "applied competence" is used to refer to:-

- *foundational competence is described as an understanding of what is being done and why,*
- *practical competence is described as a demonstrated ability to do a particular thing and*
- *reflexive competence is described as demonstrated ability to integrate or connect performance with the understanding of that performance so as to learn from the actions and adapt to change and unforeseen circumstances.*

An interesting distinction in competence-based assessment is that between competence and performance, especially in the clinical situation. Gordon, Saunders and Sanson-Fisher, (1989)

theoretical framework – curriculum, professional development and the critical questions

distinguish between competence and performance in that clinical competence may not necessarily be reflected in performance as, in the dental education context, the latter involves the way the management of a patient is undertaken.

Having discussed the concepts around competences, performance and capability, what types of outcomes can be identified? An example of the learning outcomes, general and critical, which should guide curriculum development within a framework - for example the NQF - where students should acquire knowledge, skills, values and identified by the College of Science at the University of Witwatersrand are as follows:

**Table 3.8: Developing general/critical outcomes**

- reproduced from (Dison & Pinto, 2000, p.202)

communication	be able to access appropriate material for reading and effectively communicate their knowledge by written and oral means
mathematical competence	understand how to work with numbers, patterns, mathematical relationships and be able to use appropriate mathematical language to do so
problem-solving	apply scientific knowledge and skills to problem solving, in the broadest sense, and in everyday life
scientific method, experimental techniques and science in everyday life	select and employ appropriate equipment to generate data; process this data and judge whether the method and results are reasonable and consistent with prior knowledge; apply scientific principles to everyday life
critical thinking	be able and willing to ask questions
information management	access, process and use data and information appropriately
ethics and attitudes	demonstrate an understanding and appreciation of ethical issues in science
awareness of career opportunities	access information about career opportunities and set realistic goals that will enable them to make the best of their potential and talents
conceptual understanding in selected scientific disciplines	have a deep knowledge and understanding of the content of selected disciplines and be apply this knowledge

Alverno College (Mentkowski & Doherty, 1984), which believes in developing the whole person rather than a person with a set of technical skills, identified eight core and broader competences (later called abilities) that students should acquire in their development of skills, knowledge, values and attitudes.

*Alverno's eight abilities* are in the areas of

- communication
- analysis

- problem solving
- valuing in decision making
- social interaction
- taking responsibility for the environment
- involvement in the contemporary world
- aesthetic response should be encouraged.

These I suggest, are outcomes that should be factored into any curriculum with the aim of developing the dental professional.

### **3.5.3 Access and success**

If success as determined by the assessment process is the end point or the product of the learning experience leading to a qualification, then access for entry into the programme is the starting point. Inclusion and exclusion from a programme should be considered from a wider perspective than merely that which is controlled by means of admission criteria that are fine-tuned by selection criteria and determined by the grades obtained at senior school level. It must be noted that the very use of the terms “inclusion” and “exclusion” evoke sensitivities of their own.

Jacob and Plamping (1989, p.6) described access in relation to access to health care delivery as encompassing the specific dimensions of availability, accessibility, accommodation, affordability and acceptability. I borrow this description here as it sits very comfortably with my understanding of access to higher education (see also Chapters 5 and 6).

#### **3.5.3.1 The needs of the individual**

What motivates an individual to select a career and to pursue a course of studies at a particular institute? The choices may be influenced by several considerations – using Maslow’s (Cronje, DuToit, & Marais, 2004) hierarchy of needs - the need for status, the need for economic security and the need to serve the community are among these. Tight (1996, p.143) adds a further dimension that of the extent of *commitment* from the individual in participation in the programme of studies reminding us that participation *can be viewed as a continuous rather than dichotomous variable*.

The institute selected by the potential student to pursue a course of studies may fulfil some or most of these needs. Coupled with access are the needs (encompassing the three

dimensions of normative need, felt need and expressed need) and demands of the potential student. In addition, societal, departmental, school and institutional needs may follow different trajectories and even have political resonance. The restructuring of higher education, described in Chapter Two, was not, I suggest, motivated by student needs. Geographical availability to a chosen institute offering the required courses is limited so that students may have to make a second, third or even fourth choice (with the resulting costs as a factor particularly for disadvantaged) based on the proximity of an institute rather than a first-choice course.

### 3.5.3.2 The needs of the institute/school/department

What motivates an institute or school or department to seek out - or even sit back and receive - students for admission into their programmes is as complex as the reasons for students seeking admission. These influences are likely to be informed by the basis, and the ideology, on which the education provision is founded. Every institute or school or department has the need to fill the courses it offers. Ideally, if the courses match the needs of individuals, these courses should be filled by highly motivated, academically adept and committed students who will complete the courses, pass the assessments and move out into their chosen careers.

Every institute also has to prove itself to be viable. That means they have to “fill” courses. This may be not be a problem if the course is a popular or a scarce one, like medicine or dentistry where it is the “sellers market” and where the “buyers” have to provide higher credentials. These schools or departments can be highly selective. If the course is viewed as one offering reduced career prospects and limited economic reward – like dental assisting – then this may encourage applicants with lower credentials. In this scenario the forces are more on the side of the “buyer”. Applicants may be accepted by institutes because they make up the numbers.

An alternative scenario is that applicants, who may be making a desperate final choice to be admitted into tertiary education, are drawn into courses that have vacancies. This claim is based, over a number of years, of personal observations and discussions with colleagues within my institute and across institutes and disciplines.

In the South African context, in addressing historical imbalances, terminologies such as wider participation, inclusion and exclusion and social redress - terms that in themselves appear neutral but have wider ramifications – have come to the fore and seek to influence the

admissions policies of institutes, schools and departments. The issue of recognition of prior learning is related. Breier (2005) makes a distinction between the Recognition of Prior Learning (RPL) as that associated with entry into an educational programme and the assessment process that goes alongside whereas recognition of prior learning, (in lower case), considers this at post-entry level into a programme – as a means of broadening access to previously disadvantaged groups.

The contextual arguments and the trends in admission into dental health science programmes in South Africa have been referred to in Chapter Two. These relate largely to addressing the exclusions from participation of previously disadvantaged population groups (U. M. E. Chikte & Brand, 1996; Pick et al., 2000).

In summary, access to a higher degree course of studies is dependent on the interplay of the applicants' ambitions; geographical access; financial circumstances; academic qualifications; selection criteria of the institute and SAQA requirements. The conceptual basis of this discussion and policies should inform the "roll out" of admission and its impact on the curriculum in dental health science programmes. This will be revisited in Chapter Six.

### 3.5.4 Course design

What is required in designing courses is getting the right mix for the appropriate level of training with the ingredients at hand and getting the dimensions correct. But this is easier said than done. Balance and dimensions (as concepts) are not scientific givens.

A *balanced curriculum* is a term which Kelly (1999, p.204) argues is a relative term and cannot be used with exactitude. Its meaning is dependent upon the value system of the person using the term, but it is about considering a curriculum in totality along with the other demands that schools must respond to.

Tight (1996, p.165) argues that

*once we recognise the positioning of concepts along a variety of possible dimensions, it becomes easier to appreciate how they may overlap in certain areas, slide into each other, or even substitute one for the other.....Though concepts may be about exclusion as well as inclusion, and may be presented as competitive term or dichotomies, their boundaries are not precise, and are subject to perception, negotiation, interpretation and change.*

Noting these comments, the overt purpose of a planned curriculum is to foster learners' development consistent with the missions of the institution and programme.

## 3.6 The critical questions

The literature review enabled the rationale for this study to be placed in context. The context is one of a rapidly changing educational landscape which was previously fragmented and is now going through a transitional phase where educational institutes are restructured and reshaped and programmes are under scrutiny for the way they are organised and regulated. Informed by an exploration of the theoretical concepts around curriculum and professional development, questions can now be raised about course design and implementation processes presently taking place with their impact on dental health personnel professional development. Questions can be asked about the levels of professional knowledge that is promoted within the current curricula in the dental health sciences. These questions about the "cultural identity" of the dental professional and reflections on where this identity comes from, has caused me to challenge the perceived roles and to consider and propose how dental health professionals can be trained to take on a new role in the South African health services.

**THE CRITICAL QUESTIONS**

**This study will focus on the nature of professional competence and curriculum design by mapping aspects of the existing dental health sciences curricula against the above theoretical understanding models of professional development. The critical questions hinge around the development of dental health professionals and the curriculum that is related to developing these professionals.**

**The questions, therefore, are:-**

**1. Nature of Professional Competence:**

**What is the nature of professional competences within dental health science?**

**The sub questions are:**

**a) what constitutes the professional knowledge within dental health science occupations and b) what are the roles/identities of the different occupational positions?**

**2. Curriculum Design:**

**How are curricular frameworks organised to develop the professional competences?**

**The sub questions are:**

**a) What are the assumptions/claims/gaps/silences relating to professional competence in the offerings of education and training providers in South Africa and,**

**b) What models of professional development are presented in these offerings?**

**3.7 Summary of Chapter Three****- principles and concepts: curriculum and professional development**

In this chapter, in an attempt to map out the features relating to curriculum, I navigated the often impenetrable landscape of education. Some paths led to a maze, whilst others had clear routes. Some paths were well signposted. Others were confusing – or had had their names changed! Some paths have yet to be fully travelled. I examined the broad nature and the complexities of curriculum. The central activity or the core that is operational on a daily basis with the educator/facilitator and the student/learner is the pedagogy, meaning the teaching, learning and assessment,

In the teaching and learning process the prime factors are the constructs of the course/s and the methods by which they are delivered and assessed that forms the core business of most academics. The concepts around knowledge and how and what is assessed, and for what purposes, has been a feature of this chapter.

I examined learning as a concept in order to propose that assessment methods influence the kind of learning and assessment that is offered.

theoretical framework – curriculum, professional development and the critical questions

What the student follows in order to construct a qualification is a course plan that is made up of units which are assessed to gauge whether the student can be awarded the qualification. The influences and the issues underlying how the student gets into a course of studies (access) and how he/she gets out (success) are also highlighted.

It is the juggling and the balancing of the dichotomies of education versus training; knowledge versus skill; manual skills versus mental skills; understanding versus experience; theory versus practice; academic versus vocational; problem-based versus didactic; outcomes-based versus traditional; subject based versus specific outcome-based; formative versus summative, that formed some of the challenges of this search.

In Chapter Four I detail and discuss established research methods in order to select the tools that will best answer my critical questions. I will look at the two main research paradigms of qualitative and quantitative research methodologies and select ways of seeking and analysing data.

## Chapter Four

### Research methodology: theoretical approaches and data production

*Deciding what research methodology to use for a study is a challenging endeavour and portends difficulties if the most appropriate methodology is not selected (Gerhardt, 2004, p.2).*

He goes on to warn that:

*research results do not always reflect a definite answer with clearly revealed conclusions and, in fact, often seem to generate more questions than they answer (ibid:4).*

I would suggest that it may be the process rather than the product that brings the rewards.

The method of research, as Becker (1998) points out, should be determined by the research itself.

#### 4.1 Introduction: the overall research approach

Having been trained in a clinical, and particularly in a "scientific" mode, I came to believe that the outcomes of research are only acceptable and valid if the sample is random, the study involved some kind of control and test, blind or double-blind study, data can be subjected to some kind of statistical test and some form of validity and degree of significance can be established. Entering the world of the social sciences, I came across statements that have challenged me to shift my mindset to look at other forms of inquiry and "tests". I was always aware that there were two forms of inquiry, one which found answers through some algorithm, and the other through words. These are termed quantitative and qualitative research. Between these two extremes of "purism" must lie ways of questioning and expressing the inquiry along a continuum.

In common with Steinberg (1997, p.28),

*this chapter describes the means of travel on my research journey, the ideas, techniques that enabled me to venture forward from base camp.*

## 4.2 Purpose and organisation of this chapter

The purpose of this chapter is to examine the two ends of a continuum of research approaches and then to examine the different research ideas within what is classified as qualitative research. I will explore the degree of reliability and validity of the methods within this approach. I will then select:-

- the method that will best suit my enquiry
- the tools that will deliver that enquiry
- how the data, seen through the lenses that will be developed in this chapter, will be analysed.

This chapter is organised into three sections.

**Section One** examines the different methods of research available within the approach of quantitative and qualitative methodology, comparing the two approaches. I will then explore some of the different methods of research that can be found within the qualitative approach.

**Section Two** describes the development of the research design for this enquiry including the procedures that were adopted and the techniques that were employed in the process of producing the data.

**Section Three** describes the way the data will be analysed in preparation for the lenses I use in order to illuminate the critical questions. From this should emerge the thesis for this study.

## 4.3 Section one: research methodology - theoretical approaches

The health sciences, and by extrapolation, dental health science education, are traditionally considered "clinical sciences". Most research in these areas gravitates towards the positivist, quantitative end of the spectrum of research methodologies.

Any research that does not conform to numbers that cannot be subjected to statistical analyses may be deemed "unscientific" and "unreliable".

I anticipate that readers of this study may come from this scientific background and have to make a similar paradigm shift to the one I have made in order to accept my research as valid. For these readers, I therefore describe in some detail the methodology that I came to adopt as most appropriate for my research.

### 4.3.1 Research methodologies

There are, broadly speaking, two opposing approaches to research, the quantitative and the qualitative. However, it must be emphasised that there is no real "opposition" between these two approaches since they can be used in complementary ways in the same piece of research, by the same researcher, to produce different ways of knowing. Nevertheless, I describe here the two extremes of the research methodology continuum.

### 4.3.2 Quantitative research

Simply told:

*Quantitative research generates statistics through the use of large-scale survey research using methods such as questionnaires or structured interviews..... This type of research reaches many more people but the contact with those people is much quicker than it is in qualitative research. This positivist idea of quantitative research holds that it is the means of discovering systematic truths about the world.... systematic and controlled and can be scientifically validated (Dawson, 2002, p.15).*

There may be a tendency to use numbers as a language. The researcher, supposedly, distances self from the objects of the research so as to

*measure clinically and produce objective results that demonstrate or refute a stated hypothesis and have a general application (Usher & Bryant, 1989, p.123).*

Denzin (1989, p.23) lists five characteristics of quantitative research that, he claims, divorce the researcher from the world under study. These characteristics are based on the assumptions that

- objective reality can be captured
- the observer can be separated from what is being studied
- observations and generalizations are free from situational and temporal constraints
- causality is linear
- inquiry is value free.

All positivist research work is based on certain assumptions, and the basic assumption is that there is a *truth* that can be found by scientific methods and that it is possible for the researcher to eliminate her or his preconceptions and achieve value-free neutrality (Usher & Bryant, 1989, p.127).

It is claimed that traditional quantitative methods

*are often given more respect due probably to the exalted view of science held by the*

*educated public and its tendency to regard science as numbers and implying precision* (Berg cited in Bartlett & Payne, 1997, p.173).

Most research in these areas (science) gravitates towards the positivist, quantitative end of the spectrum of research methodologies – indeed, within the context of this study, this researcher was refused permission by one dental faculty to administer questionnaires to students on the grounds that his research was *not scientific enough*.

Those who challenge quantitative research claim that

*quantitative studies ... whilst providing data from larger and more representative samples, seems more mechanical and arid to the qualitative researchers* (Hartley & Chesworth, 2000, p.15).

During the 1970s and 1980s concerns were raised about apparently “pure” research based solely on quantitative data. It was suggested that such data-based studies

*stripped contexts from their meanings* (Gephart, 1999, p.1).

In particular, it was claimed that

*these methods impose outsider meanings and interpretations on data. And they require statistical samples which often do not represent specific social groups and which do not allow generalisation to, or understanding of, individual cases. Finally, quantitative methods tend to exclude discovery from the domain of scientific enquiry.* (Gephart, 1999, p.1).

### 4.3.3 Qualitative research

At the opposite pole is the qualitative research approach. Qualitative research, claims Dawson (2002, pp.14-15)

*explores attitudes, behaviour and experiences through such methods as interviews or focus groups. It attempts to get an in-depth opinion from participants. As it is attitudes, behaviour and experiences which are important, fewer people take part in the research, but the contact with these people tends to last much longer.*

This approach allows for the unpredictability of most human experience and tries to illuminate those complex experiences, describing them in depth - often from a participant viewpoint - and trying to arrive at some sort of reality that may - or may not - have general application. It aims at insights into particular human behaviour rather than generalisable, scientific laws (Steinberg, 1997, p.29). Positivist researchers challenge qualitative research on the grounds that qualitative studies

*can be delightful and insightful but they may leave readers with a quantitative disposition worrying about the generality of their findings* (Hartley & Chesworth, 2000, p.15).

Merriam (2002, p.3) reminds us that

*the world, or reality, is not the fixed, single, agreed upon, or measurable phenomenon that it is assumed to be in positivist, quantitative research. Instead there are multiple constructions and interpretations that are in flux and that change over time.*

Proponents of qualitative methodology claim that the purpose is to:

- uncover the meaning of phenomena for those concerned
- improve practice
- develop theory (Merriam & Simpson, 1995, p.98).

Maxwell (1996) points out that qualitative research focuses on understanding particulars rather than generalising to universals as quantitative research is said to do.

This thesis seeks to describe some of those multiple constructions and interpretations at one point in time and, drawing from the research, develop theory and make a case for the improvement of practice.

In the field of social science, which encompasses education, the interpretative approach seemed to me more appropriate since, within the complex living system that is the education institution, a different kind of reasoning must be applied. Usher and Bryant, (1989, p.17), propose that within such a system, the researcher must make choices in a context where ends are not determinate, reasons must be given to support - not prove - judgements and the researcher must make a good case rather than establish unassailable foundations.

The disadvantages of qualitative research described above may be ameliorated if such narrative research is followed up by some quantitative studies. This is not a new suggestion. Such "triangulation" of methods has been recommended since the 1930s (Hartley & Chesworth, 2000, p.22). In this study, whilst the qualitative research methodology seems more appropriate, I have supported it by some quantitative data.

Jones (1995, p.2) discusses the complementary roles of qualitative and quantitative research and remarks that

*qualitative research takes an interpretive, naturalistic approach to its subject matter: qualitative researchers study things in their settings, attempting to make sense of or interpret phenomena in terms of the meanings that people bring to them. Qualitative research begins by accepting that there is a range of different ways of making sense of the world and is concerned with discovering the meanings seen by those who are being researched and with understanding their view of the world rather than that of*

*the researchers.*

As a subjective observer there will be *silences, gaps and contradictions* (Brennan, 1997, p.37) in my writings which will probably be obvious to the readers. Epstein (1993, p.6) suggests that the questions asked, and the discourses engaged in, by the researcher are political since they contain a judgement about the relative importance of different issues. In this study I inevitably have biases and a viewpoint which I endeavour to identify. These biases may well relate to the data I have collected – what I select and what I leave out. In the intensive interviews that I conducted I learned much, most of which was interesting but was “surplus to requirements”.

As Carden (2000, p.80) says

*the dilemma for every researcher is what and how to choose; only the researcher can understand the choices s/he makes for a final analysis.*

In the research interview both the interviewer and the interviewee are participant observers actively manipulating the interview to both elicit and to conceal.

#### **4.3.4 Quantitative and qualitative approaches in social research: comparison**

Table 4.1 below lists the main differences between the two approaches and is reproduced from Fouché (2005, p.75).

**Table 4.1: Comparison between qualitative and quantitative approaches**

- (Fouché &amp; Delport, 2005, p.75)

QUANTITATIVE APPROACH	QUALITATIVE APPROACH
Epistemological roots in positivism	Epistemological roots in phenomenology
Purpose is testing predictive and cause-effect hypotheses about social reality	Purpose is constructing detailed descriptions of social reality
Methods utilise deductive logic	Methods utilise inductive logic
Suitable for a study phenomena which are conceptually and theoretically well developed; seeks to control phenomena	Suitable for a study relatively unknown terrain; seeks to understand phenomena
Concepts are converted into operational definitions; results appear in numeric form and are eventually reported in statistical language	Participants' natural language is used in order to come to a genuine understanding of their world
The research design is standardised according to a fixed procedure and can be replicated	The research design is flexible and can be unique and evolves throughout the research process. There are no fixed steps that should be followed and design cannot be exactly replicated.
Data are obtained systematically and in a standardised manner	Data sources are determined by information-richness of settings; types of observations are modified to enrich understanding
The unit of analysis is variables which are atomistic (elements that form part of the whole)	The unit of analysis is holistic, concentrating on the relationships between elements, contexts, etc. The whole is always more than the sum.

### 4.3.5 Judging qualitative research

One of the key elements in judging a work of research is its trustworthiness (this is a preferred term as the concept of 'validity' and subsequently what we mean by 'truth' and 'certainty' is highly contested (Smith, 2000) ).

Simply put by Lincoln and Guba, the basic question addressed by the notion of trustworthiness is

*how can an inquirer persuade his or her audiences that the research findings of an inquiry are worth paying attention to?* (Lincoln & Guba, 1985, p.290).

According to Anastas, (2004, p.62) the term *trustworthiness* is more commonly used than the terms reliability and validity when discussing the quality of qualitative data. Anastas refers here to a definition of reliability as one that demonstrates

*that the data are what they are, independent of the accidental circumstances of the data collection process.*

This definition is preferred because the

*particularity of qualitative studies suggests that no one study would ever be exactly replicable.*

Validity has been defined as

*the degree to which the data have been interpreted in the right way, or as making a credible decision about what the data mean (Anastas, 2004, p.62).*

Hoepfl (1997) differentiates the roles of those who are in a position to judge qualitative or quantitative research. Quoting Eisner, Hoepfl reasons that *there are operationally defined truth tests to apply to qualitative research* (Hoepfl, 1997, p.10). Glaser and Strauss (1967, p.232) point out that researchers and readers *share a joint responsibility* for establishing the value of qualitative research. She further quotes Patton that the

*pragmatic validation [of qualitative research] means that the perspective presented is judged by its relevance to and use by those to whom it is presented: their perspective and actions joined to the [researcher's] perspective and actions (Ibid).*

Table 4.2 below is provided by Hoepfl from Lincoln and Guba. It offers an alternative set of criteria when judging qualitative and quantitative work. The terminology corresponds to that typically employed in judging quantitative work. However, the alternative constructs more accurately reflect the assumptions of the qualitative approach.

**Table 4.2: Judging quality - quantitative versus qualitative research**

- A comparison of the criteria (Hoepfl, 1997, p.11).

<b>Conventional Terms</b>	<b>Naturalistic Terms</b>
Internal validity	credibility
External validity	transferability
reliability	dependability
objectivity	confirmability

*By Hoepfl (1997) from Lincoln and Guba (1985)*

I find strength from Peshkin (1998, p.17) who states that

*it is more useful for researchers to acknowledge simply that subjectivity is an invariable component of their research than it is for them to assert that their ideal is to achieve objectivity.*

The focus should be on how research is shaped rather than distorted. However, he does warn that acknowledgement alone is insufficient and that

*researchers should systematically seek out their subjectivity, not retrospectively when the data have been collected and the analysis is complete, but while their research is*

*actively in progress.*

### 4.3.6 Exploring qualitative research

There is no universally accepted definition of qualitative research. Most experts say that qualitative research is a “family” of methods of inquiry that are themselves quite diverse (Anastas, 2004). A simple definition offered by Sherman and Reid (1994, p.1) is that

*qualitative research can be defined simply as research that produces descriptive data based upon the spoken or written words and observable behaviour.*

I find comfort in Motteram (1999) who states that Crossley and Vulliamy (1997, p.6)

*provide a useful description of qualitative research that sits well with my own views and helps us clarify the term.*

The definition quoted is

*[Qualitative Research] .... provides descriptions and accounts of the processes and social interactions in “natural” settings, usually based upon a combination of observations and interviewing of participants in order to understand their perspectives. Culture, meanings and processes are emphasized, rather than variables, outcomes and products. Instead of testing pre-conceived hypotheses, much qualitative research aims to generate theories and hypotheses from the data that emerge, in an attempt to avoid the imposition of a previous, and possibly inappropriate, frame of reference on the subjects of the research.*

Qualitative research consists of many different approaches which often overlap and whose distinctions are subtle. The type of approach used depends on the research question.

Ertmer, writing in Leedy (1993, p.156) describes four key types of qualitative research

- grounded theory
- ethnography
- case study
- phenomenology

I make a distinction between the types or methods employed and the design or approaches in qualitative research; the former (types or methods) as the means of gathering the information and the latter (design or approaches) bringing about change through the research activity.

Within these key types, I make a selection of the tools that I believe are most suitable for my research, adding narrative research.

#### 4.3.6.1 Grounded theory

Grounded theory is a distinctive research methodology popularised by Glaser and Strauss

(1967). They describe research in which the investigator is the primary instrument of data collection. The end result of the research is "grounded" in the data. The method is particularly useful for areas where little or no theory has been developed (Merriam & Simpson, 1995). In most grounded theory studies information comes from interviews and participant observation. According to Strauss and Corbin (1990, p.23)

*A grounded theory is one that is inductively derived from the study of the phenomenon that it represents ... one does not begin with a theory, then prove it. Rather one begins with an area of study and what is relevant to that study is allowed to emerge.*

According to Babbie and Mouton (2001, p.499) grounded research

*holds as a basic tenet that qualitative researchers do not go around testing hypothesis to add to an existing body of knowledge ... they do not know what it is they do not know.*

Grounded research is not without its critics. It is described by some as undisciplined and impressionistic (Merriam & Simpson, 1995, p.117). However, its proponents point out that its validity arises from a constant comparison of analysis of data collected. Strauss and Corbin argue (1990, p.4) that

*grounded theorists share a conviction with many other qualitative researchers that the usual canons of 'good science' should be retained but need redefinition in order to fit the realities of qualitative research and the complexities of social phenomenon*

Bartlett and Payne (1997, p.194) conclude

*that grounded theory provides a powerful and robust method for constructing theory. In contrast with assumptions to the contrary based on a naïve conception of science, it is consistent with the search for justified belief in knowledge-claims and constitutes not only good but valuable science.*

Gerhardt, responding to the issues of validity in qualitative research addresses issues of validity typically .... *with the acceptance of the plurality of truths* (Gerhardt, 2004, p.10).

This present study is grounded theory in that it is applied to a specified field with the intention of, hopefully, improving practice within that field by *yielding a meaningful picture* (Merriam & Simpson, 1995, 80) thus *using the practice to reflect on theory* (Epstein, 1993, p.6). Grounded theory is based on inductive fieldwork rather than deductive hypothesising (Glaser & Strauss, 1967, p.17) and, as Merriam (2002, p.7) points out,

*grounded theory research emphasizes discovery with description and verification as secondary concerns.*

#### 4.3.6.2 Ethnography

In the course of my research explorations I have met many of the inhabitants who have their own stories to tell so, I would suggest that it is appropriate to use methods that involve, listen to, respond to and develop their stories of their perceptions of the territory in order to write my own travelogue. The ethnographical methodology therefore seems particularly appropriate.

I have examined qualitative research in general with a reference to grounded theory. Qualitative observational research, consists of multiple approaches (Writing @ CSU: Writing Guides) with subtle distinctions between them. Amongst the approaches, ethnomethodology seemed to me to be most appropriate to my values and field of study. Whilst the original application of ethnography was the study of groups, peoples and cultures, it can be appropriately applied to studying the "culture", group characteristics and behaviours of the dental education inhabitants.

Leedy and Ormrod (1989, p.151) explain that

*ethnography is especially useful in gaining an understanding of the complexities of a particular, intact culture. It allows considerable flexibility in the choice of methods used to obtain information about the culture.*

They suggest that the researcher must be an accurate observer, interviewer and listener as well as exercising *both considerable patience and tolerance* (Leedy & Ormrod, 1989, p.152). Babbie and Mouton (2001, p.279) claim that ethnography has lost its special (and original) link to cultural anthropology. They describe the special features of ethnographical research as being "*creative*" interviewing-techniques and participant observation (Babbie & Mouton, 2001, p.280).

Flick (1998) points out that two types of sampling are commonly used in the qualitative research approach. In the first, the researcher may develop certain criteria which s/he feels is relevant to their study before doing any fieldwork – what aspect of the "*culture*" will they investigate? Who will be their respondents? How much time do you have for this project? Who will be carrying out the methods selected? What are the geographical aspects that can limit access and so on? Thus the area of research becomes focussed. The second method is to wait until you have carried out your study before deciding on the categories that seem significant – this is called theoretical sampling.

As Fetterman (1998, p.1) points out, the ethnographer also

*begins with biases and preconceived notions about how people behave and what they think, as do researchers in every field.*

The choice of what is being researched is in itself a bias. However, as he points out, biases can have both positive and negative functions and to *mitigate the negative effects of bias* the ethnographer is called upon to make explicit certain perceived biases.

Massey (1998) in attempting to define what constitutes an ethnographic study lists a number of elements that at least have to be included to be called an ethnographic study. These include a *study of culture*. Spindler and Spindler (1992, p.70) define culture as:

*for each social setting (i.e. classroom) in which various scenes (e.g. reading; 'meddlin'; going to the bathroom) are studied, there is the prior (native) cultural knowledge held by each of the various actors, the action itself, and the emerging, stabilising rules, expectations, and some understandings that are tacit. Together these constitute a 'classroom' or 'school' culture.*

This supports my contention that "curriculum" includes the whole culture of the dental education "society".

Carden points out that,

*ethnography is not only about recording and reporting "the facts". Fieldwork entails researchers immersing themselves as far as possible in the community or society they are studying, on trying to understand how or why things are done or thought about as they are, and not just what is done. What is viewed and how it is written up will inevitably include ingrained values (Carden, 2000, p.81).*

St. Pierre (1999, p.266) challenges the traditional and now outmoded view of ethnography as being rooted in social anthropology, *the Western ethnographer studying exotic natives*. She proposes a *new ethnography* (ibid: p.269). This concept relates to the shifting boundaries and relationships between the researcher and the *subject* of the research. No longer is the ethnographer writing from the point of view of her/his own culture but is open to respond to the opportunities to learn new and different things. In the course of research the researcher meets with many surprises and challenges to previously held beliefs and expectations and the subject responds in a totally unexpected way.

What is a common feature of all ethnographical research reports is that they contain *thick description* – a term coined by Geertz (1973). This thesis aims to provide a thick description of the culture of current dental training in South Africa.

In the context of this present study, this writer is deeply immersed in the profession studied, in its disciplines, culture, personalities and cannot help but respond emotionally to what was observed and heard. As Stoller (1987, p.xi) said, *every ethnographer is a character in his or*

*her fieldwork*. In the process of meeting and talking with colleagues, collecting data and, more significantly, in reading works related to my thesis and the research methodology, I became increasingly aware of the truth of this aphorism.

As a participant in the culture of South African dental education, I cannot divorce myself from the inherent values and mores that I have acquired as a person and an individual. These must inform all the research choices I make. What is important is that in the course of my reading and writing of this thesis, I have become increasingly aware of my subjectivity as well as the subjective responses of the individuals of my research. Peshkin (1998) advocates the enhanced awareness that should result from a formal and systematic monitoring of self ... a necessary exercise, a tuning up of my subjectivity to get it into shape.

#### 4.3.6.3 Narrative research

Elba-Luwish (1997, p.75) champions the cause of narrative research and *what makes a good story*, by describing the qualitative research approach as being

*against the grain within the academic world, challenging the dominance of more established modes of enquiry.*

She claims that

*narrative researchers often work on a small scale, do not aspire to generalisation in the usual sense, nor do they promise any immediate practical benefits; yet they make strong claims to the authenticity and power of narrative research...and to the giving of voice to participants... (ibid: p.76).*

She points out that

*the way this relationship (between theory and practice) is conceived is one of the central commitments of any educational researcher (ibid: p.77).*

Gudmundsdottir (1996) suggests that

*the interview is gradually being recognised as the most important method that researchers use to gather data... in which they, together with their informants, explore the meaning of concepts, categories and events*

and cites Marton (1981) who suggested that

*the interview is increasingly regarded as an interactive and structured context in which information and interpretation flows both ways.*

#### 4.3.6.4 Phenomenology

Phenomenological inquiry requires that researchers go through a series of steps in which they try to eliminate their own assumptions and biases, examine a phenomenon without presuppositions, and describe the “deep structure” of the phenomenon based on internal themes that are discovered.

It is considered by some that all qualitative research is phenomenological Merriam (2002, p.7). However, Merriam also points out that

*one could engage in a phenomenological study using its own 'tools' or inquiry techniques that differentiate it from other types of qualitative inquiry.*

A phenomenological study requires the researcher to “bracket” personal beliefs and attitudes about the phenomenon to be studied. Merriam refers to belief being *temporarily suspended*. Phenomenological studies focus on the structure or essence of an experience (Merriam, 2002, p.7).

#### 4.3.7 Summary of the main types of qualitative research

Ertmer (1993, p.166), provides a useful summary (Table 4.3 below) of the key types of qualitative research which I have adapted.

**Table 4.3: Four main types of qualitative research**

- A summary adapted from Ertmer (1993, p.166)

Grounded Theory	To derive a theory that links participants' perspectives to general social science theories
Ethnography	To understand the relationship between behaviour and 'culture'
Narrative Research	To study the ways humans experience the world (their stories) and then to write the narrative of the experience
Phenomenology	To describe the experience from the participants' point of view

### 4.4 Section two: research design and data production.

There are many overlaps and similarities in the different types and designs of what constitutes qualitative research. However there are certain distinct features in each type or design to place them in such broad groups.

A totally opposing view is evidenced-based research. The current trend in dentistry, certainly in some quarters, is to be totally dismissive of research that is not evidence-based. This is argued here to support the method of research that is adopted in this study and to allay the

fears of those seeing “scientific research” with “hard facts” as the only form of “true” research.

Yenogopal and Owen (2004) dismiss the craft model that dentistry was perceived to be and claim that

*the days when science and practice could build and base their activity on the foundation of the simple notions of the craft model are gone once and for all. The model is too banal and must therefore be given a final farewell and assert that evidence-based care ... represents a philosophical shift in the approach to practice – a shift that emphasizes evidence over opinion and, at the same time, judgement over blind adherence to rule.*

This approach they claim

*provides a bridge between research and everyday patient care* (Yengopal & Owen, 2004).

They also explain that the critical appraisal of the evidence, that is a combination of the assessment of the *validity (closeness of truth) and the relevance (importance and usefulness)* is what will assist the practitioner in whether the findings can be applied to the patient. This should serve to address the clinical questions with *precision and confidence*.

Central to the evidence-based practice is the systematic review of literature which gives the guidelines for best practice. Sutherland (2000, p.242) explains that this differs significantly from the narrative reviews which, she writes, *are usually broad in scope, written by experts and are often informal and subjective, supporting the author’s views*. Systematic reviews, she explains further *use explicit standards for evidence retrieval, assessment and synthesis*.

I feel that Green and Britten express it most cogently. They assert that

*qualitative research may seem unscientific anecdotal to many medical scientists. However as, as the critics of evidence-based medicine are quick to point out, medicine itself is more than the scientific rules. Clinical experience, based on personal observation, reflection, and judgement is also needed to translate scientific results into the treatment of individual patients. Personal experience is often characterised as being anecdotal, ungeneralisable, and a poor basis for making scientific decisions. However, it is often a more powerful persuader than scientific publication in a changing clinical practice* (Green & Britten, 1998, p.1230).

They summarise the value of qualitative research and evidence-based medicine thus

- Qualitative methods can help bridge the gap between scientific evidence and clinical practice
- Qualitative research findings provide rigorous accounts of treatment regimens in everyday contexts

- This can help us understand the barriers to using evidence-based medicine, and its limitations in informing decisions about treatment
- Recognising the limits of evidence-based medicine does not imply a rejection of research evidence but awareness that different research questions require different kinds of research (ibid).

The type of research that best fits my study can be labelled as mixed methodology.

#### 4.4.1 Research design: mixed methodology

Mixed methodology discussed in this section includes approaches from those *doing the knowing* (Merriam & Simpson, 1995, p.121).

In the specific context of this study, Savage (2000), whilst discussing the use of the ethnographic methodology in the health care field, describes ethnography as a *mixed method approach* and questions the stark polarity between qualitative and quantitative research pointing out that

*development of a culture of evidence-based medicine depends on a body of research that draws from both qualitative and quantitative approaches.*

She points out

*that funding bodies for research in health studies are often not receptive to ethnography on the basis that, as a qualitative methodology, it does not lead to generalisable findings*

and goes on to draw attention to

*the in-depth understanding that ethnography can achieve and the way it can identify ground breaking questions or hypotheses that can be further explored through other methodologies. (ibid: pp.1400-1402)*

Whilst the various research theories have been dealt with separately, the relative merits of quantitative and qualitative research can be strategically combined to give a more rounded result using Denzin's concept of triangulation (1970) as it seems useful for my purpose. Thus, the subjective input via interviews has been backed up by more objective measures to analyse related areas. Two or more approaches to the same problem – if the results are congruent - can only add to the validity of the solution.

#### 4.4.2 Data collection

*Data, data, my dear Watson.....*

*It is a capital mistake to theorise before one has data. Insensibly one begins to twist facts to suit theories, instead of theories to suit facts.*

Sherlock Holmes in *A Scandal in Bohemia* (Doyle, 1892 first published - this edition published 1994, p.7).

Having considered the broad spectrum of research methodologies and methods, and defining and examining the related concepts, I now move on to the description and selection of the tools that seemed most useful and appropriate within the context of my own research. As I have already explained, research requires mixed methodologies. Whilst my research has been based on interviews and observation – tools of the qualitative approach – I have also collected data that can be quantified – using tools of the quantitative approach. Can data collection methods be predetermined? Researchers often start with *hunches, hypotheses and conjectures* (Scott, 1997, p.157). These do not remain fixed. As the research project progresses, ideas get refined, reformulated and sharpened. As Scott (ibid) remarks, a *dialectical relationship exists between theory building and data collection*. Debate around this varies from one extreme to another. On the one hand, having almost a “blueprint” with data collection methods and research ideas clarified and developed before undertaking fieldwork (Scott citing Malinowski Scott, 1997, p.157) and on the other hand avoiding all prior hypotheses (ibid: p 157 citing Glaser and Strauss). All data and data collection methods therefore must include theoretical assumptions.

A distinction has been made between research design, which formed the basis of the previous section, and data collection methods which forms the basis of this one. Delpont (2005, p.159) refers to the research design as a blueprint which provides a *guideline according to which a selection can be made of which data-collection method(s) will be most appropriate to the researcher’s goal and to the selected design*.

Gough (2001) refers to *producing* data rather than to *gathering* or *collecting* data. This, he suggests, is a deliberate distinction to emphasise that ‘data’ are not ‘out there’ waiting to be ‘gathered’ or ‘collected’ or, for that matter, ‘discovered’, but are produced and constructed by the activities of the researcher. In the same vein, Hill, Le Grange and Newmark (2003, p.62) explain that *data is not ‘out there’ (to be collected) but rather constructed data (sic) through human will and intention*.

The production of data encompasses the:-

- **procedures** - which refers to the steps or *activities that describe the general way data are gathered* (Merriam & Simpson, 1995, p.141) - to be followed in gathering the data,

- **techniques** - which refers to *the specific device or means of recording the data*, (Merriam & Simpson, 1995, p.141), and
- **analysis** – which refers to the methods to be used in analysing the data in order that they can be synthesised.

Merriam (2002, p.12) proposes that the researcher has three major tools for collecting data with a variety of different techniques available to obtain the data. These three are

- questionnaires
- observations
- analysis of documents

Data was to be collected from all the institutes in South Africa who were offering undergraduate “training” in dental health sciences.

My methods include

- interviewing key individuals involved in “curriculum” work in the different offerings in these institutes
- questionnaires administered to students from all the different occupational categories
- requesting and referring to relevant documents from these institutes.

The theoretical aspects, that is the principles and - where appropriate - the actual practice, will be discussed in turn in relation to the procedures, techniques and analysis.

### 4.4.3 Research procedures

In order to begin my research I had to gain access to the identified institutes. I describe below the theory and then the practices of this stage of my research.

#### 4.4.3.1 Negotiating and gaining access and fieldwork relations

##### Theory

Maintaining relations with key individuals is essential, and some of the strategies of gaining and maintaining access are discussed below. Scott relates his experiences in gaining access to the research site and cites that it is *far more than simply being granted permission to begin research* (Scott, 1997, p.159). It is a continuous process of negotiations at different levels for different people. This obviously has an impact as the level of entry will influence the conduct of the fieldwork and the type of data that is collected.

The use of an “emissary” or someone in authority is a useful tool in gaining entry into a site. Reactions from those who feel instructed by others may sometimes create obstacles to the

conduct of the study. Experience gained by this writer from a previous study, (Laher, 1990) proves that it is best that the researcher negotiates entry in an open and democratic way. Access to a research site may vary from open welcome to complete exclusion. Reactions may vary from being seen as an intrusion, a threat or to one of assistance.

Scott (Scott, 1997, pp.159-162) discusses a number of issues in negotiating and gaining access to a research site and the impact on obtaining data as well as the quality of data obtained. These can be summarised thus

- Success and failure of gaining access - Some of the examples given above and below may contribute to the success or failure of gaining access.
- Strategies used in gaining entry – the process of entry can be eased by establishing trust and “fitting in” with the mores and codes of the research site. Briefing the gatekeepers with the research protocol is an additional device. However, this can be a disadvantage in that the gatekeepers may refuse access.
- Gatekeepers – this usually refers to the head of an organisation. Although the head may grant open access it does not imply that the “subordinates” are in agreement. The reverse is that subordinates may be open to conducting the research but the head may give entry grudgingly.
- Ethics – ethical safeguards, as discussed below, influence access.
- Methods of access – these could be by means of telephone, electronic communication, postal communication, personal representation or referral by a respected person.
- Timing and pressures – it may be that the data collection is planned at a time when other activities occur - for example the research site may be under pressure due to industrial action.
- Familiarity – familiarity with the institute and its staff can have a negative or positive impact, not only on the access to the site but also the data collection process and the quality of input.

#### Practice

Dentistry is a small world, particularly in South Africa. Colleagues from parallel institutes meet nationally at meetings where department or school heads are represented, or at meetings where sharing of teaching and learning activity takes place. In addition this researcher, with the previous positions held through his own institute, was on familiar

territory here. I expected very little opposition to gaining entry into the institutes. Formal contact was established by electronic mail with each of the heads of departments of the technikons and the heads of dental schools in the universities. Informal contact was also established by telephone, at meetings and by electronic mail with individuals in the different universities and technikons who were identified as the key drivers in the institutes of matters relating to the curriculum. The gatekeepers were the school and department heads and the curriculum drivers and they were seen as key individuals whose influence and approval would ease my intrusion and entry into their space.

In the light of the busy lives of heads of schools and departments - or as the case may be in some instances, the disorganised lives – electronic mails seeking permission to conduct research in their institutes were followed up with telephone calls and in some cases with lobbying through the “facilitators”. All heads of dental departments in technikons responded positively. Three heads of dental schools from universities channelled my request to the appropriate individual dealing with faculty curriculum matters who in turn responded positively. Two heads of dental schools did not respond at all. In these instances individuals known to me in these institutes, who were dealing with curriculum issues, were approached to facilitate my request through their schools.

Once formally identified and contacted, all individuals - heads of dental departments in the case of technikons, and chairs or facilitators of curriculum issues, usually of the curriculum development committees in the dental schools in universities - were kept in touch with my plans including site visits and travel times. Interview schedules were sent in advance, requests to collect documents at the time of visits and arrangements for the distribution of the questionnaires were made with those individuals who also acted as facilitators. Heads of the dental schools in universities were inaccessible but the facilitators acted as “go betweens” and showed real interest in the study. All facilitators in the dental departments and schools were most welcoming, helpful and kept in contact with me. Facilitators ensured that the interview schedules were administered and ensured that I received them and any other information that could be of help.

#### 4.4.3.2 Ethical considerations

##### Theory

Miles and Huberman (1994) list the following ethical issues, that need to be considered before, during and after the research had been conducted

- Informed consent (Do participants have full knowledge of what is involved?)
- Harm and risk (Can the study hurt the participants?)
- Honesty and trust (Is the researcher being truthful in presenting data?)
- Privacy, confidentiality and anonymity (Will the study intrude too much into group behaviours?)
- Intervention and advocacy (What should researchers do if participants display harmful or illegal behaviour?)

These considerations are better described as - borrowing the terminology from Anastas (2004, p.60) - a set of *do no harm* principles and that not only applies to the researcher and the research participants but also to the relationship between the researcher and the study's larger audience, the professional and academic communities.

Scott also presents a useful list of the ethical concerns when undertaking research (Scott, 1997, p.162). However, he admits *that protecting the interests of participants in research projects cannot be disguised completely* and that it is *easier to deceive outsiders than insiders*. He adds further that *moral obligations are always conditional; that is they have consequences outside of themselves which cannot be subsumed absolutely under the aegis of any moral prescription*.

#### Practice

The possible ethical impact of my research had to be acceptable to the institutes and individuals targeted. It was therefore necessary to obtain prior consent. This took three formal steps

- Approval from the School of Educational Studies where the study is lodged,
- Ethical clearance obtained from the relevant institutional committee of the University of Durban-Westville (See Appendix 1)
- Consent from the heads of dental departments and schools to allow me to interview staff, administer questionnaires to students and to obtain the relevant documents.

All the heads of the dental departments gave me the necessary permission. The heads of dental schools responded (or not in one case) in varying ways. I was referred to the relevant person dealing with teaching and learning matters (often referred to as the curriculum development committee chair). In one dental school my request was referred to an in-house

research committee. In another, where the head avoided responding to my request for administering questionnaires, my request - after some lobbying – was directed to a broader Faculty of Health Sciences committee where my research protocol together with completing relevant application forms were required for *ethical clearance and acceptance of my proposal*. That ethical clearance was not granted and the level of communication with me was through the “office” of research.

Finally, the ethical standards rested with my own moral obligations.

#### 4.4.4 Techniques involved in obtaining data

Much has been made of the two approaches of qualitative and quantitative research approaches and their apparent dichotomy. In reality both methods must employ approaches with some broad commonalities in the way that data is collected.

In this section the instruments that are available to collect data - what Lang (1994, p.264) refers to as *tools for knowing and doing* - are discussed. In the following section I examine the different instruments to be used and, within these sections, the actual practice of obtaining the data.

##### 4.4.4.1 Sampling

###### Theory

In quantitative studies, the dominant method of sampling is probability sampling, which depends on the selection of a random and representative sample from the larger population. The purpose of this form of sampling is the generalisation that can be made in relation to the population under study.

The dominant strategy in the qualitative approach is purposeful sampling. Many types of strategies have been described by Paton (1990, pp. 169-183) but the one, according to Lincoln and Guba (1985), that is most useful is *maximum variation sampling*.

This strategy

*aims at capturing and describing the central themes or principal outcomes that cut across a great deal of participant or program variation* (Patton, 1990, p.172).

For small samples a great deal of heterogeneity can be a problem because individual cases are so different from each other.

*The maximum variation sampling strategy turns that apparent weakness into strength by applying the following logic. Any common patterns that emerge from great variation are of particular interest and value in capturing the core experiences and central, shared aspects or impacts of a program* (Hoepfl, 1997, p.6; Patton, 1990, p.172).

Scott, (1997) instead of mentioning sampling, uses the term *choosing cases* (Scott, 1997, p.157). He further states that

*depending on purpose, different sampling judgements will be made and the cases are chosen for typicality or for explanatory power* (Scott, 1997, p.158)

Merriam and Simpson (1995, p.144) use the term *survey* to represent all forms of written or oral techniques of gathering data. Questionnaires are represented by written forms of data-gathering, and interviews as the oral form. Delport (2005, p.166), referring mainly to quantitative approaches that include questionnaires, checklists, indexes and scales, categorises these as the major forms of collecting data.

Multiple techniques can be used simultaneously, for example questionnaires can be used in interviews, but for the purposes of description four major groups are categorised and the best tool/s for the work at hand will be adopted.

#### Practice

Undergraduate studies in dental health science, at the time of the collection of the data, were conducted in dental schools located in five universities and five technikons in South Africa. The technikons and the universities and the occupational categories, for which the “training” was provided by these institutes, are summarised in the Table (4.4) below.

**Note:** During the time of processing data and writing this report institutes in South Africa were restructured, some took on new names and one faculty was closed. As no duplication of offerings was involved in the restructured institutes, offerings are, at the time of writing, still the same except for the Dental Faculty of Stellenbosch University which was absorbed into the Faculty of Dentistry of the University of the Western Cape. Details of the restructured institutes are provided in Chapter 2.

**Table 4.4: Undergraduate offerings in dental health sciences institutes in South Africa.**

Institutes	Dental Technology	Dental Assisting	Dental Hygiene	Dental Therapy	Dentistry
Free State Technikon		√			
ML Sultan Technikon		√			
Pretoria Technikon	√	√			
Peninsula Technikon	√	√			
Technikon Natal	√				
Univ of Durban-Westville			√	√	
MEDUNSA			√	√	√
Univ of the Witwatersrand			√		√
Univ of Pretoria			√		√
Stellenbosch Univ			√		√
Univ of the Western Cape			√		√
Total No. of offerings per occupational categories	3	4	6	2	5

It was felt that, since the programmes at each institute reflected the patterns mapped out by the policies of separate development and they therefore each showed different historical trajectories, studies would be conducted at all the schools and departments. The sample selected and the various techniques employed in obtaining the data are discussed under the relevant sections.

#### 4.4.4.2 Questionnaires

##### Theory

Questionnaires are usually considered to be a tool from quantitative research methodology where data obtained can be subjected to numerical manipulation (using nominal or interval scales). They are also a tool or one that can sit comfortably with a purely qualitative analysis approach.

So, like the methodologies themselves, this tool can be placed along a continuum from a highly structured design, in which all the decisions about the range of responses are already taken by the designer, to a questionnaire that is very open-ended. This second design is similar to a semi-structured interview. An interview, Gudmundsdottir (1996, p.294) claims, is a conversation - an activity *steeped in our cultural codes and modes of intuitive and spontaneous interpretations*.

Babbie and Mouton (2001, p.233) suggest that questionnaires can contain as many statements as questions even though *questionnaire* means a collection of questions.

Delport (2005, pp.166-178) provides a comprehensive overview of questionnaires defining the principles involved in the construction of questionnaires and types of questionnaires.

Among the types they list the following different kinds

- Mailed questionnaires
- Telephonic questionnaires
- Self-administered questionnaires
- Questionnaires delivered by hand
- Group- administered questionnaires

Among the principles of questionnaire construction, Delport (ibid) lists the following

- the information that is needed
- the format of the questionnaire
- ways to ensure the completion of the questionnaire
- methods for analysing the data generated by the questionnaires
- the response systems

In the construction of the questionnaire Delport (ibid) discusses several types of questions which are termed *response systems* above. These include open questions, closed questions, dichotomous questions, multiple-choice questions, ordinal questions, completion questions, scaled questions, statements, matrix-type questions and follow-up questions.

Merriam and Simpson (1995, p.144) discuss two main types of questionnaires, viz., closed (or *forced-choice*) and open-ended questions. Using an open-ended format for a questionnaire does allow for more flexibility in responses but it is more time-consuming and has the additional disadvantage in that it may discourage respondents who do not wish, for a variety of reasons, to spend time writing the answers.

### Practice

Four areas of reasoning guided the selection of students to whom questionnaires would be administered.

- The duration of the course of studies for the occupational categories dental surgery assisting, oral health, dental therapy and dental technology (diploma), ranging largely from one to three years and the dental technology degree over four years
- The study was aimed at surveying views of students from the different population and gender groups

- The students registered per course of studies per institute per year do not constitute large numbers (they range from 5-36 students per year for students other than dentistry and between 32 and 67 per year for dentistry)
- Unsure of the response rates and the difficulty of selecting students randomly from the different year of studies it was felt that all students in a particular year of study would be selected

It was therefore decided that, other than in a one-year course of studies leading to a qualification, and in a bid to elicit responses at the "entrance" and "exit" points, all students from the first and final year of students would be targeted to receive questionnaires. The final year student should probably give more thoughtful answers. See Appendix 3 for a format of the questionnaires.

Detailed tables and figures showing the number and percentage of students per institute, year of studies, course of studies, number of students to whom questionnaires were administered, and the response rate will be found in Appendix 4 Tables A4.1, A4.2, A4.3, A4.4, A4.5 and A4.6 and Figures A4.1 and A4.2 (see also Table 2.1 and Figure 2.1 in Chapter 2).

Having decided on the targets of the questionnaire, a convenient time was identified and agreed, one which would cause the least amount of disruption. Events in the academic calendars such as vacations, examinations, graduations, end of the academic year were closely scrutinised. In addition it must be remembered that the data collection process was conducted at a time when these departments/faculties were dealing with institutional merger issues where tensions at times were heightened.

A questionnaire was designed that would occupy the least amount of time to complete and thus cause the minimum disruption. Bearing this in mind, my questionnaire was structured around the students' learning, teaching and assessment experiences together with information about their personal profiles, entry into their course of studies and future career prospects. In designing the questionnaire I compromised between exhaustive, in-depth questioning and a question-schedule that would not deter potential respondents.

The heads of dental departments in the technikons and individuals identified as active in curriculum development in the dental schools acted as facilitators in administering the questionnaires. The questionnaires were administered in my absence and at a time best suited to the department/faculty. These facilitators also acted as agents in not only getting the forms completed but also in getting them delivered to me. The success rate (with an

average response of 77% across all departments/faculties and ranging from 60% to 100% per occupational category) of receiving completed questionnaires is largely due to the collegial, sincere and enthusiastic support displayed by these facilitators and also to the students' co-operation.

Questionnaires were returned to me diligently by the facilitators by courier service delivery, direct delivery and by postal services.

Questionnaires left in one dental school with the facilitator were not administered. It appeared, after some silence, that I was required to submit my research proposal together with the questionnaires to the broader Faculty of Health Sciences for ethical clearance. After a period of silence and a resubmission and application to the "committee" access was denied. Reasons were not formally given, but verbal discussions with the chair of the "committee" implied that the request was turned down on the basis of the "standard" of the questionnaire. However, it was felt that sufficient strength is gained from the students who did participate and these represented all the other schools and departments.

#### 4.4.4.3 Interviewing

##### Theory

Interviewing, as opposed to questionnaires as a form of data collection, is time consuming but it lends itself to adaptation. Interviews can be conducted on a one-to-one basis or on a group basis.

Bell (1999, p.136) quoting Grebenik and Moser, describes the alternative types of interviews as ranging on a *continuum of formality*. This relates to the roles the interviewer and interviewee each play, whether the questions are structured, semi-structured or unstructured.

Greef, (2005, pp.286-313), in providing a comprehensive review of interviewing as a method of information collection, emphasises the communication skills that are required by the interviewer. He discusses the techniques, pitfalls and the *content versus the process* of the interview. By *content* Greef means what the participant is saying. The *process* is what is to be "read between the lines". A one-to-one interview conducted by a prepared, informed and sensitive interviewer allows the interviewer to gauge past events and sense the emotions during the interview.

Technical matters include whether or not to record, note taking and the setting of the interview. These all have a bearing on the data that is collected. Whilst visible note taking or recording of the interview may be intimidating, these are usually necessary in order to have an accurate record of an interview. Finally the skills (bearing in mind that a clinician is trained in a particular way with this skill - the skill to conduct history-taking as part of arriving at a diagnosis), personality, the questions that are asked and the relationship between the interviewer and interviewee (whether each is seen as an "outsider" or "insider" or whether one or the other is seen as being of higher status which could be intimidating). All these factors inevitably have impact on what "truth" is represented in the data collection.

#### Practice

The format of the semi-structured interview schedule is provided in Appendix 2.

Key people involved in driving the academic learning, teaching and assessment activities within the dental departments and schools were contacted in advance to arrange a suitable time for a visit. Semi-structured interview schedules were sent by electronic mail in advance of the visit. Interviews were carried out on a one-to-one basis using an ordinary audio-cassette recorder,

It was intended that the interviews would be conducted with significant individuals – that is individuals who were formally assigned the task of leading the teaching and learning development programmes in the school/department. It was felt that at least one person per programme offered per school/department would be interviewed excluding the School of Dentistry, Durban-Westville school as I was that person. That meant that the number of individuals interviewed would number 18.

The time allocated for these interviews was very flexible allowing for in-depth questioning and responding.

#### 4.4.4.4 Observations

##### Theory

*You see but you do not observe. The distinction is clear.*

Sherlock Holmes in *A Scandal in Bohemia*

(Doyle, 1892 first published - this edition published 1994, p.6)

The term *participant observation* is sometimes preferred to the use of observation (Denzin & Lincoln, 1994, p.378). It is the degree of participation of those being observed and the

observer that may vary. It is likely that the observer could be a purely non-observer, more like a "fly on the wall". *Observation* suggests the outsider stands apart and looks clinically on proceedings. In *participant observation* the observer is involved in the very activities s/he is describing. The participant observer usually has insights and experience with which to clarify or challenge what is happening or to confirm or question the findings of other researchers Merriam and Simpson warn that

*viewing events and behavior of people is not just an alternative method of getting the same type of information that research participants could give in response to an interview or questionnaire (Merriam & Simpson, 1995, p.152).*

They also note that the skill required to move from a *casual* observer to a *systematic* observer requires special training.

#### Practice

No purposeful plan was made as participant observer in any activities within the dental departments. The researcher's experience and context-knowledge were highly relevant in this regard. However, visits to the sites allowed me to make observation that either confirmed or conflicted with the data produced from the interviews.

#### 4.4.4.5 Documents

##### Theory

Strydom and Delport (2005, pp.314-325), in their review of this method of information collection from written information that already exists, distinguish two different types – document study and secondary analysis. The former involves documents that are not necessarily written for research purposes and three types are cited. These are personal documents (e.g. diaries), documents written for non-personal reasons (e.g. minutes of meetings) and documents aimed at the informing the public (e.g. newsletters). The latter category, secondary analysis, they refer to as

*the reworking of already analysed data over which the present researcher had no direct control or in which he had no direct involvement.*

##### Practice

The documents that were requested consisted of the copies of documents submitted by programmes to SAQA for the interim registration of qualifications, and the prospectuses/year-books/handbooks which would be in the public domain

There are 11 institutes, five technikons and six universities, offering between them the following programmes:-

- 3 in dental technology
- 4 in dental assisting
- 6 in oral hygiene
- 2 in dental therapy
- 5 in dentistry

In view of the relatively small number of programmes and institutes offering these programmes, it was decided that documents from each of the institute and their respective programmes should be targeted for examination.

The collection of documents consisted of accessing the official publications relating to the discipline as well as copies of the submissions made by the disciplines for the interim registration of all programmes and qualifications with SAQA in 1999/2000. These were collected from the programme developers at the time of the interview. They were willingly shared by all the facilitators from all the dental departments of both technikons and universities.

**Table 4.5: Official publications of dental offerings**

- in Dental Health Sciences in Institutes in South Africa and the titles of these publications

<b>Institutes</b>	<b>Title of Official Publication</b>
Technikon Free State	<b>Prospectus</b> 2002
ML Sultan Technikon	<b>Prospectus</b> 2001
Technikon Pretoria	<b>Calendar</b> 2002, Faculty of Health Sciences
Peninsula Technikon	<b>Prospectus</b> 2002
Technikon Natal	Faculty of Health Sciences 2002, <b>Dental Technology</b>
University of Durban-Westville	Faculty of Health Science, <b>Prospectus</b> for the year 2002
MEDUNSA	Volume III, Faculty of Dentistry <b>Calendar</b> , 2002
University of the Witwatersrand	Health Sciences, <b>Rules and Syllabuses</b> , 2001
University of Pretoria	Faculty of Health Sciences, <b>Regulations and Syllabi</b> 2002
Stellenbosch University	Faculty of Health Sciences, <b>Calendar</b> 2002 Part 12
Univ of the Western Cape	Faculty of Dentistry, <b>Yearbook</b> 2002, Part VI
<b>Total</b>	<b>11</b>

## 4.4.4.6 Summary of the data collected

The following table shows the number of interviews that were initially scheduled with the curriculum leaders/heads and the questionnaires that were to be administered to the students. As explained in 4.4.4.2 and 4.4.4.3 above, the actual numbers who were interviewed and questionnaires that were administered deviated from the initial plan.

**Table 4.6: Interviews and questions: number scheduled and actually collected**

Institutes (departments based in technikons and schools in universities)	Planners (Interviews)		Students (Questionnaires)				
	Pre Study	Study	Dental Technici- ans	Dental Surgery Assist- ants	Dental Hygien- ists	Dental Thera- pists	Dentists
Free State Technikon	1	(1)		20 (18)			
ML Sultan Technikon	2	(1)		20 (34)			
Pretoria Technikon	2	(2)	20 (28)	20 (29)			
Peninsula Technikon	2	(1)	20 (40)	20 (32)			
Technikon Natal	2	(1)	20 (37)				
Univ of Durban-Westville	0	0			5 (5)	20 (36)	
MEDUNSA	3	(2)			10 (14)	20 (14)	30 (63)
Univ of the Witwatersrand	2	(2)			20 (0)		30 (0)
Univ of Pretoria	2	(3)			20 (28)		30 (58)
Stellenbosch Uni	2	(3)			20 (30)		30 (105)
Univ of the Western Cape	2	(2)			15 (26)		20(86)
Total	20	(18)	60 (105)	60 (113)	90 (103)	40 (50)	140 (312)

## 4.5 Section three: data analysis and presentation

The arena in which this activity of teaching and learning takes place is a complex centre where the contextual and conceptual thoughts - outlined in the first three chapters - are enacted in dental health science education and training in departments institutes in a period of transformation, mergers and higher education policy changes.

How some of these activities within the teaching and learning process are realised and understood comes from capturing the data obtained through direct interaction with the educators, the learners and the institutes as well as through documentation produced through these media and analysed using the lens that one creates through a complex set of searches. Neither the researcher, nor any individual engaged in the learning and teaching process, is immune from the influence of his/her life and career experiences. These must dictate the research choices s/he makes and the directions s/he takes.

This thesis seeks to survey some of the complex – and often hidden - interplay between the individual educators, the individual students, the culture of the institution and the discipline itself.

### 4.5.1 Proposed work plan and critical questions

A summary of the critical questions with the technique and the process of data collection will be found in table 4.7 below.

**Table 4.7: Proposed work plan - A curriculum framework for undergraduate studies in dental health science**

Summary of Proposal: (objectives, key questions research approach & intended plan of work for the project, indicating important target dates necessary to meet proposed project deadline, and bearing in mind the possibility that these may be required to change as the research progresses).

Focus	1. Critical Questions	2. Sub Questions	3. Source of data	4. Instruments to measure	5. Details	6. Time Frame
<p><u>1. Nature of Professional Competence</u></p> <p><u>2. Curriculum Design</u></p>	<p>1.1 What is the nature of professional competences (knowledge) within dental science?</p> <p>2.1 How are frameworks organised to develop the professional competences?</p>	<p>1.2.1 What constitutes the professional knowledge within dental health science occupations?</p> <p>1.2.2 What are the roles/identities of the different occupational positions? <b>-actual curriculum</b></p> <p>2.2.1 What are the assumptions/claims/gaps/silences related to professional competence in the existing SAQA curricula submissions of education and training providers/institutions? <b>-official curriculum.</b></p> <p>2.2.2 What models of professional development are presented in these SAQA submissions? - <b>espoused &amp; experienced curriculum</b></p>	<p>1.3 Dental practitioners</p> <p>2.3.1 SAQA submissions by institutes -</p> <p>2.3.2. Curriculum planners and second year students</p>	<p>1.4 Interviews/Questionnaires</p> <p>2.4.1 Document analysis.</p> <p>2.4.2. Interviews /Questionnaires.</p>	<p>1.5.1 Questionnaires to be administered to practitioners in KZN (see page B for further details)</p> <p>2.5.1 Institutes to be initially approached to obtain <b>submissions</b> plus contact person/s involved in planning (see page B for further details)</p> <p>2.5.2 Individuals identified above to be <b>interviewed</b> (structure to be drawn up) and selected students to be asked to complete <b>questionnaires</b> (to be designed). See page C for further details.</p>	<p>1.6.1 February 2002 onwards - 31.05.2002.</p> <p>1.6.2 Interviews with practitioners within region Apr 2002- July 2002</p> <p>2.6.1 submissions to SAQA Sept. 2001- Feb 2002</p> <p>2.6.2 interviews with planners, Mar 2002- July 2002. b. Questionnaires to students, May 2002- August 2002</p>

## **4.5.2 Tools used in assembling the data**

### 4.5.2.1 Documents: handbooks/SAQA submissions for registration of qualifications

The documents were read and notes made of relevant contents. These documents and notes were referred to inform the issues to be researched and reported in Chapter Five.

### 4.5.2.2 Questionnaires

For the questionnaires all data was captured using the programme Statistical Package for Social Sciences (SPSS), version 11.5 and later updated to version 15.0.

For each "case" (identified by a serial number), that formed the row, the responses were inserted. The variables were assigned labels and values and were represented in columns created from the questions in the questionnaire. Comments were abbreviated as the number of letters that could be entered was restricted. The output (analysis) was generated mainly using the tables and general tables' options.

### 4.5.2.3 Interviews/conversations

The interviews were recorded using audio-tapes and later transcribed. A table was formatted and for each interview the responses from the transcription were divided into suitable "sizes" and placed in a row. The response was assigned a number. The columns were represented by the number of the response, the response and the codes for the type of responses, that is, whether they represented views on access, or teaching, etc. The intention was to electronically sort out responses into categories and to be able to collate them. It was found that this was too cumbersome and instead each row was read in relation to the issue at hand.

Selected excerpts of data were reproduced intact and pasted into Chapter Five in suitably coherent "chunks" as it was felt that it better represented the "ambience" of the interview and captured the essence of the conversation.

The rules used in presenting the data in the following chapter are as follows

**Notes on the rules followed in using extracts of the transcribed interview and the codes used in this chapter:-**

1. The whole conversation with each interviewee was broken up into excerpts relating to the focal areas and each segment was numbered sequentially. Excerpts quoted in this report are placed within borders.
2. The following codes are used:-
  - 2.1 Q: in normal font, followed by the transcribed question posed by the researcher
  - 2.2 D2: in normal font the interviewee, coded to avoid revealing the true identity *followed by the reply and comments in italics (the general rule for direct quotations throughout this thesis) of the interviewee.*
  - 2.3 *Transcript D14/85* that is the whole transcription with its interviewee code followed by / and then the passage number where the excerpt was selected from that whole transcription.
  - 2.4 \*\*\*\*\* where the voice was inaudible or the conversation was interrupted or referring to someone whose name is protected
  - 2.5 \*\*\*\* followed by (comment) placed by the transcriber/researcher in brackets, where direct quotes are not used and in order to explain the nature of the interruption or to summarise the point in order to provide continuity and flow to the conversation. Where (person X or Y in brackets) is indicated it is to protect individuals who were referred to in the conversation.
  - 2.6 ... indicates omissions from the responses usually because of voiced pauses and non sequiturs

**The terms used in conversations and in reporting relating to curriculum and departments/schools/faculty respectively are found in Appendix 5:**

### **4.5.3 Selecting the lens through which the critical questions can be answered?**

This section forms the link between the descriptions of the context (Chapters One and Two), the conceptual theorising around curriculum and professional development and the broader issues that impact on them (Chapter Three); and the research that underlies this study before moving onto the findings from the data that has been collected and analysed (Chapters Five and Six) .

For the purposes of this thesis it has been necessary to select from the sweeping landscape delineated in the first four chapters. I have chosen to use as my focussing lens in the zones of those day to day issues that impact most significantly on the professional development of the dental health science undergraduate. These are the six aspects of professional knowledge and curriculum design

- access
- teaching and learning
- assessment

and the three broader issues that impact on the above. These are:-

- scope of practice
- organisation of courses to develop the professionals
- obstacles to managing curricula

Thus, although I have described the broad curriculum in Chapter 3, it has only been possible within the limits of this study to focus on these aspects of the curriculum.

## **4.6 Summary of Chapter Four**

### **- research methodology: theoretical approaches and data production**

This chapter presents research methodology under four headings

- A literature review examining the concepts and complexities of research methodologies and methods and described particularly for health professionals who may be unfamiliar with these approaches
- The research tools selected for this study and their application to my research
- How the selected research tools were applied
- The data was analysed

The first part of this chapter then has taken, using a metaphor from Fetterman (1998), *a brisk walk through the intellectual landscape* of the two broad approaches to research in order to create my own lens for seeking data to support this thesis as well as looking at the pitfalls in knowing and telling the multiple truths of this study. I examined, described and compared the two approaches to research – the quantitative and the qualitative. The researcher can make her/his own selection of tools along this continuum and “mix and match” them as appropriate to apply to her/his own research – as long as that selection can be justified.

In the second part of this chapter the theoretical issues involved in the research design and data production and the strategies that can be employed were explored. For the purposes of

description these were divided into the procedures and the techniques (sampling, questionnaires and interviews) and that were employed.

In the third part, in preparation for the *teller to tell his tale*, the critical questions together with the work plan were revisited. This was followed with a description of the way the data was analysed and a selection was made of the lens to be used in answering the critical questions and how the data was organised.

Chapter Five reports on the findings from the research and Chapter Six synthesises those findings in relation to the critical questions.

## **Chapter Five**

### **Data findings: technikon and university programmes**

#### **5.1 Introduction**

My explorations of the territory of dental health science education and training have ranged far and wide. My task now is to present my diverse and sometimes controversial findings in a logical way and in a way that illuminates the critical questions that sent me on my journey in the first place.

In presenting my findings I have had to create arbitrary divisions for the purpose of clarity. I have chosen to deal issue by issue, selecting from the themes that have been identified in the previous chapter, and relating them within and between the different occupational categories and within and between the institutes. I have elected to report in this fashion as it focuses on the critical questions.

What then are the complexities and contradictions of dental health science education and training in South Africa?

The data should give some clues to the following questions. What is it that majority of potential professionals will do in their everyday lives? How are courses organised to develop these potential professionals? What are the obstacles for the educators and the learners in managing ways of designing courses? How do the learners access these education and training programmes? Once in the system, what are the everyday issues that both the educator and learner are faced with in acquiring knowledge? How are the learners measured and deemed to be competent to pursue careers in practice?

I report my observations of the status quo reinforcing these with selections from interviews, questionnaires and documents.

#### **5.2 Purpose of this chapter**

In the previous chapters I reviewed and discussed the deep concepts that underlie curriculum. I also examined research methods in some detail in order to select – and justify my selection – those research tools that seemed most appropriate for my own study.

The purpose of this chapter is to report the findings - manifested through interviews, questionnaires, documents and observations - of the two programmes based in technikons - dental assisting (National Certificate: Dental Assisting), Dental Technology (National Diploma and Bachelor's) offered under the auspices of departments – and the three training programmes based in the universities - Oral Hygiene, (University Diploma in Oral Health), Dental Therapy (Bachelor of Dental Therapy) and Dentistry (Bachelor of Dentistry) offered under the auspices of schools (and faculties – see appendix 5 for clarification of the institutional administrative terminologies). These findings will then be used to respond to the critical questions I posed at the outset and synthesised in the next and final chapter to form the thesis. It has only been possible within the constraints of this study, to make brief selections of the interviews to afford a glimpse into the depths of the research.

For the purposes of this report it has been found convenient to group the findings into two separate parts, albeit there is a great deal of overlap and interlinking between elements of both. This choice is informed by the notion that by examining the broad issues of policy and change management, the organisation of courses and the scope of practice allows for reflection on interconnected issues that frame the central issues of access (input); teaching/learning (throughput) and assessment (output) that are at the operational area of professional development. The selections, as explained in the previous chapter, are necessarily curtailed, and are chosen to frame a coherent report.

In Chapter 3, 3.4.1 I separated the two main elements of curriculum into

- the central activity or the core activity that is carried out on a daily basis with the educator/facilitator and the student/learner meaning the teaching, learning and assessment
- the numerous additional and multifactorial forces ranging from access to finance, biographies of the institute and the students that are at play and which make up the total curriculum

Within the limits of this study it is only possible to examine the first element in any detail.

The sections are therefore arranged as follows

### **Part A – Access (input), Teaching and Learning (throughput) Assessment (output)**

#### **• Section One: Access to training**

Enrolment and admissions, admission requirements, subject requirements

- **Section Two: Teaching and Learning**

Teaching methods and learning style of students for examination purposes. The staffing issues and their relationship with teaching and learning.

- **Section Three: Assessment**

Assessment methods used and the examinations.

### **Part B – Broader issues that impact on Professional Development**

- **Section Four: Scope of practice**

Roles and identities, the purpose of the qualifications, regulation and professionalism, career progression, and the hierarchy within the professions.

- **Section Five: Organisation of Courses**

How the courses are organised in order to facilitate teaching and learning which lead towards the qualification.

- **Section Six: Managing Change and Dealing with Policies**

Translation of policies into practice, mainly through the SAQA submissions, by departments in technikons and schools in universities.

Note:

1. The rules used in presenting excerpts of interviews will be found in the previous chapter
2. The tables and figures resulting from the questionnaires and selected for this report will be found in Appendix 4.
3. Base-line data relating to student numbers, programme and institutionally-based dental health science offerings and response rate to questionnaires have been used to establish base-line data and is utilised in Chapter 2, Section 2.3 and also presented in Chapter 4 Section 4.4.4

## **Part A: Access (input), Teaching and Learning (throughput) Assessment (output)**

### **5.3 Section one: access**

Access, as previously discussed, has many dimensions and, I would argue, is the gateway to the curriculum and to subsequent professional development. It is at the interface of the

demands and expectations from society and the ability of the institutes to provide education and training opportunities and to deliver a quality product.

Access acts as a border post through which only suitably accredited individuals may pass to begin the journey towards a professional qualification and personal development. What is considered "suitable", and what "border controls" exist to allow entry, is the subject of this section. After an overview of the trends and patterns of enrolment and admissions, some of these dimensions of access are explored.

### **5.3.1 Trends and patterns of enrolment and admissions**

The demands for places into the five programmes vary and invariably outstrip the places available. Apart from dental technology, in which the regulating council places a ceiling on the number of admissions, the numbers of students admitted into the five programmes bear no relationship to the numbers that are required to service the communities and the health services (as mooted by the DoH and CDD). The departments and schools responsible for providing the other occupational categories limit their intake numbers independently and this is based on historical criteria and local imperatives which are reported in this chapter.

Given this disparity, a selection process is obviously required. It was found that the prime determinant of entry into any of the five programmes is the level of matriculation grades obtained and the subjects passed by the applicant. These are then adjusted according to the following factors:

- population group that the applicant belongs to
- the historical background of the dental schools
- the geographical locations of the schools
- to some extent the gender of the applicant
- a hint of how well the applicant is known in the school or department.

Dentistry always commands a higher position and this is reflected in the grades required for selection and admission. This is followed by dental technology, dental therapy and then oral hygiene and dental assisting. The points raised here will now be discussed, together with the excerpts of interviews and data provided by the students through the questionnaires, under the following headings:

- Admission requirements
- Selection process and pattern
- Subject requirements: some views

- Population groups and grades obtained by students
- Geographical issues

### 5.3.2 Admission requirements

These are published in the various institute handbooks. Generally, it was found, the dividing line between admission into technikons and universities is the type of matriculation obtained – universities only admit those with matriculation exemption (except where age criteria come into play). Senior certificates are usually acceptable for the technikon programmes. The next preferred criterion is a credit in the science subjects.

#### 5.3.2.1 Dental assisting

In order to gain admission for this course of studies the basic requirements is a Senior Certificate and, as stated in the SAQA submission from the technikons - *Grade 12/FETC/Level 4 with a pass, (biology is a recommendation). Admission is subject to a personal interview.* However, additional selection processes may take place and these are described below.

#### 5.3.2.2 Dental technology

The admission requirements for the diploma qualification were found in the SAQA submissions and the institution handbooks. They were *Grade 12/FETC/Level 4 with a pass mark in mathematics or physical science* (SAQA submission) or, as stated in one of the handbooks (Peninsula Technikon), *Senior Certificate with mathematics and/or physical science...successful completion of an aptitude test.*

The requirement for the degree in dental technology is the National Diploma in Dental Technology or an equivalent.

#### 5.3.2.3 Dentistry, oral hygiene, dental therapy

The HPCSA offers broad guidelines to dental schools with respect to the prerequisites for admission into dentistry, thus,

*it is clear that a high level of academic achievement in appropriate aspects of the biological, physical and mathematical sciences is a desirable pre-requisite for any student embarking upon basic dental education, as is evidence of literacy, numeracy and ability to communicate. Within these broad guidelines the Council encourages flexibility in entry requirements* (Health Professions Council of South Africa - Medical and Dental Professional Board, 2001, April, items 15 & 16).

A very limited degree of “flexibility” was evidenced by the interviewees.

From information obtained from the handbooks/calendars/prospectuses and summarised in Table 5.1 below, it appears that the starting point for being considered for selection for any of the three university-based programmes is a matriculation exemption pass with passes in science subjects (except at UWC where applicants with a Standard Ten/Grade 12 pass are considered for admission for oral hygiene). It seems that mathematics and, in most cases, physical science is a prerequisite for admission into dentistry in all schools and that biology is a prerequisite for oral hygiene.

**Table 5.1: Selection and admission - subjects and minimum grades required**  
- in order to be considered for selection and admission for the three dental health science programmes at schools in the different universities.

	Physical Science	Maths	Biology	English	Comment
OH – UDW			√		
OH – MEDUNSA	√	√	√	√	any three subjects required
OH – WITS			√		pass in Biology
OH - PRETORIA	√		√		and/or, HG or at least 50% at SG and an M score of 16
OH - STELLENBOSCH	√	√	√		at Standard Grade, preference shall be given with these subjects
OH - UWC	√ or		√ or		or Physiology, 50% at SG or 40% at HG and <b>passed standard ten (Grade 12)</b>
DTherapy – UDW			√		
DTherapy – MEDUNSA	√	√			
DENTISTRY – MEDUNSA	√	√			
DENTISTRY – WITS	√ or	√	√ or		details obtained from SAQA documents , not in Rules Book
DENTISTRY - PRETORIA	√	√			At least C at HG and an M score of 24
DENTISTRY – STELLENBOSCH	√	√	√ advised		at least B aggregate, at least D at HG or C at SG
DENTISTRY - UWC	√ or	√	√ or		HG or at least 50% at SG. In transition from direct entry from Matric and BSc first year

(M=minimum score calculated in terms of the results of Grade 12)

### 5.3.3 Selection: process and pattern

There are stated requirements for admission but each institute or department or school has its own idiosyncratic, and usually unstated, criteria for selection. Excerpts of conversations with the interviewees, obtained for the different categories will be reported under separate sub-headings.

#### 5.3.3.1 Dentistry

The importance of grades and subject requirements for entry into dentistry is highlighted by one interviewee. It appears that other qualities are looked at by one school but in the end it is the academic ability (as judged by matriculation results) that would count. Another possible route for applicants with low matriculation grades is by means of obtaining a prior qualification in dental therapy.

Q: The selection for the new one (programme) – it's not just matric, they have to have other things, is that right?

D18: ..... *Basically it is - the selection criteria is, first of all largely academic merit..... We also look at other things – leadership qualities and participation.....biographic and on the biographical questions we ask you all the questions – have you done this? – what have you done? – do you belong to any organisations, and so on. We pick up those type of things..... they must have a pass in ...mathematics – plus, either biology or physics. And, they must have an "E" for this – minimum at least on the - higher grade for maths and on the higher grade for biology or physics or they must have a "D" on the standard grade – minimum. But, the minimum doesn't mean they'll get in – the minimum will get them on the list. Generally we draw a line at the aggregate of "C". As soon as we draw a line all those below "C" don't get considered because there's lots of students above that already..... We have a scoring system so we score everybody.... We add those scores up – then we correct them for gender making sure that there is an equal number of males and females (my underlining) ...and we try to look at urban and rural. Then, if we find... we've got a candidate but we're not so sure about that person, if the biographical questions are not very clear but the academic score is fine, and so on, we also have the option of calling that person in for an interview...*

*Transcript D18/11*

Q: So the main thing is the matric score. Do you give a biographical score?

D18: *No, we don't give them a score – it just influences us – we try to correlate it in some way. No, there isn't a score...*

Q: Do you think you need an aggregate of "A" to be a good dental student?

D18: *... we have never taken students into first year ... We've always taken students into second year and we've found that – in that case – there was very little – there wasn't much correlation between the first year results and the matric results. In other words you might find someone coming in with a 'D' aggregate who would never have got into dentistry on a 'D' but he does first year and he does well, then he comes into the dental school with good first year results.*

*Transcript D18/12*

An interesting view was presented by one of the interviewees who highlighted issues about the role of moral behaviour and manual dexterity in the selection process.

*D13: ... the Europeans are trying to unify their dental education and, reading between the lines, they are scared of some of the new countries that are coming into the European Union like Turkey and Spain and they are worried about standards and that... They are also talking about selection and what selection is based on and it's mainly...it's mainly academic criteria everywhere. But, what they do say is that they find on psychological testing, that those people that have the right sort of commitment and the right sort of social conscience tend to do better in medicine and dentistry. Now, isn't that interesting that they make that connection – that there is that connection ..... I listened to a speech by \*\*\*\*\* (vice-chancellor of a South African university) and she said that we teach them all these techniques but we don't teach them how to apply these techniques morally. And it really stuck with me because it is the moral application.*

*Transcript D13/15*

*D13: And I also think there should be more manual dexterity testing. A lot of people are against it but a lot of schools are using it and just from my 28 years of experience of teaching dental students, I really do think that people who have an initial ability – hands – will make better dentists than people who don't. I think we should look at it. There has been a snobbishness about this looking at only academic ability. I don't agree with that. We should look at attitudes and we should look at hands.*

*Transcript D13/16*

An additional point was made about the role of individuals who have the “authority” to personally influence the selection process, thus:-

Q: Let's look at access, what is your selection process?

*D13: ... our selection process at the moment, we really need to look at. \*\*\*\*\* who is the head of medical school at the moment is completely in control of the selection process ..... as an individual. ... for all of the Health Science faculty. I'm not really sure - \*\*\*\* put in some proposals for changing some of the selection criteria with affirmative action marks added on to level the playing fields but it hasn't gone through. .... You just have to have the right grades, know the right people. There is also an interview as part of the selection process but it is meaningless as far as I am concerned.*

*Transcript D13/15*

### 5.3.3.2 Oral hygiene and dental therapy

The introduction of independent and limited private practice for dental therapists coincided with the competition for admissions between oral hygiene and dental therapy programmes, particularly in the schools that provide training for both occupational categories. In one of these schools, which also provides for the training of dentists, the pattern for those seeking admission, in order of greater demand, is dentistry, dental therapy and then oral hygiene.

I will describe the pattern with regards to the numbers and the level of entry into programmes offered by my school. Between 1980 and the early 1990s, the numbers of oral hygiene students enrolled was greater than those for dental therapy, as were the requirements for selection into the two courses of study. This situation reversed thereafter where the demand for entry into dental therapy increased and that for oral hygiene declined. The numbers taken in for dental therapy rose sharply and that for oral hygiene dropped dramatically.

Although the prime reason for this is attributed to the right for dental therapists to work independently in private practice, additional factors which may have impacted on this pattern could also be due to:-

- the changing pattern of the provision of dental care
- the shift from a degree to a university diploma for oral health
- the shift in the country's and institutional policies for selection and admission.

Whatever the reasons, admission for oral hygiene was "easier" than dental therapy and those who were unable to gain admission for dental therapy were guided in the direction of oral hygiene.

Most of these points are neatly captured in a discussion/interview with one of the heads of department at the school that also offers both oral hygiene and dental therapy.

Q: The access to your programme. Now, I know that you have had great difficulty in attracting the numbers to your programme?

H7: *We don't have that problem now because, remember, like you, we're therapy and oral hygiene and they all want to do therapy and also, remember, it's our dustbin.*

Q: Have you gone the route where they all come in at a common point?

H7: *No, they still bring them in (matric rating?) ... Yes, matric rating. Matric rating for oral hygienists is 8, 10 for the therapists, 12 for dentistry.*

*Transcript K7/7*

Q: ... You're saying that since you've got the two year/three year course the demand has gone up?

H7: *Oh yes, yes.*

Q: ... There is a kind of hierarchy because you are taking them with a different number of points to do the various courses ... do you think that kind of hierarchy exists?

H7: *Oh, I know it does. I can prove it does – our student selection – if you look at "excluded from BSc."; "excluded from BSc..." We must take two students that have been excluded from other courses*

*Transcript K7/9*

Q: So, the last home or refuge is oral hygiene?

H7: *Is here.*

HL: ...dental therapy also...?

H7: *I think – no, not therapy, hygiene.*

HL: ...therapy is more selective, is that right...?  
 H7: *Oh. Yes.*  
*Transcript K7/10*  
 Q: So there is a hierarchical thing?  
 H7: *Oh definitely. You know it is .... 'Course it is.*  
 Q: In institutes that I've been to, dentists drive the thing and hygienists follow – is that the pattern?  
 H7: *It does exist and you won't remove it. I can't see how you can remove it. Our curriculum doesn't allow you to remove it.*  
*Transcript K7/11*

### 5.3.3.3 Dental technology

The relevance of matriculation grades and subjects, the selection process and the numbers selected for dental technology are explored here.

The barrier to access is the limited numbers of students that can be accommodated due to restricted laboratory, workshop and trainer resources. The employment of dental technologists completing the course is also a consideration.

The numbers that are accommodated are outstripped by the number of applicants

T4: *But I think the main thing is, we get about 300-500 applicants a year*  
 Q: .... For 20 places!  
*Transcript J4/15*

How this number was arrived at was questioned at another department

Q: How many technicians can you take in? What is the controlling mechanism?  
 T5: *The Council determines how many first years we can take*  
 Q: ...based on what...?  
 T5: *Based on some fictitious formula – you know we have never questioned this because we – we ourselves wouldn't like to see our students walking the streets so rather a slight shortage than an over-supply. They've worked on a ratio of 2.4 dentists to a technician. There was a time when they worked on 4 to a technician but I think we have all realised that 4 dentists doing denture work could keep busy but when you come to ceramics it is a lot more time-consuming so you need more technicians per dentist.*  
*Transcript J5/106*

The selection for technology, gathered from the interviews, is based on the combination of applicant's academic results, psychometric tests to determine their potential and manual dexterity tests.

Q: Do they require matric exemption...?  
 T6: *You don't need an exemption*  
 Q: Do they need biology?

T6: *No*  
 Q: .....science....?  
 T6: *Science and/or maths*  
 Q: So the criteria for selection is matric points?  
 T6: *Yes*  
 Q: Are they given a psychometric test?  
 T6: *Yes*  
 Q: Do you interview ...?  
 T6: *Yes*  
 Q: Does each criterion have a weighting?  
 T6: *Look, what we try and do – we do a test which looks at three things. We try and look at matric results which is actual performance; we then try and look at psychometric testing which is potential and then we look at manual dexterity. We try and combine those three aspects on levels which are devised by us in terms of selecting students. It is very difficult to find students who are good with their hands and not good with their brains and don't have any potential. Then you have the opposite – good with their brains and have potential but can't work with their hands. So, we look at all those combinations together and try and select students according to predetermined levels...*  
*Transcript T6/10*

The importance of matriculation grades for access to the dental technician/technology programme was expressed by the following two excerpts from interviews:  
 (The first excerpt includes information on assisting and technology)

Q: Now, the basic entry ... do you place a lot of emphasis on the grades ...  
 T5: *Let me tell you, speaking only for our department. If a student arrived with five As - and we've had students with five As - applying for dental assisting – and we've had them! We would probably advise them in another direction because I think it is unfair to take a person like that and you know that that girl (sic) is not going to stay in that career path with those qualifications.*  
*Transcript T5/37*  
 Q: So grades are important in that case...?  
 T5: *They are important but we will advise them either into dental technology or dentistry or medicine and help them to get in there. When it comes to dental technology, we only look at the grades from a legal point - that's the minimum legal requirement set by the technikon or by the professional council. After that we do our own testing, because how do I grade a C from Bishops (private school) where the student has everything - rich parents, nice home, dropped at school - and one coming with Es from Gugulethu (black township) where there are no science labs, no teachers? Is he not better than the C from Bishops? So, to me, the aptitude test is more because I want to test the person's ability to learn. We'll rather look at \*\*\* potential. So any matric results are never incorporated into the final selection*  
*Transcript T5/38*

The second was also speaking about the relevance of grades with respect to dentistry and the relevance of science subjects and in particular dexterity.

Q: Do you think... the current practice to get into dentistry is all grades-based ... there is a kind of hierarchical way...?

T4: *We find here that we are averaging two head boys or head girls of schools a year. Some of them have 5 or 6 distinctions but that is not what has got them into the course.*

*Transcript T4/15*

Q: Do you think people have to have grades A's to do dentistry...?

T4: *No.... As I said, people that we've shown away here – they do dentistry. I think also that the course is very practical. ... So, it's a very practical course and it must have that dexterity as a dentist and a lot of dentists don't have that dexterity because their grades got them into that course. I think if the universities did a similar kind of selection as we do for our students, it would be marvellous. Because we took our students once to \*\*\*\* and they started working on the phantom heads and their dexterity was such – the dental lecturer was so amazed at the quality of work that these students – but that's the way we select them. We don't go for grades.*

*Transcript T4/16*

Including the issues of dexterity and that dental health science is a very “hands-on” occupation in the selection process, one interviewee expressed his views on the value of biographical “tests” as an additional criterion in the selection as process as follows:-

T4: *You're looking at now... selection for courses? Well, that's something quite different. The first thing we put them through is potential \*\*\*\* test – I could show you - but I haven't got it here – but there's \*\*\*\* perception, visual memory etc. etc. etc.*

Q: Who devises that?

T4: *Our psychiatrists (sic) did it. Then we take from that the people who are suitable...*

Q: Regardless of grades...?

T4: *Regardless of grades – no, we don't look at their grades... They could have distinctions and it will not affect it much. So we find a lot of people that we show away here. That do not get accepted for the course – go in to do dentistry.*

Q: ....so you are turning away higher grades and accepting people with lower grades, mainly because they go through this test?

T4: *Yes, they show potential for the type of work that they are going to do. People from Human Sciences Research Council are also looking at our selection process. Then we take people from that potential and then they do a dexterity test. Only after that can we select the students we are going to take.*

Q: So if they do well in that and they have a matric regardless of grades?

T4: *You just have to have the basic things in place like science*

*Transcript T4/14*

The policy on quotas (dictating the racial/gender make-up of accepted numbers of applicants) is not publicly spelled out by departments. One department has “dug its heels” and has not deviated from accepting students from the black population group if that student does not meet the requirements from matriculation grades. This is borne out by the data selected from questionnaires which revealed that of the only 3 students from the black

population group - one obtained a Grade A, one a Grade B and one who did not declare her/his matriculation grade (see Table A4.10 and also 5.3.5.4 below).

Q: But the application for places is based on grades ... perceptions of roles.... income generation potential etc...?

T4: *That's one of the problems we find here. Once we get black students, we will have a real problem discussing it many, many times. Once they qualify for this course (dental technology), they qualify for any university course as well. They rather go to university. So, we select black students and send them out as dentists.*

*Transcript T4/17*

Q: *They come in to do dental therapy and then they've got a chance to do dentistry?*

T4: Yes, so that's the main problem. So we're struggling to get equity in our students ....

Q: Do you have any (black students)?

T4: No, not many.

Q: Do they apply?

T4: *Yes, they apply but ... another problem we have – most courses with black students... you get two types – you get the type that are really demanding everything and are not willing to give anything back. Then you get the really inspired people working extremely hard. Then I look at the – I'm going to be racist - white students who think that everything must fall into their lap because they're white and they don't have to work. I get so upset when I see that. I see students working hard – getting up at three o'clock in the morning trying to get in time for class ..... I mean some of the black students who have gone through this course, ended up in the fourth year as the best students. They are the best students over all, best students in the technical work and we wish we could get more of them but as soon as we say this is the right person - they want to do dentistry.*

*Transcript T4/18*

#### 5.3.3.4 Dental assisting

It seems that actually seeking and gaining admission is determined - in no particular order - by the population and gender (female) group that the applicant belongs to, the matriculation grades that s/he has obtained and the numbers that the departments want or have to admit. The historical links that the departments have with population groups and geographical location also has significance.

At the time of the data collection for this study, this occupational category was unregulated and therefore dental practitioners could "take anyone off the street" and train them according to their needs. At the time of this survey it was found that at least 96% of those in training were females.

Different interviewees reported on selection-criteria beyond the stated entrance requirements. These preferences were not always adhered to in the interests of the pressure of filling the course.

Q: Is it all based on matric results...?

A3: *We do, we say at least a 50% because we find if we take the people with the E's and the F's they don't pass in any case. You know they could pass with an F which is 35% maximum but here we need 50% to pass and they just won't make it so why waste their time and their money? This is an ethical thing. If they haven't got a 50% - on a standard grade - not on a higher grade - then - as matric result*

*Transcript A3/34*

One department administers psychometric tests but the challenge to fill the places overrides this finer selection criterion.

Q: What is your selection protocol?

A3: *yes. We've got a psychometric test - each one has to go through it and we don't accept them if they haven't gone through and we only go on that - on that test.*

*Transcript A3/32*

Q: Who administers these tests?

A3: *- we have a Student Affairs department and they administer them. We've worked out a student profile and we've found if they fit that profile they are a good student. If we take people who don't really fit that profile - but, you know, it's always a push for student numbers at an institution and ours is like that also - we take ones that don't really fit that profile and they're the worst people you could get. Over a number of years - this is my 29<sup>th</sup> year - I think we've got a profile now that really fits a dental assistant.*

*Transcript A3/33*

The historical links of one department governs the applications from a particular population group

Q: What is the predominating colour or gender that comes in?

A2: *We seem to have black females predominating. We occasionally have the odd coloured or Indian female...*

*Transcript A2/9*

### 5.3.4 Subject requirements: some views

The subject requirements vary a little from category to category or even institution to institution. There seemed to be an unquestioning acceptance of these requirements although, on probing, some respondents seemed unconvinced that the requirements were always appropriate.

Most interviewees agreed that passes in certain subjects were preferred if students were to be able to cope with the training.

The following are views from the two technikon-based programmes.

Dental assisting

Q: Around access I am looking at two points. One is what the basic requirement is and the other is how do you select. ....what are your views ... do you need to have a minimum of a secondary certificate? But do you have to have the sciences, maths and biology?

A3: *We actually say you can have biology and/or science .... You have to have all of them. ... If you have one of them that's still sufficient. You know the problem that we have is with the radiography part that we do. There's a bit of physics in there and if they don't have a little bit of a ... maths background, they don't catch on with that. Now, if you have maths you normally have – if you have – it actually says physiology now, biology/physiology and/or maths and science ...if you have science you normally have maths. You can't have science without maths. The other part is when they do oral anatomy and pathology. If they don't have the physiology/biology background – we find that they don't pass the subject – we lose them.*

*Transcript Q8/81*

Dental technology

Q: But do you think it's necessary to have maths or science for, say, dental assisting?

T5: *Not for dental assisting, it's not a requirement there - for them it's not a requirement. But for dental technology, it is.*

Q: If it wasn't a legal obligation ... would you still think that they could make it?

T5: *It's a great plus but we've had students who haven't had maths and science and they've managed well. They've battled with certain things but so what? As long as they made it.*

T5: *I suppose there are always those who can make it and personally I feel that the fewer restrictions there are the better. An aptitude test or a dexterity test is better. Assessing potential is important*

*Transcript T5/40/41*

Q: So, for access to the programmes ... debate about whether physics, physical science, biology, maths ... are absolutely essential to do the programme?

T4: *Yes.*

Q: Currently you say "yes". You have your own institutional document?

T4: *Yes. "What grades do you think would make the optimal dental professional for the qualifications you offer" We take as a basic point of entry that they must have maths and science to get into this course ..... Biology is recommended ... physiology – recommended.*

Q: You feel that maths and science are essential?

T4: *Yes... At one stage we had physics and chemistry as part of this course. Then everyone looked at the dental materials. They didn't understand the physics and chemistry behind the dental materials etc. Well, then, we decided... The level of physics and chemistry that the people need to know is basically only at matric level. Standard grade if you pass, we are happy with that. It is almost impossible to teach dental materials without – or let a person have insight into dental materials – if they haven't got a basic knowledge – a working knowledge of science. And, if they can't add and divide – so, mathematics, yes but they only need a pass with that, we're not looking at the grades. If they pass standard grade, that's fine with us.*

*Transcript T4/14*

For the university-based programmes the science subjects, physical science, biology (or physiology) and mathematics, in varying combinations (as shown above), are required at matriculation in order to qualify for admission for any of the three programmes. Mathematics is a key requirement for entry into dentistry, and biology for oral hygiene. For dental therapy, one school places emphasis on biology whilst the other school requires physical sciences and mathematics. Most of the students questioned agree with these requirements as do the interviewees. However, alternative views were obtained from three of the interviewees (two for dentistry and one for oral hygiene) as shown below:

### Dentistry

Q: Is maths really necessary? Can you do dentistry without?

D18: *Personally? I think so*

Q: Do you need biology?

D18: *Yes, I think so but they say EITHER physics and biology*

Q: That seems a strange combination

D18: *Very strange but I see all the universities have that*

Q: Maths is just a recommendation?

D18: *Yes. Everybody says maths AND physics or biology but maths is the one that must be there. Now I don't think so but a lot of educationalists say it gives you an idea of the capabilities of....*

*Transcript D18/18*

An interesting and innovative view offered was to link the need for science subjects at matriculation level and making it more relevant to the competences that are required, as well the restructuring the basic science courses (physics, chemistry and biology) that traditionally form the first year of dentistry courses.

Q: Now let's look at the access. I think in your programme you have to have both biology and science. For your one you require all three (maths). Without that you can't get in. Now, do you think this is absolutely necessary? You can't be a dentist without?

D13: *Well, you know in first year...what we are doing in our first and second year, we more or less positioned things where we want them – the subjects. We are now going to have a major evaluation for relevance – OK? Together with that we are going to look at the matric qualification for science because I know that since I did science – I mean, they do things like the Krebs cycle in biology for matric. And then it's repeated at first year level... Look, one of the things – I've just been to visit Adelaide University and looked at their curriculum there and it's very problem-based and very progressive ... do we need all this massive physics and chemistry? Granted we do need some physics – levers for bridges and partial dentures and chemistry for dental materials and biological principles for tissue compatibility etc. etc. But, do we need all of that, OK? And they've basically told their science departments to take a hike and they teach what they feel as necessary when it comes up.*

Q: Their students don't need to have physics or chemistry or even maths?

D13: *No. maybe biology.*

*Transcript D13/12*

Q: How do you feel then if you had to evaluate the courses?

D13: *I think that if we manage to prune our first year basic science courses so that we only look at the relevant issues in more detail and relate it to dentistry ... overtly to the students. Then those subjects can become much more ... can become ONE subject. For that, you probably do need a school background. At present it is practically repeated in the first year... I do feel that you do need a scientific background. Even in that document for the Africa region called "Competences required for the practice of dentistry", - that came from \*\*\*\*\* and \*\*\*\*\*..... Even there they talk about competences in the basic sciences underlying the practice and study of the practice of dentistry. .... There was a meeting in Cape Town with \*\*\*\* and these are the documents that came from that meeting. \*\*\*\* was there also. You see, even here they talk about prerequisites. These are the "competences" which are very nicely summarised because competences documents are huge. Then they talk about the prerequisites for the competences and they do talk about having a basic understanding of the biological principles for the medical sciences.*

*Transcript D13/14*

### Oral hygiene

The requirements for entry into oral hygiene currently include biology. I questioned how important this was.

Q: Have you gone the route that they all come in at the same point?

H7: *No, they still bring them in ... matric rating. Matric rating for oral hygienists is 8, 10 for the therapists, 12 for dentistry.*

Q: So, do you interview them? Give them a psychometric test?

H7: *No, no.*

Q: So, as long as they've got their matric weighting and they've applied they're in either for oral hygiene or dental therapy but you just increase your weighting...? ... even number of points per subject or do you double up ...?

H7: *No, higher grade and standard grade ..... They have to have SAT, English, mathematics and general science –*

Q: But you'd accept them if they haven't got science or biology?

H7: *...it is weighted for the science subjects.*

*Transcript K7/7*

.....  
Q: Do you feel this is a satisfactory way of taking them in?

H7: *No. definitely not. They should be interviewed.*

Q: Do you feel that you have to have biology or you have to have science or you have to have maths?

H7: *No. I don't agree with that at all. No, but I think they've got to prove – I'd rather have English and mathematics than any scientific subject. If they've got a good rating for maths then you must have it to do biology.*

Q: Some people feel they have to have biology because a lot of our subject is biology-rated and if the student doesn't have biology – how are they going to capture...? Do you think they need biology...?

H7: *What are we here for? (My underlining)*

*Transcript K7/8*

### 5.3.5 Population groups and grades obtained by students

Having explored the views of some key individuals in the departments in technikons and the schools in universities, I now turn to the findings of the actual matriculation grades - as declared through the questionnaires - completed by the students. I will report these to their occupational categories, institutes and the population groups that the students belong to as well as to the interviews.

#### 5.3.5.1 Dentistry

Tables A4.13 and Figure A4.7 reveal the pattern of acceptable grades for admission to the four dental schools surveyed (Wits. did not permit questionnaires to be submitted to their students and therefore the matriculation grades for students from this institute have not been included).

These results are shown in tables in Appendix 4 as indicated. Students from the white population group are found mainly at the historically white universities (see Tables A4.3 and A4.4).

In order for students from the black and coloured population groups to study at the historically white universities a "good" matriculation grade is required.

Students from the black and coloured population groups can however gain entry with grades less than A or B grades at matriculation relative to the white population group (see Table A4.13).

Students from the black population group are found mainly at MEDUNSA and to a lesser extent at UWC (Tables A4.3 and A4.4).

Students from the coloured population group are found mainly at UWC (Tables A4.3 and A4.4)

Data obtained from MESAB (Tables A4.4, A4.5, A4.6 and Figure A4.2) indicates that 39% of the student population consists of the Indian population group and 48% of the black population group.

Table A4.13 catalogues the pattern of population groups and grades obtained at the four dental schools surveyed. It will be seen that there are significant differences.

#### 5.3.5.2 Dental therapy

For this category, admissions relating to grade are shown in Tables A4.12 and A4.14. The general pattern is that students at UDW require relatively higher matriculation grades than at MEDUNSA in order to gain admission. One of the possible reasons is dentistry is offered at MEDUNSA and this course of studies attracts those with higher grades and therefore leaving the remainder with lower grades for entry into dental therapy. The reverse is probably true for UDW where dentistry is not offered.

#### 5.3.5.3 Oral hygiene

See Tables A4.11 and A4.14 for the admissions/grades in this category.

Again the grades obtained by students mirror their population groups and the historical advantage of the school.

#### 5.3.5.4 Dental technology

Although, as it would seem from the interviews that emphasis is placed on a dexterity test for selection to dental technology, it would appear here that matriculation grades obtained remains a dominant factor influencing selection. This (matriculation grades) was confirmed by abstractions from the student questionnaire responses (Tables A4.2 and A4.10).

Further responses revealed that admissions by academic results varied according to racial group. (See Tables A4.5 and A4.61 and Figure A4.2). A comparison of the matriculation grades obtained by students from the black population group in the three technikons shows a large variation. (Tables A4.7, A4.8 and A4.10 and Figure A4.4)

#### 5.3.5.5 Dental assisting

Grades of admitted students to this programme, as well as their racial distribution are shown in Tables A4.2, A4.8 and A4.9 and Figure A4.3.

### 5.3.6 Geographical issues

As discussed in Chapter Two there is a regional mal-distribution of institutes, their offerings and historical leanings. This is likely to have an impact on access by students who do not have the means to study outside the region. Potential students unable to pursue studies in an occupational category of first choice may select from what other choices of offerings are available locally. For example, some students from Durban, who are unable to access dentistry and may gain admission elsewhere (in Gauteng or the Western Cape) would not be able to pursue this course of studies as the geographical distance would prohibit them from following the preferred choice of studies.

It is possible that, in the KwaZulu-Natal province where dentistry is not offered, certain students opt for dental therapy as they wish to be nearer home. A significant number of students, when questioned, demanded a full dental faculty at UDW. This suggested to me that they would have opted for dentistry if a course had been available locally.

The pattern of the students from the different population groups reported in 5.3.5 above in the different departments and schools in some way reflects this position.

### 5.3.7 Summary and key features

It would appear that access to training is, on the whole, idiosyncratic and unplanned at the level of geographical location of institutes providing the opportunities to the numbers that are required for the health system. Beyond the stated admission requirements is a local selection procedure which may vary from institution to institution or, indeed, selection board to selection board.

The key issue identified in this section are that:

- Findings from documents, interviews and questionnaires revealed categorically that matriculation grades and subject passes (mathematics, science and biology) are the overwhelming criteria for admission to all programmes. This is understandable since it would appear to be the one, measurable, rational criterion for “weeding out” unsuitable applicants at the first hurdle.

The differing academic demands of the programmes would seem to justify the levels of pass marks and subject criteria. Refusing admission to the many applicants at this most basic level is the most time-efficient method.

- Entry is also dependent on the population group that s/he belongs to.
- Selection of applicants to the technology programme is based on a battery of tests comprising psychometric testing, psychomotor testing, interest-profile evaluation, interviewing. For initial entry into the other programmes very little allowance is made for determining the potential applicant’s personality profile or manual dexterity.
  - A hierarchical structure within the occupational categories is inevitable and this is mirrored in the demands for places for the different programmes and the grades obtained by applicants for those places. However the perception within establishments that those obtaining grades that are too good for a particular programme and are encouraged at selection interview to aim “higher” - meaning dentistry – is disheartening.
- Academic qualifications may not be the most significant criteria for professionals who, ostensibly, offer a service to vulnerable clients. Moreover, as I have, and will discuss, much of dentistry and almost all of dental technology training consists of training in technical skills rather than academic or communication skills. This consideration needs to be built into the selection procedure allowing access. As has been shown, some institutes do build in manual dexterity testing into their selection processes but as a poor second to matriculation grades. It has been my experience, as a dental lecturer, that some of the academically most able students are the least able as far as manual dexterity is concerned (personal experience).

## 5.4 Section two: teaching and learning

Whilst the term throughput has popularly come to imply how rapidly students pass through the system, it is used in the context of this study to mean the pedagogical activities that the learner experiences within the programme.

The *requirements relating to teaching and learning*, for dentistry, as stated in the DoH document (Department of Health, 2005, item 11) refer to the teacher (educator) as a

*resource person and facilitator of learning rather than a transmitter of knowledge; learning to be curiosity-driven and geared at self-exploration and critical evaluation of contents; emphasis on student-centred learning; academic support; teachers must be experts in teaching; learning systems of an approved educational institution shall be grounded in modern educational theory. (ibid)*

What actually happens in the different programmes is reported below.

### 5.4.1 Teaching methods

My research demonstrated that the major way of teaching that persists is the didactic method with emphasis on practical learning where students acquire knowledge and skills through steady and prolonged exposure to actual supervised practice. In this process, they encounter a variety of cases calling on different skills, but not in a strictly planned or entirely predictable sequence which is the same for all the students. One lecturer commented on the major deficiency of this teaching style.

D14: *.....But the problem is I think there's a lot of teachers that don't understand, they are treatment orientated.... They are treatment orientated.*

*Transcript D14/31*

As reported in 5.7.2.3 one school is attempting to make innovative strides, by shifting its focus from traditional teaching methods to problem-based learning, but is facing stiff resistance (see also the sections on assessment and organisation of courses below). Teaching is also still departmentalised (and compartmentalised) and taught by subject-specialists rather than educators. The following is an excerpt from a conversation with one of the interviewees.

Q: So, your current teaching is compartmentalised in depts... ....?

D14: *That's the way we do it ... but in the different depts., you get a further breakdown. For instance odontology, you'll find that the teacher concentrates on basic odontology, or basic restorations and he confines himself to say, inlays and crowns and bridges, when it comes to endodontics. ...*

Q: so what happens then?

D14: *What happens then? He should be able to - he is training a dentist not a specialist. He was trained as a dentist so he must be able to do that... endodontics that we all learnt when we were students. He must know how to teach the student or guide them - firstly to facilitate the student with regards to the preventive treatment of this patient*

*Transcript D14/53*

### 5.4.2 Learning style of students

Concepts around the teaching, learning and assessment components of the curriculum were discussed at length in Chapter Three. Here I examine the realities as observed by myself and reported by the interviewees and respondents.

The predominant style of studying for the purposes of examinations is the use of lecture notes, which are topped up with the student's own notes, study guides (in one instance) and text books (in three out of four cases).

Table A4.15 shows the percentages, within a multi-response set of students, of responses from students when asked about the main study method used for examination purposes.

Table A4.16 shows the different study methods used by dentistry students in the four schools that were studied. A very low percentage identified other methods used which included past examination papers.

Students were asked whether they received any lecture notes and study guides for modules/courses. They were also asked whether they made any additional notes and whether they also used the library to supplement their lecture notes and study guides (See Tables A4.17, A4.18, A4.19, and A4.20).

Tables A4.21 and A4.22 and Figure A4.8 relate to study time available on the time-table. Support is given to my experience and perception that "free-time" or "study-time" is usually seen by lecturers as time where students will spend in the "café" and that the time-table needs to be filled in order to prevent this.

Q: How does self-directed learning work? Does it fit into your time-table?

*D14: Experience of some of my colleagues working out rosters, tell me that the students tell them that they use the time to sit in the cafeteria ..... So, I don't know - I think - I don't know how we are going to do it but in any culture of students we have to look at it. I think it's our fault, because the majority of assessments - especially the written assessments - is on the lowest level of Bloom's cognitive domain, that is knowledge - not even knowledge - it's just reproduction of facts ..... rote learning.... So, I think that is the problem ... so they just cram and our curriculum is overloaded...*

*Transcript D14/48*

The relevance of teaching and learning styles on professional development will be discussed in the next chapter.

### 5.4.3 Teaching staff: their qualifications and availability

Whilst the call is for the ideal of teachers (educators) *who must be experts in teaching* (Department of Health, 2005) the following pattern of teaching staff in dental schools in South Africa has been observed. The focus is very technical and the teaching is provided by:-

- dental personnel who are in academic positions chiefly by virtue of their clinical training
- specialists who have a different focus on the level of training
- most departments in dental schools are headed by clinical specialists only
- very few staff with doctorate qualification and/or qualifications in education.

(Note: Specialists being dentists who have qualifications that permit them to practise in special areas of dental health, of which there are six) and qualifications that are registerable with the HPCSA.

What was revealed is that there is a limited availability of suitably qualified academic staff with reliance on the support provided by part-time staff - mainly clinicians - who do not engage in the day-to-day academic activities of the schools and therefore get excluded from the academic-planning exercises.

These points are captured in the Table 5.2 below which shows the number of academic staff listed under dentistry in dental schools in South Africa, comments made by an interviewee on the level of staff required and the comments made by a task team advising on the development of yet another dental school in South Africa.

**Table 5.2: Academic staff with education, doctorates and specialists qualifications** - the number listed in the different faculty/school handbooks and the number with qualifications in education, dental specialities and doctorates.

	UP	MEDUNSA	UWC (full-time dental and part-time shown)	Stellen- bosch (no staff listings shown)	WITS (no staff listings shown)
No of dental academics listed in "handbook"	49	59	39	--	--
No. with doctorates	7	2	2	--	--
No. with specialist qualifications	14	13	10	--	--
No. with doctorates plus specialist qualifications	6	1	2	--	--
No with education qualifications mainly the DTE (Pretoria)	11	7	3	--	--

One interviewee commented on the suitability of available teaching staff:

*D14: I think it was Lester Burkitt somewhere in the early 70s. He was dean of a Dental School ... in America. He said that we must use dentists to train a dentist not a specialist. I agree with that. Specialists got tunnel vision - tunnel vision. You must use a generalist to train a generalist and that's part of our problem. You want to make quasi-specialists out of our students.*

*Transcript D14/54*

To support the research findings I include some comments by the "task team" advising on the development of a new dental school. This is from a report (Gugushe, Owen, & Ratan, 2005) that was experienced locally and where I was one of those interviewed.

The development recommended by the Ministry of Education and referred to in Chapter 1, 1.6.2.2, of the possibility of a "fully fledged dental faculty" elicited the following response from a task team engaged in advising the university. It gives the current problems in finding suitable teaching staff.

*We need also to say that the prospect of being able to establish a dental school and curriculum de novo is an exciting and enticing one to any academic worthy of the name, and it is entirely logical that it should (be) in KwaZulu-Natal. However, our great concern is that there are insufficient human resources in the dental academic world in this country to sustain another dental school. The four existing dental schools in South Africa are not fully staffed, not even the recently merged schools of Stellenbosch and UWC. In addition the experiences*

*of these dental schools are such that it is extremely difficult to attract dental academics from any other countries (Gugushe et al., 2005).*

The difficulties of staffing become even more apparent with the dental assisting programmes. These programmes work in relative isolation from the other clinical programmes and cannot draw heavily on the physical and human resources of those programmes. Departments in institutes with staffing policies presumably based, amongst other factors, on student numbers, must restrict the teaching to very few individuals and provide an insular teaching programme.

It is difficult to understand how an overall teaching/learning style can be adopted in a programme when the staffing for this programme is limited to one or two full-time individuals with varying inputs from part-time staff and the service courses provided through other departments in that institute. The following excerpt illustrates the ad hoc nature of the teaching programme further.

Q: How do you run your department?

T5: *We don't have a sub-head ... we just refer to her as the lecturer in charge of the Dental Assistants ... she's the only full time person.... Then we get part-timers too.... They can come in from private practice. We are trying to get more people in from private practice. Because it's a one year programme it's very practical. We don't ..... we feel that pure academics puts too much emphasis on the academic work and these girls actually have to go out and earn their living after one year. We feel that the private practice people really bring the heart to the programme.*

Transcript T5/9

Q: So, you don't get support from any one – just the dental practitioners that provide the physical facilities...?

A1: *That's right. The students go out for experiential training ..... We work closely together with the clinics during oral health months and paediatric work and so on.*

Q: So, do you feel a bit isolated?

A1: *Absolutely! You're sitting on an island here. If I don't make the effort to get to the training facilities to update myself and keep it together ... it's lonely.... I need to talk to guys like \*\*\*\* and \*\*\*\*\**

Transcript A1/9

Q: There are several issues I pick up here ... especially being on your own?

A1: *Especially being in dental assisting. As you said there's a hierarchy and status connected to the dental profession.*

Transcript A1/10

This is further compounded by the challenge posed by the dominance of teaching staff, particularly in dental therapy and dental assisting, where training is mainly delivered by the dentist and hygienist occupational categories.

Q: The other thing I picked up is who runs the programme. Originally \*\*\*\* was the hygienist. Now there's a change at \*\*\*\* where there's a dentist running the programme. I wondered what impact that has on the programme ...?

A1: *It must be to the advantage – absolutely to the advantage. You've got the broader spectrum - the whole range*

Q: ...There must be disadvantages too?

A1: *Absolutely, for sure.*

Q: A dentist sees it in a different perspective? ...

A1: *Absolutely. That's right. But he's very open minded ..... for sure, he's still a dentist – we see that in the meetings!*

*Transcript A1/11*

#### 5.4.4 Access to training sites

In this section, access in relation to the sites for teaching and learning provision is examined and the findings reported.

Access to training in clinical sites is limited for dental assistants and for dental technologists since the dental training hospital resources are monopolised and managed by the universities that cater for the three clinical undergraduate programmes of oral hygiene, dental therapy and dentistry. Three of the four dental assisting programmes do have limited access to the tertiary training hospitals but not necessarily to the training programmes offered there. One (Free State) technikon is almost on an island of its own. This has obvious implications for both articulation of training and resource-allocation to the “Cinderella” programmes.

One interviewee commented on the advantages of training under one roof.

Q: You were at the Eastman Dental Hospital (UK). Do they have a similar programme there?  
A3: *Yes, they have a course for Dental Assisting there over eighteen months and what I found was good about it was because they have the post-dental training of dentists there – in the specialities – and the girls actually do a hands-on practical three months at all six specialities. So, when they left there, they could really assist practically in four-handed dentistry.*

*Transcript A3/1*

The technikons operate independently from the “academic training hospitals”. Although two of these departments have access to these facilities, they appear to be trained in isolation from those who are the prime users, that is, the students from the university programmes. This is an obvious disadvantage to the co-ordinated teaching and learning in these programmes.

### 5.4.5 Quality assurance of teaching programmes.

The documents submitted to SAQA for the interim registration of qualifications by schools in relation to the question of quality assurance seem to have skirted around the methods to be used for quality assurance of the actual programmes. These concentrate mainly on moderation and the role of external assessors (examiners) and the *inspectors appointed by the Professional Board of... (withheld)... of the HPCSA inspect the exit level outcomes of this qualification on a regular basis to ensure that all the criteria are met* (reference not shown for ethical reasons) as a mechanism of ensuring quality. One school (details withheld for ethical reasons) in their submission did separate out the question of moderation and quality assurance by asking the question *what quality assurance methods (apart from assessors) will be used to provide feedback on teaching and learning in the programme.*

Q: Now, the quality assurance thing ...the university has a quality assurance section that measures the quality? They issue a questionnaire to all the students to evaluate the lecturer as well as the module?

D16: Oh yes. *Every department – every module leader has been instructed by Senate to have – every year – the module... the contents of the module - and the lecturers to be evaluated by the students and this is done by a section next door run by \*\*\*\* he's a doctor and he's in education. This questionnaire – the students then fill in this questionnaire both regarding the module contents and the performance of lecturers. These are then marked (sic) centrally by the university and these are then sent to the university – to the head of the school. Then the head of the school is meant to feed it back to the lecturer concerned.*

*Transcript D16/38*

Q: Does it happen?

D16: *Ja. Supposed to be*

Q: Every year...?

D16: *Supposed to be but it isn't implemented.... No other quality assurance.*

*Transcript D16/39*

Q: Now, you've got examiners and assessors – and there's a distinction? Are they involved at each level? .... The other courses you can't speak for?

D13: *Not really. They don't have moderators. They have the end of the year-live-or-die-boomp- you-go-you-stay.*

Q: *Are there any quality assurance mechanisms set up in your discipline?*

D13: *No such thing. This was discussed when we put the SAQA document together and the assumption is made that our internal and external examiners are qualified – it's an assurance that the quality will be good. That's the school's philosophy.*

*Transcript D13/63*

Q: Everybody has set up some structure. Is there a quality assurance structure?

H8: *Not that I've ever heard of .... That's the honest truth. OK, basically there is a Faculty Committee and they will look at all syllabus issues. That includes anything you want changed – any discrepancy in your syllabus .... So, they do look at your syllabus. We do get – I'm saying- I've never heard of them – but it's not a major checking process and I think it is*

data findings – technikon and university programmes

*more problems that we pick up in-house that we take to the Faculty Committee that is dealt with at that level.*

*Transcript K8/30*

Q: Who measures whether ...students coming out of good quality...?

D18: *I mean, those are our quality assurance, the external examiners, the HPCSA who come in – are the courses relevant? Are they ...*

*Transcript D18/43*

Q: How do you know that your staff are developed enough...?

D18: *SAQA requires you to do all this.*

Q: Have you got one of those structures?

D18: *The university has one of those. .... They send to the dean – through the dean's office...*

*Transcript D18/44*

Q: You have a faculty quality assurance committee, is that right?

H7: *Well, if we do, I've never seen them.*

Q: Where does the QA come in ...?

H7: *There isn't any quality assurance. There is no quality assurance. How can you have quality assurance if you can't fire staff? Don't be ridiculous. How can you have quality assurance if you can't vet your staff, you can't fire them, you can't ...*

*Transcript h 7/29*

#### 5.4.6 Summary and key features

- The methods of teaching and learning are largely geared towards passing examinations. Comments have been made about the lack of availability of staff particularly with educational experience/qualifications, to deliver the teaching.
- Attention was also drawn to access to training facilities and sites for technikon-based programmes – sites which are dominated and controlled by dental schools.
- Quality assurance as a process (bureaucratically) rather than practice is more often than not in place in most programmes.

### 5.5 Section three: assessment

Assessment to evaluate the extent of learning is

*at the heart of the student experience, the cash nexus of learning, the barometer of an educational system and the quality of teaching it provides, the point of high leverage for curriculum reform and the moment at which lecturers most intensely exert power over their students* Lockett and Sutherland (Lockett & Sutherland, 2000, p. 100).

In this section I will report on the dominant method of prevailing assessment.

The DoH and HPCSA document (Department of Health, 2005) relating to the dentistry curriculum with respect to assessment, calls for a change in the procedures for assessing students' performances from the traditional one of measuring the:

*recall of facts which promote rote learning to problem-solving skills, critical thinking, clinical decision-making and professional competence and social values (Section 15, 4).*

For the professional examinations for students in dentistry, this document calls for an integrated approach to examinations alongside partial continuing assessment

*at least two examiners shall take part in the final evaluation of a student in dentistry, one of whom, the external examiner, shall not have been involved in the teaching of the student (Section 21,1-5).*

This is a good viewpoint from which to examine the de facto procedures in practice and my research will reveal how these recommendations have been implemented – or not!

### **5.5.1 Assessment practices**

Using both the questionnaires and the interviews I probed the current practices used to assess learning. In spite of recommendations there appeared to be little change from traditional methods. Examinations remain the most commonly used form of assessment, even though this method receives a great deal of criticism from educational philosophers and students alike.

The practice of separate assessment of practical/laboratory/clinical work and theoretical knowledge - usually in the form of unseen written papers – and the subsequent integration of marks to give a combined subject mark and grade is referred to in the examinations section below. However, an aspect of assessment particularly of practical/laboratory/clinical work - though significant and important – that was not investigated was the assessment process and assessment technique involved (criterion and norm referencing) in arriving at a mark and grade for this work. The focus was more on summative assessment practices.

#### **5.5.1.1 Class tests, semester/year marks and DPs**

I found that students are still required to meet a certain minimum standard of performance in order to be allowed to sit for the final examination. This will include acceptable attendance of lectures, tutorials, practical classes and other scheduled meetings, and in many cases also a certain minimum class mark. Students who fail to meet this performance standard will be refused their DP Certificate (Duly Performed Certificate) and will not be permitted to write the examination.

### 5.5.1.2 Examinations

Findings showed that most courses are concluded with an examination of some sort. Examinations are written during periods set aside for this purpose and under strictly invigilated conditions. Ideally, these examinations should be evaluated by first and second examiners, perhaps by those who are not directly involved in the teaching of the unit to be assessed, and in the case of final, exit-level courses, an examiner, external to the university/school, should always be involved. This provides some degree of quality assurance. The examination marks awarded are “approved” firstly through the schools’ or departments’ internal committees and thereafter by the faculty committee. This was also an area I probed.

In most (but not all) courses, a student who fails with a mark of 40% (a sub-minimum mark – a mark below the pass mark) may be awarded a supplementary examination. The mark for this supplementary examination will then be combined with the class mark previously earned to obtain the final mark, exactly as for the original examination. The following example is a personal observation followed by an excerpt of a conversation regarding examinations for the dental assisting programme and illustrates the typical methods that are in operation.

The examinations, institutionally prescribed, usually consist of a final one made up of one or more written “theory” papers per subject, a practical assessment (usually made up of practical work under examination conditions), “spotters” (assessment by means of labelling a specimen, particularly in anatomy and the candidate is asked to write down the answer that is asked on the label) and an “oral”. An oral examination, at the end of the year, follows the traditional manner of asking the examinee to describe or define a condition or situation. This writer, in his experience, has found that the pressures to pass are immense, not only on the students but also the departments, as pass rates and throughputs are examined institutionally, and departments are accountable based on these criteria. Again, in my own experience, it is not unknown for students to “slip through the net” in order for departments to meet targets and or quotas.

Assessment for examination per course for dental assisting is geared towards assessing nearly all the topics which form the subjects. I have observed what I would describe as a compulsion to ask at least one question relating to every subject within each heading and sub-heading. The examination answers are usually marked by the person setting the

questions and according to model answers provided by that lecturer. A moderator (external) “ensures” that the marking is in accordance with the model answers.

In relation to the dental assisting programme, an interviewee was asked whether any changes have been made to the traditional ways of assessment, following the SAQA imperatives about the teaching of students for examination/ assessment.

Q: Have your assessment methods changed? Are you still going the traditional way with tests and an exam at the end?

A2: *I think everyone has stopped with that with the exception of \*\*\*\* (name of institute withheld). \*\*\*\* (this institute) has gone with continuous evaluation. But, you know, because we are a small programme we discuss things and it would seem, with \*\*\*\*\* (this institute), the desired effect hasn't been achieved. One, with continuous assessment you actually don't give the student or the learner a chance to develop in the course of the year. You assess them immediately and often they need – you know, you have all these enabling outcomes and sub-enabling outcomes and sometimes these only come along the way as the student develops and gets a better grasp of the content. So, I am actually against changing to continuous assessment. It's also very difficult to monitor – you've got to find external examiners for every test and there's some very, very definite difficulties with it. ....I think \*\*\*\*\* (this institute) would like to revert to the old system.*

Transcript Q2/24

This assessment practice is supported from at least another institute.

Q: How do you assess... what methods do you use and how familiar are people with the different methods?

A3: *Four subjects – all year subjects.... Experiential training. There's four basic subjects and experiential training – experiential learning .... Everybody's got this one. We've got dental assistant practical one; dental assisting theory two; oral anatomy and pathology one; practice management one and the experiential training .... They have to do a certain number of hours at a dentist's (practice)*

Transcript Q3/55

Q: Do you have an integrated assessment?

A2: *I think the only way that we have an integrated assessment is in the Dental Assisting practical. It's the only time we integrate all aspects of the course and assess it. ....*

Transcript Q2/25

This is also happens in other programmes.

Q: Are you still using traditional assessment with tests... assignments ... exam... This has changed... generally or specifically?

D12: *You are asking a very difficult question there. We are trying to change it. We are doing our level best to change it so you don't have that massive stumbling block of an exam at the end of the year .... Currently it is still an exam at the end of the year. When our current curriculum comes up – people are starting to write assessment and the outcomes from the second year...*

Transcript D12/68

D12: *What we feel nowadays is that with the developments in education and education technologies that we will have to – when a new appointee arrives here – he will have to go through a course and study the methods of education, the teaching methods, how to supervise and how to assess. ....*

Transcript D12/69

When asked, in relation to dentistry, how the clinical courses such as prosthodontics, orthodontics, conservative dentistry and minor oral surgery and so on are examined, one of the interviewees responded as follows:

D14: *well, the mode of examination is more or less as written, OSCEs, clinical and practical examination. And, in some cases, portfolios where it is the compilation of patient care.....*

Transcript D14/35

These traditional methods measure the student's ability to learn, mainly by rote learning, and to be able to "regurgitate" the knowledge remembered and the ability to express herself/himself in the written format. Usually the student would also have studied for the examination according to the lectures and lecture notes that are provided. This claim is supported by the answers around the methods of learning for examinations that students provided and is also shown in Section 5.4.2 above.

Q: How do you feel about this? (examination method) LONG PAUSE

D14: *I'm divided about it. It all depends - it all depends what - how good your assessment is*

Q: You aren't too happy with that...?

D14: *Look, you can assess the higher order - the higher order cognitive domains with computer-based assessment ... So, at the moment we are looking at assessment because assessment is very important. You know that the students' learning is assessment-bound, so the way you assess is the way they going to learn if you are going to assess only facts then they just memorise the facts..... (my underlining).*

Transcript D14/35

It appears that **continuous** assessment is often mistaken for **continual** assessment. The latter as Luckett and Sutherland (2000, p. 111) point out

*involves assessing students repeatedly using the same or similar technique for summative purposes; each assessment is treated independently of other assessments and there is limited feedback to students.*

### 5.5.1.3 Moderation

As stated above, the predominant method of the setting and marking of questions seems to be that the lecturer who teaches the topic, sets and marks the question and a mark is arrived

at for the module/subject with the summation of the marks given for the different questions by the individual markers. Although not specifically asked of interviewees, the writer, from his school's experience, reports that marking is norm-referenced and entirely dependent on the lecturer who acts as seeker of evidence, prosecutor, judge and jury for the section for which s/he acted as lecturer.

To ensure that some fairness is displayed, particularly in terminal courses, an "external examiner" or a "moderator" is used. This usually takes the form of submitting examination questions for "moderating" and a visit by the "external" examiner after the theoretical examination papers and other preliminary examinations in that course have been completed. The "external", together with the "internals", after a "survey" of the written and other presentable components of the examinations, examine (usually by means of an oral question and answer session) selected candidates and pronounce judgement on the standard and the fairness of the examination. This offers a token nod towards quality assurance as well as "fairness".

#### 5.5.1.4 Selection of examiners/moderators

The method of employing an external examiner to provide a barometer of fairness is, in most cases, observed to be a very superficial and cosmetic practice. The pool of external examiners appears to be very limited and the selection of external examiners is almost verging on nepotism/incest using personnel from "friendly" departments or schools.

On the appointment of external examiners an interviewee commented:

Q: Now we are going to the assessors and examiners and how you select them – internal and external?

D18: *OK, examiners – internal examiners are basically selected – the course co-ordinators within the departments...*

*Transcript D18/38*

Q: (asking about external examiners, their role and how they are selected)

D14: *It is a manner to do the \*\*\*\*\* (unable to decipher word) by using an external examiner. However, it doesn't function properly - why? - because they still come out the old school...*

Q: (asking about how external examiners are selected, while D14 is still continuing with previous sentence)

D14: *They don't – they still haven't made a paradigm shift regarding educational principles, assessment principles, clinical principles.....*

Q: It used to be "ask a friend" Are you still doing it...?

D14: *I think it ...it's .... scratch my back and I'll scratch your back....*

Q: How are the external examiners selected?

D14: *The selection committee must propose an external and then the dean must OK it. That's the way it goes.....I think they haven't got enough, they haven't got enough educators .....They are dental educators but they know zilch about education....*

*Transcript D14/40*

Q: So the exams are set by the particular lecturers and they mark them? Does it get marked by anyone else?

D18: *No. I mark my bit and \*\*\*\*\* - she will mark her bit and then we put up the mark. But, then of course, the external examiner will moderate ...*

Q: You're relying on the external examiner

D18: *Yes.*

Q: Does this happen across the board?

D18: *Across the board, it's similar across the board.*

*Transcript D18/38*

A comment – *they teach like Mickey Mouse and ask questions like Einstein* (source: personal communication and names withheld for obvious reasons) around the setting of questions for examination papers at one school was also replicated (although not as graphically) at another school, thus:-

Q: So you've got to moderate that paper?

D14: *Yes, that is the actually the function of the module convenor....*

Q: But it's a vast job to be able to moderate every assignment, every portfolio, every OSCE... does it happen....?

D14: *It can't be done but that is the ideal. When I was in the dept of community dentistry - it was a big dept - oral hygienists in our dept., as well – it was a very sensitive thing - you take the paper and say - what do you actually mean by this? - My interpretation is this, is that what you actually want them to give you? Have you actually asked the techniques? And they'd say – no, I want this that and that and I'd say – but you don't ask it! So it always good to have someone else to moderate it...On one occasion, the previous head of the dept of oral surgery had a test in his dept., set the question for semi-final part of oral surgery final year paper, so he called him and said - Dr. so and so, tell me, I don't understand this question, what do you actually want the students to answer here ... He said, I want them to give me this, this and this and that. He said - why don't you ask the question? No, If I reformulate my question then they will know what to give me...And that actually happened .....So he formulated his question such that it was so mysterious that nobody knows what he actually wants, otherwise they will all get 100% .....*

Q: He wanted to puzzle you....?

D14: *They want to puzzle you and that was his idea....*

*Transcript D14/46*

### 5.5.2 Integrated assessment

The question of integrated assessment was explored with interviewees. Two interviewees gave insight into how it is currently practised for their dentistry programmes. Again it is

stressed that the assessment method and the design of courses are firmly bound and dictated to by the departments in schools.

Firstly, the design of courses was explored. That is, whether the courses are still subject-orientated or were integrated.

Q: Is there integrated assessment across all modules...?

D18: *We don't have a module. As I've said it's an artificial division...*

Q: Maybe we should say not modules but courses...?

D18: *Yes, it is*

*Transcript D18/33*

D18: *"Have your assessment measures changed in the last few years?" Yes and no. The no bit will be that we still have the same type of examinations, you know? Questions and so on. What has changed is the way that we examine and assessment will change there because integration comes in. They get peer-studies, knowing the exam, OSCE type of things where you can't just answer a question on cons. It's got maybe perio. in and something else as well. So. Yes it has changed. Not drastically but it has changed*

*Transcript D18 32*

Q: Do you integrate the questions?

D18: *Yes. I've said it's yes and no – it's not 100%*

Q: But do you have an integrated examination at the end where you assess the person wholly?

D18: *No. I know what you mean – we don't. It's still very departmental. Our new curriculum, hopefully, our clinical dentistry will be our integration – we'll say – here's your patient – examine. But, there's a problem with that, you see, it's still – like in one of the meetings, one of the people said – although in \*\*\*\*\* (institute X) they've got an integrated course, it depends who they call as an examiner. OK. They've got this integrated clinical whatever. Now, they claim that that is their integrated course but if they want an examiner – who do they call? If they call me, I'll ask a lot of radiology – if they call \*\*\*\*\* he'll ask a lot of cons. If they call a maxillo-facial,*

Q: ...call a dental practitioner...?

D18: *That's right. Absolutely, but I'm just saying – there's problems with that.*

*Transcript D18/34*

Q: If we go to SAQA – they specify exit level outcomes ...specify outcomes that we need for a dentist, then you will teach to outcomes not operative dentistry. Is this happening?

D12: *We are trying to move towards that direction. When we come to our final year – our final year that's why I can tell you in our final year we've still got our major subjects and we have already taken, more or less, a decision that our final year will be an integrated year. So there will be no more teaching in maxillo-facial surgery or any of the other disciplines*

*Transcript D12/72*

The interviewees remarked that the outcomes have been identified and currently an integrated year is being practised although the remark above in *Transcript D12/72*

conflicts with the declaration below in *Transcript D12/73*

Q: But you identify the outcomes?

D12: *Ja, Ja. The outcomes have been identified and in the final year they are doing an integrated year. They are doing patients – they are treating patients. They see so many patients and when they come to the final assessment they will be assessed on the full curriculum.*

*Transcript D12/73*

Difficulties with regards to integrated examinations were expressed by the two interviewees (see above and below, *Transcript D18/34* and *Transcript D12/74&77*) with reference to the supervision of the assessments and the examiners involved for the different sub-disciplines. My view is that integration is still embedded and entrenched in the subject mode, and, by inference, the sub-discipline/department paradigm. Integration is thus interpreted as a range of subjects coming together under one umbrella but still dominated by departments. Integration in the SAQA-meaning of the term is virtually non-existent in the institutes studied.

Q: So if you have a patient requiring an extraction... a filling and some fluoride. How does your supervisor come in here?

D12: *That is when you have your full dentist. Your full dentist must be there and the full dentist must be able to supervise the fluoride application, he must supervise the fissure sealants, he must be able to supervise how the crown is being placed, and that perio is being done etc. and eventually the partial denture*

*Transcript D12/74*

Q: The traditional model is that at the end of the year you have a final examination and each subject has an external moderator to look at your scripts, do a quick oral – is this the kind of pattern that's still practised?

D12: *That's still practised for the old curriculum.... For the new one – we haven't got that problem yet. Especially in the integrated examination. It is going to be extremely intimidating if you bring in your student with his patient and there are six or seven of you plus six or seven of the external examiners. That is what is going to happen. I think one way – there's a lot of people coming in here nowadays ... coming in to improve themselves, not just to retire here. That the people – this will be an incentive to people to do a research and to do a higher degree so that you get eventually your better qualified teachers in the field.*

*Transcript D12/77*

Notwithstanding the remark above that the "quality" of teachers may improve with integrated assessment practices, the issue is whether staff members are sufficiently familiar with newer assessment practices. My research revealed that not all are either familiar or sympathetic. This view was supported and expressed in the following excerpt by one interviewee and at the same time mention was made of the protective coverings of departments.

Q: Are all the staff members trained and familiar with it? (integrated assessment)  
 D18: *We have workshops .... Well, it's a learning experience, you know, it's going to take time. You can't expect it to happen in one year or two years because people are very protective of their discipline, you know? They say – no, but I need so much time and – you can't do it this in so much time – and – We impressed on them - if you do it in a different way you'll have the time.*  
 Transcript D18/85

### 5.5.3 Some exceptions: setting of examination questions, marking and moderating - a model

Despite the finding that traditional methods of assessment are largely used by most departments and schools, some exceptions were found. These relate to continual assessment, exemption from some examinations and the setting of examination questions, marking and moderating, some of which are reported on below.

The technology programmes, as explained, seem to offer a model of opportunities for the independent, and possibly objective, assessment procedures for examination purposes. These include all the dental technology department heads who meet to discuss examination issues under the umbrella of the regulating body and within the rules governed by SERTEC/CERTEC. The setting, marking and moderating of the examination questions, and the selection of external assessors are agreed upon before the final examinations take place. This model is revealed from the interviews with the heads of two departments and the following excerpts support this claim.

Firstly, a move away by teaching staff from failing to passing and from the old to the new ways:-

Q: Are they (teaching staff) all that clued up...? (about assessment)  
 T5: *I think that people have moved away from a situation where people would say – tell their colleague - where I have marked the B. Techs at \*\*\*\* but we don't want so many guys out so we are going to fail them. I was an examiner in the olden days where the late \*\*\*\*\* ..... had a lab. in \*\*\*\* Myself, \*\*\*\*\* and \*\*\*\*\* were appointed as Council examiners when it was the Council's \*\*\* patient exam, external, where \*\*\*\* would phone and say "I'll meet you at \*\*\*\* next week and I'm telling you now, we are not letting as many guys out.. I will mark what I see ..... so I think we have moved away from that.*  
 Transcript T5/95

Then the role of the regulating of the regulating body (SADTC) in the examination process to set standards and uniformity:-

T4: *No. What we do is we sit once a year – twice a year – and we decide what the minimum standards must be for the exams at the end of the year and you set your papers according to the minimum standards. And that is submitted to the Education Officer. .... He'll look at it as an individual person – a moderator – because you have decided the standards for that year – the minimum standards and he just checks it relative to that.*

*Transcript T4/25*

The restructuring of the curriculum with an outcomes-based philosophy allows for different assessment philosophies. The technikon referred to in the excerpt below adopted some of these principles and has altered its assessment methods.

Q: You don't believe in the curriculum. You believe in a different way of structuring...and that's all outcomes, is that right?

T5: *Yes. I think, if you look at the SAQA philosophy - the umbrella philosophy - then it does not refer to subjects or curricula. It talks about outcomes and those are the things that we have to assess ultimately.*

*Transcript T5/61*

The practices adopted by this technikon in the independent setting of questions for tests and examinations and the independent marking process, is revealed in the following conversation:-

Q: But the assessment part now ... have they (the methods) changed?

T5: *Dramatically at our institutions - ... but we have - we went on to competency-based education fifteen or sixteen years ago. We did away with the one examination at end of year in the days when it was illegal. We really just said - to hell with it - we're just not going to do it ... we started looking at little units they had to achieve a certain level of competency ... they had to master, The theory was measured by smaller tests with a much higher pass rate. In certain things they had to get 100%, in others, 80%, in practical 60%. We moved away from these "50 is OK" we said "no, this is so critical that you cannot get less than 100%". They had to redo it until they got 100%. So, each one was on their own assessment schedule so if you failed it today you could write it tomorrow, or in a week's time or whatever. Often it was followed by an oral, if you got a few points under the minimum we would apply an oral. But, the practical (exams) have changed as well. The practical assessment has moved away in the sense that we have brought our liaison committee members on board to do the assessment. At the moment our assessment happens on several levels. 20% of a block is assessed on class work - on tasks that they are doing whilst being taught. The reason that it is so low is its work that gets assessed throughout the process so they are sent back to fix up and repeat and although it is important from a learning point of view we don't want to assign too high a percentage value to it. Then they will all be getting patient work - and we assign 30% of the block's final mark to the patient work. Because this is really a test of how can they now put what they have been taught into practice and reaching a level that now it can go into a patient's mouth. 50% is assessed at the end of the block in the formal practical exam which is set by the person who is the block leader - we don't talk about lecturers, we talk about block leaders - sets the paper, chooses the models,*

*has to have a moderator whether its first year or third year, or fourth year, but actually at three and four the moderator has to be an external person. This is where the role of the liaison committee comes in. They've got to negotiate that paper and those models*

*Transcript T5/65*

Q: Now do you have an exam at the end of the year...

T5: *Yes, for the practical, one big one. Not the theory, the theory is written off at the end of each block.*

Q: The practical exam is an integrated one?

T5: *At the end it's a big integrated one covering the entire work for that year but at the end of each block there is one for that block. Collectively, the practical marks generated by each block constitute 50% of the final marks. So 50% still comes from this end of the year integrated final assessment.*

Q: What about integrated assessment – what's your understanding?

T5: *Right, let me give you my understanding of it. To me integrated means that you are putting all the components together and set a task or a question that would require from the student to pull all the resources that s/he gained from that particular block or module or whatever...*

*Transcript T5/71*

T5: *.....when the students have done the practical the work, it is never marked by the block leader. The block leader is taken out of the equation all together because we feel - students may feel that if they've had a tiff with the block leader during a block it may be held against them, so it takes that thing out of the way. If it's level one or two we bring in one or two internal people to mark the work, or if it's level three or four we bring in three internals plus the external moderator.*

*Transcript T5/67*

In addition to the Council's Education Officer, assessors are appointed by the liaison committee (a committee consisting of departmental, institutional staff and representatives from the academic and services community outside the institute who act in an advisory capacity) and thereby ensuring an internal quality assurance.

T5: *..... Quality Team with an external team will come along and to verify that internal assessment. So it's not really coming to assess you but rather verify what was done on your department – and, of course, they will call for evidence. Evidence can be from exam books or assessment practical, whatever.... They will interview students, they will interview staff – it's fairly nerve racking kind of activity.*

*Transcript T5/100*

#### 5.5.4 Examination and promotion courses

At least two schools have a system where the courses for examinations are divided into examination courses and promotion courses. For the former types of courses the examinations are written in the year that they are taken. Promotion courses continue over

two, three or four years and the final examination is written in the terminal course. The year mark, providing a certain percentage is obtained, for the pre-terminal course permits the student to move onto the next course. Allowance is made for students who do not achieve the required year mark. In this case the student has to write an examination at the end of that promotion course.

### 5.5.5 Summary and key features

Attention has been drawn to the inseparable triad of teaching, learning and assessment. The structuring of courses is at the centre of this triangle and drives this process.

From my interviews with the educators it became evident that the majority of assessment methods used are still summative – that is - used to provide judgement on the students' performance at the end of course and at the exit point. The mark or grade obtained can be used for promotion, exit from the course of studies and certification of qualification. This traditional and well-worn path for assessment is the method of choice and content and subject-based courses entrench this method of assessment. The emphasis is on learning for assessment rather than learning from assessment. This mode (tests and examination) also gives the illusion of precision in assessment. The focus remains on traditional practices despite claims made in the SAQA submissions around the different assessment modalities like:

- formal end course assessment (summative)
- continuing formal assessment (formative and summative)
- continuing informal assessment (formative),

#### Commentary

It is also my belief that students who are examined by the traditional methods method are not really assessed for **development** or **competence**. This dominant and traditional method of assessment masks the competence of an individual candidate in specific tasks/outcomes or their knowledge of that task/outcome and releases potential practitioners as having passed overall subjects.

The *traditional examination systems*, as Simpson remarks (1976, p. 22),

*achieve(s) a high degree of pseudo-precision, producing relatively little information that is constructively useful for student or teachers, and conveying it in the form of scores and marks that appear falsely accurate ...*

and as the results of pass or fail are pasted and posted for the candidates - in the words of George Bernard Shaw on

*the problem with this form of measure and communication - ..... is the **illusion** that it (the task) has been accomplished!*

## **Part B: Broader issues that impact on professional development**

### **5.6 Section four: scope of practice - roles, identities and knowledge within professions**

The contextual setting of dental health science education and the tensions between the scopes of practice and their regulation in relation to the different occupational categories has been highlighted in Chapter Two. Since curricula cannot be designed without a shared understanding of the roles, identities and knowledge-base of each category, it is appropriate to summarise the broad scopes of practice of the different occupational categories.

In simplistic terms, dental assisting is the occupational category that has the competence to assist and support the dentist, dental therapist or oral hygienist clinically. The dental technician/technologist has the competence to support the dentist and specialist.

By contrast, the occupational categories, oral hygiene/oral health/dental hygiene, dental therapy and dentistry, have the competence to deal directly with the patient, in varying degrees, at the three levels (primary, secondary, tertiary) of oral health care. The oral hygienist works under the supervision and prescription of the dentist whereas the dental therapist can work independently, but in a limited capacity, in private practice after working for an initial year of practice supervised by a dentist. It is easy to classify the different occupational categories in the dental team into neat categories but it is when their duties are prescribed and when overlaps in functions occur that tensions begin to arise. As described in Chapter Two, this is not made any easier as the training, funding and regulation of the overall group of dental health care professionals is fragmented. Regulation of the different categories follows a similar divided and potentially divisive path.

Rather than engaging in a detailed discussion and reporting on what constitutes professionalism, it is better to look at the roles and development of health “professionals” from the perspective of the two ends of a continuum, firstly from the narrow vocational and largely technological and skills-based training, and secondly, from a broader understanding

and acquisition of “professional” characteristics. Against this can then be located the development/training of the different dental health occupational categories. For each category there is a common, non-negotiable level of professional attitude that should be instilled during the course of their education and training. But how do the different occupational categories see their roles in the dental team?

This section reports on the two sub-questions relating to the roles and identities of the three occupational groups as well as what constitutes professional knowledge within these occupational categories. Here this report looks at issues that fall within the following selected areas:-

- Scope of practice and qualification
- Regulation and professionalism
- Career progression
- Hierarchy and status

### **5.6.1 Scope of practice and qualification**

What is it that the different occupational categories do (scope of practice)?

Note: Since formal (meaning one issued by a regulatory council) scopes of practices for dental assisting and dental technology (see comments below under dental technology) are unavailable, the “duties” as listed in the SAQA submissions are shown below. Those of oral hygiene, dental therapy and dentistry emanating from the HPCSA are attached in Appendices 6, 7 and 8 respectively.

#### **5.6.1.1 Dental assisting**

In the SAQA submissions examined, nine exit level outcomes are identified for this category.

These are the ability to:

- prepare the dental surgery
- assist the dental practitioner in all clinical dental disciplines and procedures
- apply knowledge of radiographic examinations and produce radiographs
- communicate effectively with patients and members of the dental team
- maintain administrative functions in a dental practice or dental clinic
- understand and apply the judicial and ethical aspects associated with dentistry in South Africa
- apply necessary measures during an emergency

- apply knowledge of infection control
- implement occupational health and safety procedures.

How knowledge is organised to cover the training for this scope of practice is the subject for discussion in Section 3 below. It should be noted that in the case of dental assistants - since they are not presently regulated (they are in the process of being formally regulated at the time of writing this thesis) – there is no formal acceptance of criteria regulating this category. However the technikons, through their co-operation, and reinforced by the role of CERTEC/SERTEC, ensured that some common criteria could be defined.

Can this knowledge be imparted in the time allowed for this qualification (Diploma in Dental assisting)? (It must be remembered that an academic year usually constitutes 26 - 30 weeks of contact time)

Q: Now, the course at the moment, here in South Africa, is one academic year. Do you think that is sufficient?

A3: *It's (assisting) sufficient for the general dentist. I don't think it's sufficient for the specialist and I actually have a little survey that I'm busy with ... We want to know about expanded duties and a lot of them are positive about expanded duties. So what we want to know about expanded duties because more and more people are asking us – you know, they want dental assistants to do more... we developed a programme where dental assistant could go into a second year and in that second year they would have blocks in all those specialities. The people up here actually asked for that... Because there is lots of stuff we can add to the course. At the moment it's very full.*

*Transcript Q3/36*

The duration of the training programme does not make allowances for training for assisting with dental specialists and perhaps this needs to be incorporated in a new curriculum. The issue of expanded functions was also broached in the above excerpt and these need to be catered for.

#### 5.6.1.2 Dental technology

The distinction between a dental technician and dental technologist is clarified below. No formal scope of practice and the associated regulations was obtainable from SADTC or the heads of departments. One head even remarked that it may not exist! The dental technician has within his/her scope of professional practice - to manufacture and repair prostheses, to have knowledge of the related biological aspects and to be able to communicate and work in an ethical framework.

In the SAQA submission the following exit level outcomes are identified.

Exit level outcome 1 - 4

- apply dental technology skills and procedures to analyse, design, manufacture, modify and repair: - edentulous and partially edentulous removable non-metallic dental prostheses; metallic dental prostheses; fixed dental prostheses; orthodontic, dental orthopaedic and other related appliances

exit level outcomes 5 - 12

- understand dental materials and metallurgy, demonstrate application and behaviour in relation to their chemical and physical properties
- apply knowledge of the anatomical structure of the human head and neck and how tooth morphology and the mandible translates into bio-mechanical movement
- demonstrate a basic understanding of the control of a dental laboratory and the maintenance and care of equipment
- understand informal research and access to scientific literature
- communicate effectively with patients and other members of the oral health team
- have a working knowledge and understanding of the legislative and ethical aspects of dental technology in South Africa
- demonstrate a sound knowledge of the prevailing labour legislation with special reference to employee rights and obligations
- demonstrate a sound knowledge of occupational health hazards in dental laboratories as well as the precautions to be introduced.

The dental technician (diploma) works under the supervision of a dental technologist (degree) and is legally not permitted to open her/his own practice. The dental technologist is able to own a business (laboratory) which resources dentists and dental specialists. Thus dental technology has additional exit levels for degree qualifications. These include supervisory, implementation and controlling outcomes.

*Dental technicians/ technologists are highly skilled and dexterous professionals who work in dental laboratories and are totally dependent on dentists to provide them with work (Malherbe et al., 1998, p.71).*

An interviewee from this field gave his interpretation thus:

Q: What programmes do you have currently? How do they differ?

T5: *A dental technician will only work as an employee and a dental technologist may open their own laboratory and own a practice...that's the way it is. And that's the way it is in terms of our Act as well. They are both running, there are two different registers and it allows them to do different things. Most people would like to do the B. Tech.*

Transcript T5/4

T5: *I must say that those who have qualified with previous qualifications that allowed them to register their own laboratory obviously retain that right - the Act also allows for that but any student who qualified in the last four years who wanted to open a laboratory had to complete the B. Tech. The B. Tech has a selection level as well so there's selection going on after the three-year national diploma and only the top 15 students in our case is allowed on the B. Tech programme. That's the same throughout the country.*

Transcript T5/5

A question was asked to determine whether the depth and level of training for the two occupational categories was different. An interviewee responded:

Q: Do the titles "technician" and "technologist" reflect the differences in training and skills?  
 T4: *Technologists are basically just seen – as far as I am concerned – as a person who (sigh) I wouldn't say had a higher type of education but ..... If you do a degree you're a technologist – if you do a diploma you're a technician. If I really have to look at the outcomes – to be a technologist, it's someone who's got a little bit of a wider vision. A technician, as far as I can see, is trained to do a very specific field whereas a technologist can do a specific field but he can see a wider picture. That's all. This doesn't relate to the issue about independent practices*

Transcript T4/12

The dental technician/technologist would like to carry out some procedures directly for the patient, that is, those related to exit levels 1 – 4 above.

A title and a new category *clinical dental technologist* was suggested (Malherbe et al., 1998, p.18). Coupled with this is the quest for

*an entirely independent practice, requiring neither supervision nor prescription from a dentist or a medical practitioner* (Malherbe et al., 1998, p.20).

### 5.6.1.3 Oral hygiene

Hygienists are traditionally seen as an auxiliary to the dentist - performing basic clinical procedures and health education.

The hygienist deals largely at the primary level of prevention and also has a cluster of unrelated functions, including some termed "expanded" functions, which are confined to this occupational category (see Appendix 6 for the scope of functions as laid out by the HPCSA) . However, the extent of the scope of practice is often questioned within the professions, the schools and by the health departments. The needs identified by hygienists are the right to independent practice as well as expanded functions both clinically and in health promotion. The submissions made by the six schools to SAQA for the interim registration of qualifications are not uniform. However, the documents show that two schools have used the four

outcomes under the headings of oral health of the individual patient including the establishment and maintenance of a healthy oral environment; oral health of the community; management and administration and ancillary functions. Under one of these headings is included the scope of practice defined by the HPCSA.

Knowledge for hygienists is organised towards the scope of the profession, and is designed for the acquisition of skills (mainly clinical) at the primary preventive level. For example, the course of studies is organised thus:-

Q: These exit levels and outcomes? How did you arrive at yours? What are the criteria?  
 H11: *We looked at the education needs of hygienists ... We started off by looking at the Professional Board – what the outcomes were that we were expected to train. Then we looked at the hygienist in practice – where were they employed, what were they doing and what were their competencies? So, we sort of worked from that. We started with those competencies and we said – in order to have those competencies, these are the skills and knowledge that we have and then we worked the modules from there.*

*Transcript K11/21*

However, the exit level outcomes stated in the SAQA submissions are a lot broader than the purely skills-based functions listed in the regulations relating to the scope of practice.

The title of the qualification - University Diploma in Oral Health - is now used uniformly in all schools. With regards to the qualification and the titles in use, some of the interviewees expressed their views around the usage of these terms as follows:-

Q: Let's start with the title, "University Diploma in Dental Health"?

H7: *No, "oral hygiene".*

Q: X tells me that at some stage the professional body asked for some kind of uniformity to "oral health". Does this reflect what the hygienist does?

H7: *No. "Oral hygiene" doesn't – "oral health" should.*

*Transcript K7/4*

Q: ... We're all oral health people so how do you separate the dental hygienist?

H7: *Well. It's also - overseas it's "dental hygiene". It's only "oral hygiene" in this country. "Hygiene" sounds old-fashioned. Who knows what "hygiene" means? You've got to go back to the original definition of hygiene, haven't you? And who does that now?*

*Transcript K7/5*

-----  
 Q: What is the title of your qualification?

H11: *UDip Oral Health.*

Q: Does this reflect what the hygienist does?

H11: *I think so, yes.*

Q: Has there been any debate over this title?

H11: *We initially had it as UDip Oral Hygiene as we felt that focussed on very much on the hygiene – the hygienist as someone who cleans. We felt that health would encompass what we see the hygienist do in a broader sense.*

Transcript K11/7

The qualification title is not seen as a trivial issue since it reflects on the status of the occupation and is, in my experience, linked to the degree/diploma debate. In one conversation the interviewee was asked about the implementation of the degree programme. It was suggested that a degree programme was a means of obtaining an academic qualification and did not enhance the potential degree hygienist's skills in clinical practice but more in a managerial and academic direction.

Q: The idea is that you can go on to do a degree but not increase your clinical skills but increase your managerial skills?

H11: *It's actually got a different focus because ... we found that hygienists generally were saying to us that the diploma does not prepare us for a specialist practice. So, the focus of this degree is that it prepares you for a specialist practice so although it is not MORE clinical skills, it is being more competent in those clinical skills so orthodontic practice – they will know about. So, there's a clinical component to it, there's a health promotion component to it – more so than they've done in the past...*

Transcript K11/17

#### 5.6.1.4 Dental therapy

The scope of functions for this category, as laid out by the HPCSA, is listed in Appendix 7. The dental therapist deals mainly at the primary and secondary level of prevention focussing largely on the removal of teeth not requiring any cutting of hard and soft tissue, and the restoration of teeth by using direct restorative materials not requiring any direct pulpal treatment. Knowledge is organised towards the scope of the profession, and is designed for the acquisition of skills (mainly clinical) at the secondary preventive level.

It is this category of worker - the dental therapist - that frequently sparks off debate and is at the centre of the tensions in the dental team (See 2.8). The two schools that offer studies in dental therapy have also allowed for the entry for dental therapy and oral hygiene at a common level and exit at two levels in what is known as a "laddered" approach. At one school identical courses are organised for dental therapy and oral hygiene and therefore functions that fall only within the scope of practice of oral hygiene are taught to dental therapists. At the other school, a separation of functions pertaining to the scope of practice of oral hygiene takes place and these are taught in a separate module of study.

#### 5.6.1.4.1 Who speaks for dental therapy?

Since one of the dental therapy programmes is alongside dentistry in one of the schools there is no clear spokesperson for this category. The following conversation captures the position from this school.

Q: For the dental therapy course part of it – you co-ordinate it? So who would co-ordinate the dental therapy programme here?

D12: *That's one of our problems in Faculty at the moment is that we don't have any co-ordinator for the dental therapy programme. It's done by the departments just as it is done for the BDS (Bachelor of Dental Surgery) and for that reason I believe it gets a bit pushed to one side. ... It gets neglected and doesn't get the attention that it does need... So I - had a lot to do with the new dental therapy. What I submitted was the old dental therapy course and the old oral hygiene course.*

*Transcript D12/13*

As an “insider/outsider” I offer my report on this matter. Historically this much maligned category of oral health worker has had a weaker professional association but recently this association has shown resilience with its lobbying strategies to withstand the demands for its demise. Nearly all the workers in this occupational category belong to the black and Indian population groups owing to the original purpose of its introduction in an apartheid South Africa. Nevertheless, dental therapists now have a voice on the regulating body as the Professional Board of Dental Therapy and Oral Hygiene and separate from the dentists. One of the schools provides for the training of dental therapists and oral hygienists only, whilst the other caters for all the clinical categories. The latter school provides a programme that is perceived (personal experience) to treat this category of students as poor relations, whilst the former gives it prominence but that the school, as a whole, has always been treated as a poor relation.

Dental therapy was grudgingly accepted as long as it was confined to black South Africans – practitioners and patients. The dental therapy programme, for example was never inspected by the former South African Medical and Dental Council (SAMDC) whilst the oral hygiene programmes at all six institutions were inspected. The move in 1992 for dental therapists to be able to practise independently in the private sector, shifted the balance of power, and voices of discontent from the dentists’ sector grew louder. These impacted on the programmes offered by the institutes.

The debate around dental therapists is reflected in the following interview extract.

Q: What about jobs?

D13: *Not many people are pro therapists.... because they think they are going to pinch their money. They're doing this and they're doing that and there are not enough jobs for them. In the services they have now had permission to employ two therapists in the place of one dentist.*

*Transcript D13/60*

#### 5.6.1.5 Dentistry (dental surgery)

The three purposes stipulated (in the SAQA submissions) by schools for dentistry are that the dentist must be:

- professionally equipped and recognised to international and national standards
- registerable with the HPCSA and able to specialise
- able to demonstrate personal intellectual growth, understand ethical, legal and political issues that affect dentistry and understand research principles

The school from the University of Witwatersrand goes further to include a leadership role.

So, the ideal dentistry practitioner would have all the knowledge and skills – skills that are internationally competitive and at the cutting edge - and values, that are agreed with the Department of Health, the HPCSA and institutes to provide for the *unique needs of the South African society* (Department of Health, 2005, ch. 9, section 2) (See Appendix 8 for the regulations defining the scope of the profession of dentistry as promulgated by the Department of Health on the recommendation of the HPCSA). They provide a very broad scope - unlike the clearly specified ones for oral hygiene and dental therapy. They include the:-

- *physical examination of oral and related structures*
- *diagnosis of... and/or giving advice on illnesses and conditions of the oral and related structures*
- *prevention, procedures relating to treatment and rehabilitation aimed at managing the health of the patient*
- *.....the fitting and supply of dental prosthesis*
- *the performance of any other procedures as taught at dental school* (Department of Health, 2004).

The submissions made to SAQA for the interim registration of qualifications by two dental schools list the exit level outcomes under the headings of:

- oral health of the individual patient including the establishment and maintenance of a healthy oral environment
- oral health of the community

- practice-management and administration.

These are the headings used in the document *The first five years: The undergraduate Dental Programme, compiled on behalf of the Committee of Dental Deans* referred to in Chapter 2.

One dental school gives broad statements under the three domains of learning, namely, cognitive, affective and psychomotor. Another dental school makes four statements about general outcomes. These relate to theory, practice, research and the scope of practice laid down by the HPCSA.

Dentistry is steeped in tradition and the issue of the title of the qualification, as well as whether the title of degree reflected the occupation, was broached with one interviewee who commented as follows:

D12: ..... *BDS - it's also a kind of a misnomer because it is not only "surgery", there's a lot more of work that's got to be done there. It's the old tradition and ... until we can get something better that everyone agrees on we can carry on. We more or less know what it means. It is not really... a good description...*

*Transcript D12/24*

### 5.6.2 Regulation and professionalism

Chapter 2 and this chapter have visited the roles of the South African Dental Technicians' Council; the Professional Board of Dental Therapy and Oral Hygiene and the Medical and Dental Professional Board in regulating the four professions of dental technology, oral hygiene, dental therapy and dentistry and therefore shaping the nature of the professional competences. Superimposed on this is the role of SAQA. This section re-emphasises the parallel nature – sometimes duplicating and sometimes working in opposing directions - of the workings of the two professional boards and one separate council in particular. It also reports on additional issues as they pertain to the scope of practice and in determining the nature of the professional competences of these professions.

Incidentally, whilst information on regulations is available and accessible, either in electronic or paper format from the HPCSA, (Appendices 6, 7 and 8), information from SADTC remains elusive.

Note: At the time when data for this study was produced (2002/2003) the roles of regulating higher education programmes through generating standards, assurance of quality, registration of qualifications, placing higher education qualifications within the NQF and accrediting programmes, was the subject of much discussion (see Chapters 1 and 2).

The role of the professional councils vis a vis the education bodies (CHE and NQF) in the future will have to be looked at within a new framework.

It is hoped that a more effective working partnership will be established.

#### 5.6.2.1 Dental assisting

As stated, this occupational category was previously not regulated. During the course of this research the writer was involved in efforts to bring about formal regulation. There were loud objecting noises against regulation emanating from dentists and the following excerpt captures that response.

Q: When are you now going to register?

A3: *I know for sure that there are many dentists that don't want Dental Assistants to register. ....We need to regulate – things like infection control – we need people to know what they are doing. ....*

*Transcript Q3/5*

#### 5.6.2.2 Dental technology

The dental technicians and technologists are regulated by a council – SADTC - that is separate from the council regulating the “clinical” categories (HPCSA). Thus this category is isolated from the other categories of dental professional.

#### 5.6.2.3 Oral hygiene, dental therapy and dentistry

It appears that the professional board responsible for dentistry, the MDPB - plays a stronger role in laying down guidelines for the curriculum than their dental therapy and oral hygiene counterparts. Dentistry programmes are more frequently and regularly evaluated and accredited through inspections. Unlike the SADTC, the professional boards do not get involved directly at the level of the examinations of students. Perhaps, putting it more forthrightly with regards to dentistry and the role of the professional body with examinations is the following comment:-

Q: Now, the professional council – do they have any say in the curriculum?

D13: *Nothing really. You know they've got this document which is pretty vague and we can bend it the way we want it... They're too busy with fees.*

*Transcript D13/57*

The dual and separate roles played by the two regulating bodies (HPCSA and SAQA) are elaborated upon in the following conversation.

Q: So your title is U Dip in Oral Health...?

H10: *University Diploma in Oral Health – yes. Well, you might find this interesting - and you will probably recall this. We used to have the Diploma in Oral Hygiene and then - the professional board requested that all qualifications become uniform – and at that time - and I think \*\*\*\* was at that time the only one that went through all the university processes of changing the name – the title of our qualification.... When I got to the professional board at that time, the Education Committee had just got all the submissions and it was then taken up in all their agenda. But few other if any institutions responded to that request that was a professional board.*

*Transcript K10/10*

Q: This (submission) was submitted to SAQA...this didn't reach the professional board?

H10: *No*

Q: Strictly speaking we're (the professional board) the ones who are meant to be regulating?

H10: *Even more than SAQA... What is your whole ... it's difficult formulating now... SAQA now – because the impression I got - this was just another way of ... assuring quality assurance and a body requesting that. We don't all... in the training environment, in the academic environment - we are not all clued up into that...*

Q: Unless you look into it deeply...

H10: *You wouldn't know...that's my conclusion too*

*Transcript K10/49*

On the role of the professional board in the examinations of students, the following is an excerpt from a conversation with a head of the oral hygiene programme.

Q: Does the professional board have any role? In moderation?

H8: *I don't think – I don't think – I don't know if there's any training institutions where they actually play an active role – not here. I don't think there's any institution where they play an active role*

*Transcript K8/36*

### 5.6.3 Career progression

The output of the curriculum is the graduate (or diplomate). If graduates want to further their studies or aspire to more lucrative or higher status careers, the issue of articulation of training becomes very relevant. Questionnaires issued to undergraduates supported this issue. The rigid hierarchical structuring of the dental professionals also adds to tension and dis-satisfaction which can only impact negatively on service provision.

### 5.6.3.1 Furthering studies

When asked whether they would like to further their studies, an overwhelming number of students from all occupational categories answered affirmatively (see Table A4.23). Of all the responses the higher percentages were from dental assisting (93%) and dental therapy (86%) and the lower from dental technology (56%) and oral health (56%), suggesting that those studying for dental assisting and dental therapy are not “settled” with their initial choice of careers.

When the oral hygiene and dental assisting students were asked whether they would like to further their studies in the area of dental therapy, very few of the respondents indicated affirmatively. However 20% of oral hygiene students from UDW and 47% of dental assisting students from ML Sultan (both institutes located in KwaZulu-Natal), indicated that they would like to study dental therapy (see Table A4.24). It is very likely that the only province where dental therapy is offered and dentistry is not, has some significance here. It is perhaps that students in this province may have been denied access for dental therapy and therefore opted for the easier options of oral hygiene or dental assisting. It all seems to come down to choice and access.

A further point of interest is that 80% and 71% of oral health respondents from UDW and MEDUNSA respectively, and 75% of dental therapy respondents, indicated that they would like to further their studies in dentistry (see Table A4.25). Again, there seems to be a strong link between the student and school profile (historical and geographical), where dentistry was probably the first choice of study for these students. (See also 5.3.6 below).

Career progression is a further issue. Dental assisting is felt by some to be a “dead end” career. Those wishing to move within the dental occupations usually look towards the next rung, which, for dental assistants, is into oral hygiene. However the initial entry into this category, for those with Senior Certificates, is limited as the entrance for university where this course is offered, is a Matriculation with exemption.

It must be pointed out that the two undergraduate qualifications in dental technology (diploma and degree) have often been treated as one programme and, to a large extent, responses relating to this programme have been treated as such in this study. The career progression is usually from a technician to a technologist. The educational difference

between the two occupational categories is best summed up by one of the interviewees, thus:

Q: Do the titles “technician” and “technologist” reflect the difference between these two categories?

T4: *Well, ... if you do not call it that you're going to have a problem..... Technologists are basically just seen ... as a person who (sigh) - I wouldn't say had a higher type of education but ..... If you do a degree you're a technologist – if you do a diploma you're a technician. If I really have to look at the outcomes – to be a technologist it's someone who's got a little bit of a wider vision. A technician, as far as I can see, is trained to do a very specific field whereas a technologist can do a specific field but he can see a wider picture. That's all... (repeated for emphasis)*

*Transcript T4/12*

Q: Would you opt for the first three years as a Bachelor in Dental Technology and the next one as a Bachelor of Honours in Dental Technology or would you stick with a diploma?

T6: *I think what you're asking is a very – well, the short answer – obviously that would probably be the ultimate goal but I am more concerned with standards here. I am concerned that our BTech is not Honours level. I think our BTech at this Technikon is quite close to honours level in terms of volumes of work – in terms of depth of work. I have my doubts about what is going on in the other institutions and that might be naïve and it might be presumptuous of me to have that but, I do believe, I do believe that we need to attach names – or we need to attach standards to names. It's all very well saying we have a degree in dental technology but what is it worth? It's worth nothing and I think you do yourself a disservice by actually saying that we are doing a three year diploma which is equivalent to a three year degree because it certainly isn't.*

*Transcript T6/7*

The degree/diploma issue is again encountered below. What distinguishes a diploma from a degree, particularly in technology. Is it the length of time spent in the course of studies? Is it the academic rigour? Is it that dental therapy (3years) is based in a university and that dental technology (3 year diploma) is based in a technikon?

### 5.6.3.2 Work choices and opportunities

It is understood that work choices influence career choices, Students were asked for their preferences for work after qualification. Multiple responses were invited (see Tables A4.26 and A4.27). An overwhelming number of responses from dentistry students indicated a preference for work in private practice and or abroad. Interestingly, 35% of students from one of the historically black schools - with a larger proportion of students from the black population group - expressed an interest in working in South African clinics and hospitals. Between 21% and 40% of all dentistry students surveyed and responding expressed the

desire to work abroad. This is significant for the delivery of health services to the community which has already been discussed in Chapter Two.

67% of the students from UDW would like to work in private practice and 25% in hospital and clinics whereas 86% of students from MEDUNSA expressed their preference to work in hospitals and clinics and 21% in private practice.

When asked to rank, in order of importance,

- earning a high income
- that he/she is highly skilled
- status as a professional
- being highly skilled
- providing basic services to the community

The highest number indicating their first choice was for providing basic services (50% of all respondents) came from the dental therapy group (see Table A4.28 and compare with dentistry).

Is it that this cadre (dental therapy) have a closer affinity to serve - with their basic skills - the general community, and that respondents from MEDUNSA in particular would provide this service through hospitals and clinics (see Tables A4.26 and 4.27) - the majority of who require basic services? Incidentally, the highest percentage from the other two occupational categories (oral hygiene 57%, dentistry 35%) also indicated their preference to work in hospitals and clinics. Again, there seems to be a strong link with the school and their student profile. Perhaps this is particularly so where the emphasis is on "third world" (extractions and simple restorations) dentistry as opposed to "first world" (advanced restorative and aesthetic) dentistry.

Mention is made previously (5.3.3.2) of a shift in the demand for admission into dental therapy in preference to oral hygiene in the two schools that provide programmes of learning opportunities for both categories. It will also be recalled that the profile of students in both schools is dominated by individuals from the black or Indian population groups. A similar effect has also been observed where some dental practices, particularly in those that are owned by dentists from the Indian population groups where dental therapists are preferred to oral hygienists.

In interviews, two of the interviewees expressed a candid view regarding the employment opportunities for oral hygienists in Johannesburg.

Q: Do they all get jobs?

H8: *Yes, they do. We've got one problem – one group problem and again, unfortunately that is one of those things that is out of my hands – is that is the girls that we – black oral hygienists that we qualify – they are the ones who, traditionally, struggle most to get jobs. The white girls, the Indian girls, the coloured girls – they all find employment..... You know - the saddest thing is that racism is still in dentistry. I don't blame the dentists, I blame the patients because I also know from working experience that invariably it is not the practice but it is the patient that forces the practice into that situation.*

*Transcript K8/88*

Q: Do they all get jobs?

H9: *At the moment – yes – but we're quite ..... these problems are starting. We can feel it that it's not so easy/ The problem is, most of them want to stay in the big cities – Johannesburg and Pretoria and there's not really jobs so much.*

*Transcript K9/27*

#### 5.6.4 Hierarchy and status

Table A4.29 shows that an overwhelming percentage (between 60% and 80%) of all students agreed with the question that suggested that the dental profession has a hierarchical structure with the dentist at the top. Dental assisting seems to sit on the bottom rung of the ladder. When asked for their perception of any hierarchical structure 80% of dental assisting students supported the view that the dental profession had the hierarchical structure with dentists at the top followed by technologist (technicians), dental therapists, hygienists and dental assistants. Between 60% and 70% of student hygienists, dental therapists, dental technologists and 80% of and dentistry students responded similarly (see Tables A4.29 and A4.30 and Figure A4.9). A profound comment was made by one dental assisting student - *we should be working as a team, we should not look at hierarchy or status.*

The overall management of the training programmes for dental assisting, oral hygiene and dental therapy is largely dominated by members from the other occupational categories hygienists in the case of dental assisting and dentists in the case of oral hygiene and dental therapy. Dental technology is very self-contained. Among the heads of departments of dental assisting interviewed, one was a male dentist, another a male dental technologist and the others were a hygienist and one a dental assistant. This in many ways preserves the dominance particularly by the occupational categories of dentistry and dental technology.

The tensions between the professions of dental therapy and dentistry have already been highlighted in Chapter 2 and in 5.6 and 5.6.1.4 above. In relation to the purpose statements of schools, the absence of team approach is apparent (see 5.8.4 below for a report on this matter). Three oral hygiene respondents remarked that dental students were unaware of the role of oral hygienists.

With my encounters with dentists and specialists in schools in universities and those in practice it is my belief that they have a grudging acceptance of dental therapy and have not understood the details of the scope of practice or the functions of this profession. This would appear to be the fault of their training which has failed to make clear the true scope and value of the professions of oral hygiene and dental therapy.

The status of the professions was illuminated by respondents from the oral hygiene and dental therapy student group who made the following remarks about their training:

1. *...treatment of BDT & OH students poor, concentrate on BDS students;*
2. *...good course only if DT students not undermined and made to feel inferior;*
3. *...clinical training for DT inadequate.*

During my interviews I questioned both lecturers and students on their perception of the dental assistant and the dental technologist as “dental professionals” in their own right. Most interviewees were aware of the hierarchical nature of the various categories of dental health workers. I observed that the relative position in the hierarchy impacted on the resources allocated to the different training programmes, the recognition and acceptance of the special skills and qualities of the trained personnel and – in the long term – their opportunities and terms of employment. Most of the lecturers in these programmes had a perception of “their” trainees as professionals although they acknowledged that they were not necessarily viewed as such by the other dental team members.

A view from a dental assistant (the only one responsible at the level of programme head)

Q: You would say the purpose of qualification is to produce competent professionals....?  
 A3: *Yes. I would think so but they're not professionals as they are not seen as professionals. So you should be very careful about using that word.....I would like to have that word because they work in a professional milieu – they are part of a professional team but they are not seen as professionals*

*Transcript 03/26*

From two dental technology heads:

Q: How would you describe the purpose of the qualification...what does it mean to you as an educator...?

T6: *Well, I think it means you are putting out a professional on the market who is well rounded and can think – can think laterally and he can serve the profession adequately.*

Q: You've got to do things to it to make sure you're getting that competent person?

T6: *Absolutely.....Well, as I said to you, we offer two levels of qualification. The first level qualification's objective is to produce an employee – someone who basically - we want to be crude – doesn't have to think for himself because anything he produces has to be passed by somebody else for quality control. So, you're looking to produce a man who's got good technical ability, who can do his job, OK? When we go into the BTech. year, that's a different story because we are now taking that person who is a worker and we're turning him into a boss – we're turning him into a lateral thinker and we certainly do that in the terms of the education that we offer in terms of the BTech year. Specifically, two courses, the one that I teach – business practice management – whereby the student has to do work on a higher cognitive level whereby he is basically doing research, where he has to think and plan etc. – research and research methodology whereby they have to do research proposals. In all the emphasis in the teaching is not on HOW you do it, WHY you do it. So, I think we do manage to get that transition from a worker into a lateral thinker.*

*Transcript T6/9*

T6: *The argument might be that we are over training and we have been accused of that previously in the past. As far as I'm concerned, we're not over training because that equips us to be able to talk as dental professionals with other dental professionals (my emphasis)*

*Transcript T6/21*

Q: What is the wider part of it (dental technology)?

T5: *Our work is as skilled - if not more skilled in certain areas - and the kind of person that we have on the programmes, the kind of knowledge that they come with, and what the programme demands of them - produces very professional people. I can't see why an additionally trained technician or technologist - I'm not saying that somebody can just do it - they must be trained for it - cannot produce an accountable service.*

*Transcript T5/64*

Dentistry students were asked to rank the following criteria in order of importance to them:

1. earning a high income
2. status as a professional
3. that they are highly skilled
4. that they are able to provide a highly technical "state of the art" service to those who can afford it
5. that they can provide basic services to the community, (also repeated in 5.6.3.2 in relation to work opportunities).

These students, indicated being skilled as their first and second choices (39% and 28% of all respondents – see Table A4.28).

The same criteria were offered to the other categories of students and their choices were

- income by dental assisting (31%) and dental technologists (33%)
- skill by dental hygienists (46%) and dentistry (39%)
- basic services by dental therapists (50%)
- skill was also ranked as first choice by dental technologists (29%) and dental therapists (26%).

It is felt that the award of a diploma rather than a degree for oral hygienists, impacts on the status of hygienists as the following excerpt of a conversation recorded illustrates.

Q: They prefer to do therapy because hygiene is not a degree?

H11: *I think that's a major thing. That's what we've found with our first years now. We had this year – our pool of students were academically better. They said they'd read about the degree. We found in our study we were surprised that such a high percentage are interested in the degree. We would have thought they wanted the therapy because it's independent practice but so many people want to do a degree. One of the papers we also looked at now in the Medical Ed. – they did a study and they said the reason people are doing it now is the status of the profession and they get more recognition. So I think it is – somebody in matric, says – I want to get a degree in something.*

*Transcript K11/40*

### 5.6.5 Summary and key features

This section reported on the nature of professional competence within dental health science for the different occupational categories. The roles of these different occupational categories within the team, and the tensions within each occupational category, were also investigated. It also reported responses on regulation; career opportunities for the different professions and views on the hierarchy of the professions.

The key issue identified in this section are that:

- there is a gulf between the regulating bodies, the programmes and where they are located.

This does not bode well for a team approach to training and practice or to promote a coherent dental health force.

- a hierarchical structure is overseen by the dentist and the perception of “straying into” each other’s territories in order to expand the scope of duties - particularly by the “lower” occupational categories - is detrimental to a team approach. Issues, particularly between dental therapists and dentists and dental technicians/technologists and dentists, relate mainly to the existence of the professions and are at the heart of the territorial disputes.

- career progression for dental assisting, oral hygiene and dental therapy is stifled by the lack of articulation in the different training programmes. Movement within oral health exists in one school only which in addition to the diploma programme also provides a degree qualification in oral hygiene. The dental technology programme has a diploma (technician) and degree (technology) structure in departments in all technikons.
- all the programmes are weighted in the direction of the acquisition of knowledge for practical skills and sometimes theoretical knowledge for very little application.

## 5.7 Section five: organisation of courses

The theoretical issues around the designing of courses have been discussed previously. This section considers how the units for teaching, learning and assessment - whether course, module, outcome, topic, subject, theme - or what is referred to generically as *courses* here - are organised to reflect the epistemological basis for professional development. Courses should, theoretically, be organised to reflect the teaching, learning and assessment philosophy of the school and the programme. These should be congruent with the policies of the relevant educational and health bodies (professional and governmental) and institutions and should embrace the scope of the profession.

The Department of Health and HPCSA document (Department of Health, 2005) recommends that the department/school should deliver a graduate with a profile of a *basic dentist who is fit to practise*. In order for *the approved educational institution* to create the envisaged profile of a graduate, it must achieve the following:

- a) *conveying knowledge, skills, attitudes and appropriate modes of professional conduct to a student in dentistry*
- b) *preparing a student in dentistry for health promotion, the prevention or treatment of illness and rehabilitation of impairment; and*
- c) *developing research and management abilities and stimulate a preparedness continuous professional development* (Department of Health, 2005, ch. 2, section 4).

Whilst this recommendation is made specifically for dental training, it could be equally well applied to the other four occupational categories, oral hygiene, dental therapy, dental technology and dental assisting.

It has been further recommended that dental education and training should shift from:-

- curative to comprehensive care,
- teacher-centred to teaching outcomes based and learner centred,
- mastering facts and psychomotor skills to including critical thinking and problem-solving

skills - as

*the traditional curriculum directs much of the training to the acquisition of psychomotor skills, often at the expense of the cognitive, problem-solving skills, interpersonal (behavioural) and practice-management skills* (Department of Health, 2005, chapter 2, section 4).

- factual learning to deeper learning,
- rote learning to critical thinking,
- discipline or speciality-based controlled teaching to an integration of course content over a spectrum of disciplines (horizontal integration) and the integration of basic, preclinical and clinical course content (vertical) (Department of Health, 2005; Health Professions Council of South Africa - Medical and Dental Professional Board, 2001, April, section 2.2). The “solution” to the problem is *to develop a curriculum that will facilitate and support problem-oriented learning.*

These, I suggest, would pose almost insurmountable challenges to many of the present teaching staff who are in the main, dental personnel rather than educationalists and immersed in traditional ways of looking at professional training and development.

### 5.7.1 The general pattern of the way courses are organised

I examined statements from the handbooks and from the SAQA documents on the way courses are organised by the departments and schools for the different programmes and found that, across the whole range of programmes, courses continue to be organised in the traditional subject/discipline based ways with little acknowledgment, or even understanding of, the SAQA recommendations to modularise the curriculum

Q: So, the “curriculum” that is correct is the one that is in the book? It’s not a different one is it? You haven’t changed anything? Some people have a different one from the one they submitted.

A3: *I know they are doing things differently because most people don’t know anything about four-handed dentistry so they are actually – we are doing it differently also – between the technikons – but we are using the same curriculum. You can have four-handed dentistry in one practical lecture or you can have four-handed dentistry in 32 practical lectures and that’s what we do.....*

Transcript 03/44

## 5.7.2 The power of departments

### 5.7.2.1 University-based programmes

For university-based programmes the power in the way courses are organised is guided by the regulating bodies centrally but resides locally in the schools particularly for the “clinical” categories of oral health, dental therapy and dentistry.

Courses in dentistry are organised and influenced by the almost self-contained and powerful departments. Any transformation would have to overcome these barriers. The power of these heads of departments is well illustrated below from comments made in a conversation relating to transformation of curricula. One was even more explicit about the knowledge of these educators.

Q: What about integrated assessment?

H7: *There isn't any..... You know why that is? Because heads of department don't want to give up being heads of department. You know that? They don't want to give anything away and they won't give anything away.*

*Transcript H7/31*

D13: *It could be feasible now to look at the ladder curriculum. The rest of the faculty – look, there's massive transformation going on but, unfortunately, the people in power, the heads of department ... are too locked in the old paradigm and are too powerful....*

*Transcript D13/26*

Q: Are all the teaching staff members trained...with it. (integrated assessment) ...?

D18: *We have workshops .... Well, it's a learning experience, you know, it's going to take time. You can't expect it to happen in one year or two years because people are very protective of their discipline, you know?*

*Transcript D18/35*

Q: Is the current teaching compartmentalised in departments... ..?,

D14: *That's the way we do it ... but in the different departments, you get a further breakdown ... for instance odontology, you'll find that the teacher concentrates on basic odontology, or basic restorations and he confines himself to say, inlays and crowns and bridges, when it comes to endodontics. ...*

Q: So what happens then?

D14: *What happens then? As I say that was discussed this morning. He should be able to - he is training a dentist not specialist. He was trained as a dentist so he must be able to do that endodontics that we all learnt when we were students. He must know how to teach the student or guide them - firstly to facilitate the student with regards to the preventive treatment of this patient.*

*Transcript D14/53*

Departments within schools may feel threatened that certain niche areas dominated by that department may be lost. But, as one interviewee remarked, the structuring of courses at undergraduate level is aimed at ridding “areas” that impedes structuring of courses and departments per se.

Q: But it's still going to be a specialist department? You are still going to have a department?

D12: *Yes, yes, yes. There will be people, because there must be senior people who have a specialist knowledge of those areas ... operative dentistry you still need the senior people there.*

Q: But you have a department of operative dentistry...?

D12: *That is the people we're feeling we are now trying to introduce measures that were the thin end of the wedge to get rid of certain departments. I don't think we are trying to get rid of certain departments. It was just that we wanted to get rid of the departmental areas at the undergraduate level.*

*Transcript D12/71*

Departmental heads within dental schools, as well as heads of schools, are not necessarily educationalists, and in most instances are clinical specialists whose knowledge of education may be lacking, or as expressed by one interviewee thus

D14: *They are dental educators but they know zilch about education....*

*Transcript D14/40 \*\*\* (this excerpt comes from a conversation in relation to examination and is also repeated above)*

They may “know zilch” but they exert a great deal of power in the way courses are organised.

Comments on this opinion were sought and some of the following are highlighted

D12: *There are a few things that the people doesn't want to bite on (sic). We came across in a sense with Leavell and Clark. We had to force people in workshops just to explain to them what is Leavell and Clark. I'm not sure even after the workshops that everyone is acquainted with it. "because that is community dentistry, let them run with it." .... That is the general perception ... "community dentistry" and that kind of situation and it's very difficult to get the people to get to the concept but we're getting them there now. We're getting them into..... .*

*Transcript D12/48*

Q: I suppose the majority are technically minded ... ?

D12: *Oh, that's their comfort zone – yes, it is their comfort zone!*

Q: How are you going to do it...?

D12: *I dunno – continuous pressure – the pressure of the new curriculum ...*

Q: Say I'm a maxillo-facial guy ... I've just got to do surgery...

D12: *You've put your finger on the most difficult department of all, they just want to cut. .... They don't want to ... we're having a problem ... they've got to buy into it.... I watch them. They expect me to go and write their documents for them....*

*Transcript D12/49*

Within dental schools the design of buildings with departments in minds adds to the power and rigidity and further hampers the organisation of courses, a view shared by one interviewee

D14: .....*our building was designed for a discipline-based curriculum...*

*Transcript D14/41*

### 5.7.2.2 Technikon-based programmes

For technikon-based programmes the power in the way courses are organised resides more centrally through the SERTEC/ CERTEC convenor system. This system lends itself to greater coherence and uniformity (see also 5.7.2.6 in relation to articulation). What was even more significant was the “power sharing” with the involvement of practitioners in the content of courses for dental technology. The influence of SERTEC/CERTEC has persisted even after its demise.

The content of the courses are negotiated with the practitioners which is laudable. This means that training relates to what the graduates will experience and employers cannot claim that training is irrelevant to their needs or to the practice needs. In the words of T5

T5: *They had ownership of it. I told the guys at the end of that session... you must remember now what we have done today, or over the last few days. We have compiled a profile of your needs and you will never be able to say to a student again, "forget what the technikon has taught you", because we are now going to take your needs and we are going to build a curriculum around it. Tasks and duties did not constitute the curriculum. We didn't talk about chemistry and physics and that...*

*Transcript T5/23*

For dental assisting the department usually consists of one or two full-time staff and although a department within the technikon, they are usually administered together with dental technology. Herein lies the weakness of the power of the head as she/he may well be dominated by the bigger and more powerful department. The following conversation lends some weight to this assertion.

T5: *We don't have a sub-head ... we just refer to her as the lecturer in charge of the dental assistants ... she's the only full-time person.... Then we get part-timers too.... They can come in from private practice. We are trying to get more people in from private practice. Because it's a one year programme it's very practical. We don't ..... we feel that pure academics put too much emphasis on the academic work and these girls (sic) actually have to go out and*

*earn their living after one year. We feel that the private practice people really bring the heart to the programme.*

*Transcript T5/9*

*(also repeated in 6.6.3)*

### 5.7.3 Forming course units within subjects and integrating

This sub-section examines the way courses are designed – whether in the subject, outcomes, module or block format and how these units are weighted.

Q: Is your curriculum organised into modules?

H9: *What I understand by a module is that you write your exam and you're finished. It might take three months, six months, a year – that's what I understand by module. ... We don't have modules. They have an exam at the end of the year.....*

*Transcript K9/10*

Q: Is your curriculum ... a modular programme....?

D18: *You see, what – we've got modules now but I keep telling our people on campus that our modules – it's just a split – a split of the curriculum – or the course – into four equal nice parts saying that – and it's more for timetabling and for notion --- getting the hours. For example, take the course, you say – consists of four modules and you teach each module in a semester and each module has ten \*\*\*\* so that means you should have about eight hours a week for that module – you know what I mean?.....logistically. So our modules are more ...*

Q: Not like a module in – say – religion...?

D18: *That's right, no, it's not. And people on campus always ask you and say – how many modules – how many credits must you have to promote? In our case it doesn't work. You have the credits ....*

*Transcript D18/15*

The influence of rules (institutional) seems to hamper any real developments into restructuring courses into different units of teaching and learning.

Q: Is your new one (programme) modular...?

D13: *No, because we are still hamstrung by university rules. Whatever innovation you want to make you have to make it two years ahead and the rules take two years to change through all the different \*\*\*\*\*. We are doing a fiddle, we are taking old course codes and putting in new content just to speed it up – because we are impatient.*

*Transcript D13/22*

It is arguable that dental health science courses do not lend themselves to easy modularisation with “stand alone, transferable and write off” units in a true modular fashion as they require continuity of actions of repeated practise of skills with the result that the traditional manner of courses based on subjects dominates.

Q: Can it be a true modular course...dentistry...?

D13: *I've got a bit of a problem with that. You know, when they first started, I tried to organise my DS in such a way that each year has a theme – and I tried to conceptualise it as Year One Oral has promotion and ... Year Two has primary oral health, Year 3 has management of established disease and Year Four, management of advanced disease and Year Five, general dentistry and specialist areas, OK? I've always got this at the back of my mind because I'd really like a modular curriculum where you can cut off – you've got one kind of oral health worker/health promoter/community health worker after one year. You've got something else after two years – primary health care worker, and you've got a, say, therapist .....*

*Transcript D13/22*

The courses therefore follow a highly vertical structure that restricts integrated learning. Attempts are made by some schools to have generic units or to introduce "problem-based units" but these are scanty, resulting in "hybrid" courses. This view is echoed and is captured from the following views expressed by some of the interviewees.

D12: *We are trying to integrate as much as possible the whole curriculum and develop units in the curriculum – or modules in the curriculum where the module will contain units from this department and that department and all over the show to make that unit a kind of a whole thing for the student.*

*Transcript D12/26*

Q: So, you are still compartmentalising... perio(dontics) is perio...anatomy .. anatomy...?

D12: *There are specific things. What we have tried to do is to get the generic parts of the subjects out of it. For example in the old curriculum, each department, periodontology, operative, oral surgery, prosthetics they each had a standard way of examining the patient ... each one had their own. Now we've taken this away from them and we've included it in fundamental skills.*

*Transcript D12/33*

Q: You've still got perio...?.

D12: *Yes, but there are still aspects of perio which is perio. that you can't integrate with anyone else. There are still operative dentistry department – they will teach them how to drill – there is no other way you can do it. Prosthetics will teach them how to set up a denture and things like that but taking impressions is a generic skill .... So we have separated the generic from the specific and moving along*

*Transcript D12/34*

There appears to be a move to integrate clinics by some schools, and a view expressed by one of the interviewees as follows:

D18: *We try to move towards general clinics, OK? Not general - but we want to call it clinical dentistry in which the patient is seen as a whole and you are removing these barriers of departments and the "cons." patient and the student doesn't see it as a "cons. patient" but as a patient – that's our philosophy.*

*Transcript D18/26*

However, the clinical integration is still driven by subjects and departments, as evidenced from an excerpt from a conversation in relation to integrated assessment.

Q: But it is still compartmentalised into cons. or - ?

D16: *No. In the final year, not. Everybody joins in and they are assessed on that. For instance in these flagship cases that the students have to prepare ... The students take a case, let's say, at the beginning of the fourth year and the case need this... and it needs prosthetics and it needs endodontics and it needs bridgework and all that. This patient is taken from the word go from an untreated state to a fully treated state and all these things have been done - prosthetics or crown and bridge work, restorations or whatever. This is written up with photographs, X-rays and whatever. This is presented to the class in an open sort of meeting where everyone is invited – all the staff members ...*

*Transcript D16/24*

Q: But do they turn up..(staff)?

D16: *Yes, they do. They quiz the student – a person from prosthetics quizzes the student, a person from endodontics quizzes the student - a person from oral biology. Then these students are quizzed by the staff members and even by the students, then the students give these people marks on their presentations. Then the staff get together and they decide, you know, whether these marks are reasonable and whatever...*

*Transcript D16/25*

One technikon has made the leap to overcome the confinements of subjects and by integrating units and by replacing subjects with “blocks” as explained below. Nevertheless it is still working within a system that does not fully permit the application of the stated mode of delivery.

Q: Do you offer a modular programme ... truly modular?

T5: *We don't do it in the traditional modular way - if there is a thing like a traditional way. We moved into a situation some years ago in which dental technology has been taught in blocks - Four or five blocks a year and each of those blocks are assessed individually. Students will come in, spend seven weeks in a block. The contents of the block will be in line with the main business of the block, so the main business will be dictated by the practical. So, if the practical is crown and bridge, the theory will be crown and bridge, the materials will be crown and bridge, the anatomy will be crown and bridge and once that module is over an integrated paper is set. So, you don't have a situation where students come to you, and say "will you please explain to me why we did that subject somewhere way back when?" That's why we have done away with subjects like chemistry and physics. We do a subject called dental material science. It's a major and it runs from first to fourth year and the chemistry and physics needed underpins the dental materials. We teach the chemistry and physics that is needed for the materials.*

*Transcript T5/56*

### 5.7.4 Problem-based learning

The majority of teaching in all the institutes remains based on conventional, didactic methods. There seemed, with one or two exceptions, to be little awareness of the newer methods recommended in the documents cited above.

In the only institute at which student questionnaires were not permitted the interviewee from this school remarked

*... all the lecturers – even as many of the part-timers as possible and we are all starting to participate in problem-based learning and one of the HUGE discoveries that people are making is that students ALREADY KNOW SO MUCH! You give them a problem and there is a lot of embedded knowledge. There's not a lot of empty vessels that we are pouring knowledge into and they CAN go and find out what they don't know - almost completely without our help – given the right trigger. It is beginning to transform people's – it is beginning to cause a paradigm shift.*

*Transcript D13/27*

When asked whether there were any courses that employed the problem-based learning method, 45% students responded with a “yes” and 33% with a “no” and 20% were “not sure”. From the interviews conducted with course planners/facilitators it appears that this method of learning is not employed by any of the schools where the students completed the questionnaires.

Resources (people, spaces and learning and teaching materials) are critical components in the implementation and maintenance of a PBL curriculum. As described by Mullins et al:

*approaches can range from 'pure' PBL where a progression of cases is used throughout the course and there are no separate, to hybrid models which utilise PBL along with other teaching approaches. Inquiry-based learning has similar objectives to PBL but aims to provided greater flexibility for a broad range of occupations (Mullins, Wetherell, Townsend, Winning, & Greenwood, 2003, p. 18)*

Excerpts from an interview with one of the leading proponents of PBL in South African dental schools highlight the successes, challenges, difficulties and ambitions:

Q: But the way you're incorporating it (PBL) as part of your teaching programme – is it just part of another course ...?

D13: *No. You see our course are changing. For example we are going to have Clinical Dentistry 1, 2, 4 and 4. In the five years ....*

Q: This is part of Clinical Dentistry - you are still going the subject route?

D13: *Yes, but that is because of the university rules. .... Ideally we'd like to have just one subject which is dentistry.*

*Transcript D13/33*

Q: Very conservative professions...what we're finding is that there are only pockets of people progressive ... it's not the general trend?

D13: *What has happened – a very interesting thing happened in our school where a schism has occurred between those who are progressive and those who are not. There's been corridor conversations picked up like – one of the very conservative departments – they have all dropped their standards except for us! You know, the old standards herring*

Q: Are they with you?

D13: *No. Well, luckily person X is behind it. In his thinking he hasn't completely made the paradigm shift. He knows that it is necessary and he keeps on trying but he's stumbling. \*\*\*\* is totally behind it. I'm totally behind it. There's a number of middle management who are totally behind it. Some of the old heads of the departments are totally against it. One head of the department was heard saying – are we trying to teach them dentistry or are we trying to teach them PBL? – We have to address people's fears. The person who trained all these facilitators has turned out to be a very useful person. She's an Occupational Therapist and OT at Wits has been problem-based for 9 years now.*

*Transcript D13/43*

### 5.7.5 Balance between cognitive versus psychomotor; theory and technical skills

Dentistry is a highly technical profession and the mindset of practitioners is directed at carrying out technical procedures yet the status that is assigned to dentistry is that it is an academic discipline. However, going beyond the technical is problematic. A conversation with one of the interviewees elicited the following response:

Q: I suppose we're biased in a way because we're speaking from a different perspective...? (meaning that we are looking at it from an educational one).

D14: *Yes. I think – I think the majority identifies with the three levels, primary, secondary and tertiary care. But I think their area of knowledge will be more in their field strengths. as.. tertiary care...I think they know more about tertiary care than primary care*

HL: Do the majority of staff understand in that way?

D14 *That's a difficult question. I would guess and say they've got mixed up somewhere... I don't think they - I think the majority – depending which discipline they are – but they are still dentists thinking about cavities... filling a hole*

*Transcript D14/27*

Q: How do you design a curriculum in restorative dentistry? You still have to teach to make a hole, ... fill a hole. How do you bring in knowledge, values, skills? Should it be a straight forward technique thing?

D14: *All depends whether you want to train a technician or a practitioner – an artisan. Tandarts - tand is tooth component and arts the medical component*

Q: Are we more technical at the moment?

D14: *I think so*

Q: So do we end up with technicians?

D14: *I think the old curriculum was more technique-oriented.. we did the basics then we started with the techniques....and a good dentist is a dentist who can produce good*

*aesthetics and a denture that is functional and \*\*\*\*\*.....I think you mentioned the different skills? You get your cognitive, psychomotor, and then you get your affective or attitudes. Now you were talking about restorative dentistry? Now looking at the clinical function of a restorative dentist, you must first be able to assess the patient, collect data and then you must make a decision, you must make a diagnosis, so you must analyse all that. Thirdly you must be able to design a treatment plan, then you must implement the treatment plan, and then, I don't know how often they do it, but then they must evaluate the results. That is the clinical process.... that is what should be followed... Procedures is not treatment plan, it forms part of treatment plan but they zoom in on the implementation and the implementation is procedures, so, they zoomed in on that and concentrate on that ...and what happens in practice...with these students when they get into practice - or even in the hospital where they get their experience - the patient opens the mouth, well the patient come in...OK, I've got toothache.. they look into the mouth and they see caries, lot of cavities not even caries. They see cavities ...they don't diagnose it as caries ... what do they do ....they do charting and they say to the nurse - 16 occlusal, 15 extraction.. blah, blah, blah... Their diagnosis is in terms of the procedures, they identify procedures. So, we are trying to get there - but now the problem is that the teachers were taught this way so how are they going to teach their students that way? So, to get them to do this is rather difficult...because they not used to it*

...  
Transcript D14/28

Acquiring practical skills, with repeated actions to acquire a degree of proficiency, is central to teaching in the dental health sciences and it occupies a great chunk of time in obtaining the qualification. This is even more so in the technology courses, as supported by the following conversations with an interviewee.

Q: What about notional hours... do you comply with all these figures....?

T5: *Look, I've never been the sort of person that works to any sort of numbers. I think when you are in a particular class you may find there is time to spend more time on a particular theory. But if the class moves on well with their theory I would rather spend my lecture time with a problematic area, assist those who need help, get them back to the laboratory so they can apply that knowledge. At the end of the day - what is the technician paid for? .... At the end of the day they must be able to make a good denture. They must know the theories of the materials and the chemistry and the physics - but it's no good telling me all those things 100% and you cannot produce that denture. That's what you will be judged on, that's what's going to turn out your bread and butter. That's what's going to give an institution of being either good or bad, not how good you are with all the theory ... that's why it's referred to as underpinned knowledge. The main business as far as the professional is concerned is the practical.*

Transcript T5/81

### 5.7.6 Articulation

The National Qualifications Framework (NQF) referred to in Chapter 1 (section 1.6.2.2) requires the organisation of courses to allow for portability between qualifications within and between institutes.

The submissions made to SAQA by institutes, particularly for dentistry, indicate articulation between dentistry and the dental specialities only. There is silence in terms of articulation between schools.

Courses are not organised to allow for articulation between these two categories and this is clearly expressed by one interviewee:

*D14: The only articulation at the moment is the articulation between dentist and specialist.*

*Transcript D14/57*

Articulation between schools for dentistry is not possible at present. There is no nationally agreed curriculum that would allow that. Each institute jealously protects their own curriculum.

*D13: Currently our articulation is almost zero because we are ahead of all the other universities in the terms of transformation. We are starting clinical dentistry in the first year so if a student comes in the third year from another university and they've done no clinical dentistry - they have to go back to the first year.*

*Transcript D13/23*

Apart from the programmes being at different stages and having different *slants* as expressed by the following interview, an area of protection comes into play.

Q: Is there any possibility for articulation?

*D18: If a student leaves at any point... I mean, it's because, a lot of the way that the curriculum is done in different places - a different slant. Although, basically they do the same \*\*\*\*, they don't do exactly the same in first year as say, \*\*\*\*\* or \*\*\*\*\*. And, then some people start their circuit (?) courses earlier and some later. It doesn't 100% articulate. But, if there's a will from the institution, I don't see why ...*

Q: Should we bring all together...?

*D18: You see, the other thing about articulation is also universities are very protective to lose a student because of the subsidy. You have a student for four years here and he goes to \*\*\*\* and they get the subsidy.*

*Transcript D18/37*

The courses for dental therapy and oral hygiene in the two dental schools that offered both programmes were organised in line with the ladder structure proposed by the professional board for dental therapy and oral hygiene, albeit they allow for intra-school mobility between oral hygiene and dental therapy only.

The qualifications offered by the technikons, and organised through the CERTEC/SERTEC system, should allow for articulation between institutes but within the same qualifications.

From excerpts of conversations with interviewees there was little indication – or even interest - in the possibility of articulation between the programmes. Even when they were taught in the same institution the concept was dismissed.

Q: Who does the training on that side? Is it another group of people?

T5: *It's another group of people because there is very little overlap between dental assistants and dental technology - between what the dental technicians are taught and what the dental assistants have to do. They do a little bit of model casting that's about all we do, so they have a different team.*

*Transcript T5/8*

Q: What is your view on articulating a whole discipline ...?

T5: *The only one that I can really think of – I don't - as I said – add on the clinical part just for the dentures - - just for the denturist. But, you are not going to articulate to become dentists eventually. The other one that you can see is for dental assistant to oral hygienist – that is possible...hygienist to therapist... possible ... I've spoken to people at \*\*\*\* about this and they also feel that it is possible if you can get people to work together on this ....*

Q: Isn't the dental technologist at the same level .... Just separate ...?

T5: *No, No. It's got so specialised nowadays.*

Q: So you think it's impossible to articulate outside our own fields ...?

T5: *Yes*

*Transcript T5/43*

### 5.7.7 Summary and key features

Apart from the cosmetic changes applied to organising courses and providing documents to suit the demands made by SAQA, it was found that courses are generally organised throughout all the programmes in the traditional subject manner which is based on the sub-disciplines in dental health sciences, applied health sciences and the physical sciences. These sub-disciplines - particularly in dental school departments - exert a great deal of influence on the course design. Nevertheless, some schools, and one technikon in particular, have structured their courses, albeit in a hybrid fashion, around problem-based and outcome-based ideas. Courses are still very dependent on rote learning as well as being dominated by courses which are directed at acquiring technical skills. Thus the “professionals” developed are, in the main, really technicians.

The separate structuring of courses in university-based programmes does not allow for mobility between and within schools and between occupational categories and there seemed to be no will to overcome this.

In Chapter 6 these features are revisited and theorised alongside the features listed with regards to access and the nature of the profession within the heading of structures and suggestions are made towards integration.

## **5.8 Section six: dealing with policies and managing change**

My findings related to teaching, learning and assessment discussed above show that little has changed in spite of pious submissions to SAQA. Why is it that staff in the dental institutes have not responded to policies recommending change? The selections of discussions with interviewees that follow gives insight into this claim. This section reports on the reality of policy and change beginning with the submissions made by programmes, by departments and by schools through their respective technikons and universities, for the interim registration of qualifications with SAQA in 1999/2000.

### **5.8.1 Process of submissions to SAQA by institutes**

By the middle of 2000, dental schools in universities and departments in technikons were required, through their respective institutes, to complete documents and submit them for the interim registration of qualifications with SAQA.

Three key issues emerged in the manner that changes imposed through the SAQA requirements were managed. These relate to the

- procedures that were adopted in completing the documents
- the level of understanding of the language in contained in the SAQA submissions
- purpose statements that are made.

### **5.8.2 Procedures**

As stated, the procedures adopted by schools in universities and technikons in completing the SAQA documents consisted largely of following a template and were driven by one or two individuals in a rather mechanistic and technical way. Following the invitation to respond to a question regarding the preparations and processes that were set up by institutes in completing the said documents, three excerpts from conversations with interviewees in schools seem to support this assertion.

Q: Is this the final one?

D18: *Yes, I think so. It says here – attaches \*\*\*\*\* have to reply in writing\*\*\*\*. You see, what happens is, we have a chap at campus, \*\*\*\*\* , who's sort of the assistant registrar. He looks at every faculty's – because he knows all the rules and all the things. He's got some title – quality assurance or something.*

*Transcript D18/2*

Q: I just want to record some of the perceptions of the people involved. You were the chair of committee...?

D18: Chair of the academic programme...

Q: Ah, you are the right person then

D18: *And one of the functions of that committee is to look at the \*\*\*\**

Q: There was a process ... I don't know if you can recall...?

D18: *Yes, we got the template from this chap \*\*\*\*. The university template – this is the date you must finish it and send it to us... We sat and we filled it.*

*Transcript D18/3*

Q: Did you compile it from the information you had...or did you have to get further information.

D18: *Well, you know what we did? You know the new curriculum document from the dental dean – we used that to a large extent because that sort of spelled out what it should look like. You understand? So, you'll find that if you look at this SAQA document, it looks a lot like that document*

*Transcript D18/4*

Q: Was everybody involved...?

D18: *The Academic Programme Committee specifically and basically myself and \*\*\*\*\*.*

Q: Usually one person ends up doing it all?

D18: *Yes..... and the others just look at it. That was me, I think.....What we did was, as I said, we looked at the SAMDC document ... and we also looked at our existing rules and regulations - we took the two – and then I sat down with all three and we put it into the template. Then we sent it to \*\*\*\* and he said – no – this is not right, or that is not right – and he changed it. He changed some things also.*

*Transcript D18/5*

Q: Do you think it had any influence on the curriculum as a whole?

D18: *The SAQA thing .....I think for us – it had some influence but I think more - the influence that it had was on the credits and so on and the notional hours learning hours and all that sort of thing. You know – that part. But I think the HPCSA document had more influence with regard to vertical and horizontal integration and all that.*

*Transcript D18/7*

Q: Who was involved?

D13: *It was selected individuals initially ... from the Curriculum Committee – and then once the first submission was put together. Then it was put to the rest of our colleagues in the school and we got some feedback which was incorporated. Then it went to \*\*\*\* who was the Education Officer and the SAQA representative in the Faculty. It then went to \*\*\*\*\* (name of another school) and I interviewed – worked together with these people to refine it and refine it and eventually the final document came out and then that was sent to all the ...*

*Transcript D13/2*

Q: Did you have a template or did you make up your own...?

D13: *There was a template given. There was an example given and I can't remember where it came from. We were given a template ....*

Q: You just filled in the blanks ...Do you think most people understood the terminology  
 D13: *Most of them do – I certainly did and I guided them ... now I have forgotten quite a lot of it ... I pulled it out and looked at it when you wanted it ...*

*Transcript D13/8*

Q: You prepared the documents...?

D12: *I prepared the documents.*

Q: Who made up the template...?

D12: *I got the template from SAQA*

*Transcript D12/9*

Q: And the medical side...?

D12: *They copied us... we led the way. They copied us. Everything they copied us – the length, the wording. They just changed the wording here and there ...*

*Transcript D12/10*

It also appears that for university-based programmes and dentistry in particular, the documents of the Medical and Dental Professional Board dictated what was to be submitted in the SAQA submissions.

For technikon-based programmes compliance with the protocol imposed through the SERTEC/CERTEC system played a dominant role. These programmes had more coherence and uniformity compared with the university programmes. As reported before, one common document per programme was jointly prepared through the “convenor technikon” meetings and the common documents were submitted separately through their own institutes to SAQA.

The following excerpt supports this contention.

Q: This is quite heartening. The technikon programmes are always better organised. University autonomy means that there is no coherence.... CERTEC did a lot of work. SAQA is only a forerunner of what SERTEC has already done?

T4: *I was the representative of the first workshop on quality – it was in Durban – and the guy we had there from the US .... He said ever since the beginning of mankind – the two greatest institutions were the Catholic church and the universities and the one that has moved the most was the church. Because there has been a lot of resistance from the universities – trying to get them into a quality programme. ... just interesting thing...*

*Transcript T4/4*

T4: *We are so used to change. We try to get to get in the forefront every time - it's a natural thing for us and everyone – as soon as they understand the importance – you can put it to them in perspective (my underlining) – then you get from your vision's line to the institution's vision. It goes well.*

*Transcript T4/6*

### 5.8.3 Understanding of the document items.

The understanding of the principles and the “SAQA language” seemed to be limited to a few members of the school. The departments in technikons through their “convenor” system seem to be better informed at a broader level. Generally, the language and terms used do not seem to be universally understood and doubts were expressed as to whether individual staff members were that committed to understanding the language or to complying with the challenges placed by the requirements of the documents.

The following excerpts of conversation with two school representatives and two technikon representatives respectively capture these points.

Q: The SAQA documents are so complicated. Do you think people are really aware of all the kind of SAQA things and the language that goes with it...?

D12: *The language is very, very, very foreign language. Even I struggle still with the language and I think, in the Faculty I'm the person who has been there longest – maybe \*\*\* has been involved just as much, even more than I've been with this aspect - but the people are struggling with it. I think what we've got through to level descriptors of the things and I think that has been brought out very neatly in our workshop that we did on assessment when \*\*\*\* gave us those rubrics on how to classify and I think that has been a great help.*

Transcript D12/51

Q: We're going to talk about these exit level outcomes. ... You sent out things to various departments. Did they come back or did you have to modify...?

D16: *I still sweat when I think of those things... how I struggled to get anything from the departments...*

Q: So you made them up in a sense?

D16: *In a large sense....*

Q: Do you know what you made up? Who was involved? You were asked to do it and you sent out a circular but you say they didn't come? ...?

D16: *They were just not worried. Because there are department heads in this faculty that I know of who don't know this yearbook. Who come to me, even at this stage, and ask me what does the yearbook say with regards to evaluation – you know – this sort of thing.*

Transcript D16/19

Below are views expressed by technikon representatives, one each from the two programmes. They give some clues as to why there is resistance to the policy changes:

A2: *We have had a seminar internally on level descriptors when the DVC (?) academic actually discussed the new academic policy document and the level descriptors ... I actually am not entirely thrilled with the level descriptors. There are numerous discrepancies. It seems that for reasons of convenience, programmes find themselves lumped together and this parallel stream between the technikons and the academics. The crossing over – I don't know what they call it - a slipstream - across and that's it and that I think some of it is very contrived. It's for the sake of having a structure and a new academic document and the one*

*thing that actually worries me is that the autonomy of higher education is really taken away from individual institutions. Everything fits into a template and while I agree there is a need for quality assurance, I think there's perhaps there is too much regimentation (my underlining).*

*Transcript Q2/11*

*Q: Now, what about level descriptors...do you understand them...?*

*T6: I think I understand what they are talking about but what is the relevance of it? As far as I am concerned it is a lot of gobbledy-gook which makes people happy - makes intellectuals happy - especially educational intellectuals.*

*Q: And do the rest of the staff understand...?*

*T6: Probably not. Do they care? .... The answer's no.....But what's the practical significance of understanding level descriptors anyway? We'll be told – whatever. We know where we fit into that in terms of – I mean we try to maintain our education of dental technology equivalent to other departments and what they offer – that's what's important. In terms of the grand scheme – in terms of level descriptors – they're going to be determined for us anyway. Those discussions are not really – these discussions are held at higher levels. Yes- staff are asked for their input. Obviously they are going to try to make them as high as possible to try and give credence or credibility to a course... but is this tertiary level education? The answer's NO. (my underlining)*

*Transcript T6/18*

#### 5.8.4 Purpose statements of qualifications

There are certain elements relating to the purpose of the declarative statements made in the submissions to SAQA. They all purport to want to produce competent and good (in its broadest sense) dental health workers with the necessary knowledge, skills and attitudes; who will undertake in an ethical and caring way for the needs of the patient and community and carry out preventive, promotive, therapeutic and rehabilitative tasks within a defined set of competences (known as the scope of practice) that are regulated and guided by the regulating body.

The comments and statements that follow display the many gaps (gaps that are inevitable) that exist between the purpose statements and the issues that have been reported above – issues relating to the roles and identities, access to programmes, teaching and learning that is assessed and the courses that are organised for these activities. The intention is to ask the reader to reflect silently on the gaps that have been at the heart of the reporting in the sections above.

Additional comments made at four of the six institutes specifically for oral hygiene included *participating meaningfully as team; forming part of a team and a career as an auxiliary and*

another mentioned *empowerment* (possibly as a response to being subservient to the dominance of dentists or to perhaps challenging their power!).

One institute included providing *future teaching staff* and *adequate* (uncertain if this means adequate numbers or capable) dentists and dental therapists for South Africa. This pious wish is not mirrored in the numbers that are enrolled (see 5.3 above).

The purposes expressed by the technikon-based programmes relate to servicing the other dental health professionals.

As specified in the SAQA submission by technikon programmes, the following are the stated aims

The purpose of this qualification (Dental Assisting)

*is to supply the dental industry with competent dental assistants that can be employed in dental practices and/or dental clinics to assist dental practitioners. The qualification furthermore addresses the need in the dental industry for dental assistants with recognised qualifications and relevant education and training.*

The purpose of this qualification (Dental Technology)

*is to educate and train competent, responsible and accountable dental technicians for the dental profession who will be employed primarily in dental laboratories under the supervision of dental technologists as well as in related areas.*

The qualification further addresses the needs of the dental profession for

*qualified dental technicians with relevant qualifications that are recognised both nationally and internationally.*

These purposes are reinforced by the perceptions of some of the interviewees

Q: purpose of qualification...competent professionals...?

A2: Yes.

Q:...what does it mean as educator...?

A2: *Providing a clinically competent assistant?*

Q: ..as an educator...?

A2: *I think it means, actually, having a very careful balance between the theoretical and the practical aspects of the course - in giving them sufficient exposure because if they are going to be competent at exit level, then they need exposure to various settings that they may find themselves in. One is hospital setting, secondly a private practice setting and the one area that, perhaps we haven't really contemplated is a rural setting when they may be working in conditions which are far from the urban private practices that they have been exposed to. So, I think the challenge of the educator is to give them a diverse experience.*

Transcript Q2/7

Q: Now, what does this purpose mean for you as an educator if this profession?

T5: *Well, first of all it reminds us of what this person must be like when they walk out with a piece of paper. The purpose is not just to train them to be a dental technician or a dental*

*technologist but to be complete persons. They've got to... when you look at the B. Tech they've got to be entrepreneurial You can't just send people anymore who can just do a job, They have to be able to create a job for themselves, they have to be able to create jobs for other people. They have to be able to communicate well.*

*Transcript 05/33*

### 5.8.5 Summary and key features

To summarise this section, it appeared that departments and schools responded with some “new products” and bulletins were issued to show appropriate activity but, on the whole I found that “business was as usual”.

In the words of one of the technikon interviewees:

*T4: It changes so much we've decided at this technikon we are going to do the basic things and stand back and wait.*

*Transcript 04/23*

Technikons, with their system of organisation referred to above, were better able to deal technically with the management of changes than their university counterparts through their consultative processes in the preparation of a final document for submission, although the traditional systems of course organisation remained in place. Overall it seemed that the full complexities of these policy documents were not necessarily fully understood – or accepted - by all teaching staff.

The understanding of some aspects of the completed documents was questionable as was the intention to fulfil aims espoused through purpose-statements.

The final chapter will relate these broader issues of the way policies were received and its impact on professional development.

## 5.9 Summary of Chapter Five

### - data findings: technikon and university programmes

This chapter has been divided into six areas which together focus on the two critical questions relating to the nature of professional competence and the curriculum design. The six areas in question were the **scope of practice**, the **access** to programmes, the **teaching and learning** that takes place and the way students are **assessed** with the inseparable ways in which **courses are organised** for the different programmes. The sixth area reported on the way that departments and schools responded to **changes** by challenges

brought about by submissions required by SAQA. These are grouped together as follows and are summarised below.

#### Scope of practice and access and organisation of courses

There is an acceptance that there is a hierarchical structure within dental health sciences. If entry into programmes is used as criterion then it ranges from dental assisting to oral hygiene to dental therapy to dental technology to dentistry. Access is dependent on a variety of factors, including the geographical location of the institute but the admission is dependent on grades obtained in matriculation at the secondary level of studies. These are on a continuum of “lower” grades required for dental assisting and the “highest” for dentistry. Courses are organised in the subject manner to cater for the different scopes and occupational categories.

#### Teaching, learning and assessment

Whilst some schools are attempting to change their teaching and learning styles to incorporate problem-based and outcomes-based learning the overwhelming method is a traditional didactic one separated into disciplines.

#### Policy responses

This is best summed up by one of the interviewees:

*They are telling you what you want to hear. The \*\*\*\*\* (name of institute) curriculum, they have simply changed the names ... put new labels .... They have taken the subjects and now called them "modules" because that is SAQA-talk but the paradigms haven't shifted.*

*Transcript D18/17*

*Yes, we got the template from this chap \*\*\*\*\*. The university template – this is the date you must finish it and send it to us.... We sat and we filled it.*

*Transcript D18/3*

*Well, you know what we did? You know the new curriculum document from the dental dean – we used that to a large extent because that sort of spelled out what it should look like. You understand? So, you'll find that if you look at this SAQA document, it looks a lot like that document.*

*Transcript D18/4*

## **5.10 Conclusion**

This chapter has described findings from documents, interviews and questionnaires that relate to the curriculum, from issues around getting into programmes, the purposes of the training, the professional identities aimed for or established through the training, the organisation of the programmes and the “getting out”, that is the measurement of successful learning.

I have also touched upon the policy regulations intended to impact on the training of dental personnel in the programmes and how they were received by the departments and schools. In Chapter Six the grouping of the three themes listed above will be used to discuss, theorise and respond to the three critical questions and the implications of these findings.

Innovative ideas, and escaping from the subject-based (and departmental-based) models and looking at competence-based models, may permit units of learning to be more amenable to integrated approaches within and between levels of learning.

## Chapter Six

### Synthesis and implications of the study

#### 6.1 Introduction

I began Chapter Two by stating

“In any country, the prime goal of the education of the dental practitioner must be to develop future dental practitioners to provide responsible, effective and efficient practice and services - be these purchased/used in the private or in the public sectors”.

The means to achieve this goal is to

- *educate students to serve their patients and communities well, and*
- *prepare students to continue to grow in skill and knowledge over their lifetime in practice* (Field, 1995, p.88).

This has been the main focus of my thesis.

I have journeyed through my experiences in my professional development. As I travelled I reflected on the landscape and studied the structures along the way. As well as looking back at my route I also looked forward, anticipating the direction my journey might take and what kind of obstacles and challenges I might meet along the way. Having developed some tools I took snapshots that might illuminate my story for the benefit of other travellers making a similar journey. The focus of this study was to:

- explore the nature of professional competence within undergraduate dental health science studies
- analyse current access to dental health science programmes
- analyze current undergraduate teaching, learning and assessment in dental health science curricula
- **create a foundation for a coherent curriculum for the training of undergraduate dental health science students.**

The lessons that I learned on my journey are presented in this chapter.

How do my discoveries relate to my critical questions that instigated my travels?

I posited that traditional designs of programmes are often locked into tribal boundaries, reinforced by historical legacies and practices which confine programmes within these borders and continue to reinforce the fragmented development of dental health science

professionals. During the course of my research I have touched on the obstacles to change referring back to my Machiavellian quotation that

*when the enemies of change make an attack they do so with the zeal of partisans, while the others defend themselves so feebly as to endanger both themselves and their cause* (Machiavelli, 1992 (original publication P. F. Collier & Son, circa 1910) ).

The emphasis of the first four chapters was to highlight a complex set of issues and concepts that formed the guiding principles of curriculum and professional development as well as the means to investigate aspects around these two themes. The data accumulated, analysed and selected forms the foundation for the theoretical framework to be presented in this chapter. The proposals offered here are not a course plan which leads to a qualification but a set of broad and fluid principles which embody the notion of knowledge, skills, attitudes and values that course designers and educators can utilise to inform their programmes.

This will allow for courses to be designed in a holistic manner, to bring into dialogue the sometimes conceptual nature of academia with the practical aspects of the health services in order to develop the best dental health professionals within the resources that are available. It is hoped that the offerings of my selective vision will not be seen as a universal truth but will add to the philosophy of multiple truths. Although it is desirable to have unified structures operating from a single regulating and institutional body, it is not expected that hard-won territories be completely relinquished, but duplications, for the sake of hanging on to these power bases, should be reduced and, where necessary, rationalised.

## **6.2 Purposes of this chapter**

The purposes of this chapter are:-

- to revisit the critical questions which formed a thesis for this study
- to form a thesis for understanding aspects of professional development and curriculum design
- to present the underlying principles and concepts from which a coherent and meaningful curriculum framework for undergraduate studies in dental health science may be developed.

### **6.3 Organisation of this chapter**

The key features from the data that was collected, selected and reported in the previous chapter will be grouped, for the purposes of this chapter, into sections linked to the critical questions. The issues, though not rigidly bound to any one grouping are, for convenience, arranged as follows:

#### **Section One**

Issues relating to access, the nature of professional competences within the dental health sciences, professional knowledge and the roles/identities of the different occupational positions

#### **Section Two**

Issues relating to the organisation of courses, teaching, learning and assessment

#### **Section Three**

Recall of the critical questions and the findings – the destination of this journey

#### **Section Four**

Limitations of the study

#### **Section Five**

Implications from this study

The chapter ends with a general conclusion

### **6.4 Section one: the nature of professional competence**

In the previous chapter I reported on my findings related to the various professional categories. Interviewees shared their perceptions of the main purpose of their programmes which was to develop a competent, ethical professional. Although this is a common purpose,

I found that they had little knowledge of, or interest in, the other members of the dental health "team". I described the division of training, training sites, regulatory mechanisms and professional organisations that, along with the accepted hierarchical nature of the "team", reinforces this distancing.

This chapter includes suggestions for minimising these distances in the interests of a rationalised, harmonious and effective team (in the real sense of the word) that will bring about a dental health service for all South Africans.

#### **6.4.1 Towards a model of professional development for dental health science studies**

The dental professionals of the future, this writer suggests, must be educated to become critical learners, able to reflect, not only on their own development but also on the development of their profession and the dental health of the nation. Such a professional also represents the kind which the new curricula policy of SAQA promotes. This then is the challenge for those engaged in developing the dental professional.

Membership of a professional organisation that establishes and monitors the standards of its members is another attribute of the "professional". However, it has been seen that, in South Africa, such bodies have limited input into the curricula offered at dental training institutions. A further issue, particularly in relation to the health professions, and specifically referred to in Chapter Two with respect to dental health sciences, is the labelling of the continuum of the different occupational categories in health, into the two broad categories, namely, the mainstream (doctors/dentists) and the appendages (paramedical/support personnel). Dufton (1992, p.137) notes some of the characteristics of these "allied" professions, which include nursing, that are traditionally perceived to share certain features. These are that they are:-

- *female dominated*
- *non-graduate*
- *vocational (in the 'committed' sense)*
- *low paid*
- *having subordinate status in the medical hierarchy*

It appears that dentists and specialists – perceived as the higher echelons of the dental professionals – endeavour to maintain their status and keep the mystique of their profession alive.

Whilst this hierarchical structure is noted, it is the joint training and regulation which should bridge the gap of between the challenges of the exclusivity of practice and that of a team approach. It is worth noting the comments selected by Dufton (1992, p.138) from a report of the National Training Forum (United Kingdom):

*The present multiple cultures of the NHS (National Health System) encourage a view of training and trainers which is unprofessional and fragmented. The need is to develop a new approach with much less emphasis on professional boundaries, which is more task-oriented and competency-based.*

There seems to be a top-down resistance to weaken these *professional boundaries* – the result – I suggest – of an unconscious collusion of a society that values authority and status. This is a universal phenomenon but may be exacerbated by our apartheid history which denied access to power to segments of our society.

I concur with Brookfield who claims that the purpose of dental education should be to develop critically reflective practitioners who can recognise their own theories in use in adult learning and education, who can articulate the clear and informed rationale as to why their practice is organised the way it is, and who are open and ready to evolve new forms of practice appropriate for the different contexts in which they are called upon to facilitate adult learning (Brookfield, 1988, pp.317-323).

In order to achieve this, current practice, as reflected in this research, needs to be amended.

#### **6.4.2 Theory of practice and practise of theory**

*It is not enough to have knowledge; it is necessary to use it effectively in practice to assess people and situations, reach decisions about action, and evaluate the action taken. Each step in this process involves complex judgements, demanding knowledge, intellectual and interpersonal skills and sensitivity to values. The competences involved are seen to be best developed through practice and reflection on practice (George, 1992, p. 152).*

In Chapter Two (2.12) I posed a number of questions relating to the metamorphosis of dental health science education in response to policy changes. Following this research I am able to respond to those questions.

What I found was that the official/declared curriculum purports an affinity with a critical paradigm but, in practice, the enacted curriculum still reflects a conservative, technical training for skills firmly grounded in what was referred to in Chapter Three as the *applied theorist/scientist model*. At the same time, knowledge related to dental health science

continues to be taught and unquestioningly learned in a more or less rote fashion in order to allow the student to pass examinations and receive the appropriate diploma or degree.

I have deduced that:

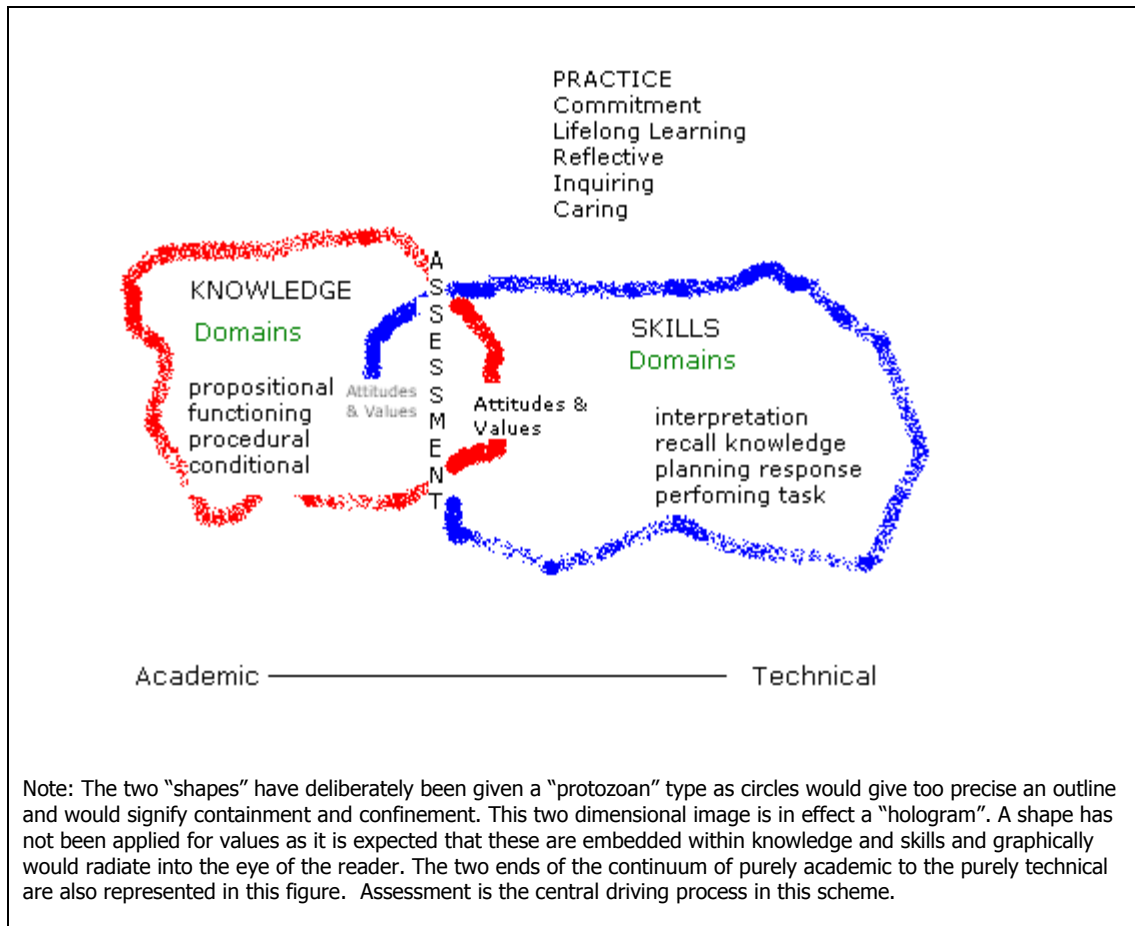
- Only limited practices and procedures have been set up by management to facilitate and monitor the implementation of policy changes
- The new policies and SAQA-speak are not uniformly understood and there were few structures at any level for disseminating proposed changes
- Most practitioners were not involved in the policy-making process and so do not wholeheartedly espouse the new policies
- The new policies are not felt to be in the interests and priorities of the educators who cling to their traditional discipline-based territories

In addition, the biographies of the educators predispose them subconsciously to replicating how they were taught and trained. Few of them have formal qualifications as educators. Furthermore, the divided and hierarchical nature of training and professional regulation promotes the persistence of the status quo.

Teaching, learning and assessment should be aimed at achieving a balance between knowledge for academic purposes and knowledge for technical purposes. The idealised theoretical model is depicted in the figure 6.1 below, where these two areas and their respective domains are shown to merge into each other. Academic knowledge with its inherent abstract and theoretical ideas has its "pull" towards its polarity, and technical knowledge with its inherent practical skills has its "pull" towards its polarity. The theoretical aspects of knowledge and skills are described in Chapter Three, and in particular in Section 3.5.1. Attitudes and values should pervade every area and these should be carried into practice. These are the characteristics of the true professional as a person who not only displays a high level of skills but is one who also has an altruistic relationship with her/his clients. Thus attitudes and values are a relevant area of learning in the development of a dental professional.

synthesis and the thesis - making sense of what has been uncovered

**Figure 6.1: Theory of practice and practise of theory – an idealised theoretical model**



It will be seen that this idealised model bears little relationship with the practice as reported by the interviewees.

The types of knowledge - academic and technical - required at the undergraduate level should strike a balance at a level and depth that attempts to satisfy the demands and challenges of the services and the academic programme.

The purpose of developing the professional is to place the practitioner reliably with sufficient skills and knowledge to commence a career characterised by life-long learning.

What has been found and will be discussed in turn is that:

- knowledge operates in discrete units reinforced by the forces of compartmentalised subject units (discussed in all three sections). As a result, teaching and assessment in such discrete units promotes learning in fragmented packages.
- the levels and depths of teaching per subject within each occupational category is variable and is partially dictated by the subject and the lecturer concerned. I have already mooted in 6.4.1 that I found practices rooted in a conservative paradigm – they seemed to work in the past so there is no need to go through the challenging process of change.
- the majority of time spent in obtaining qualifications is aimed at the acquisition of knowledge that is largely technical knowledge for technical skills and is more in the domain of procedural knowledge and at the level of performing the task (see Chapter 3 Section 3.5.1 for a discussion of knowledge).

### 6.4.3 Summary

In this section I have discussed issues relating to the non-reflective and change-resistant stance of many of those responsible for developing the new professionals. There have been external pressures to change from SAQA and related policies but these seem to have been sidelined by the dental health educators. The concept of professional autonomy may override the demand for a shift from a profession-centred concept of service to a learner- or client-centred concept.

Whilst not denying that technical skills have to be learned, current educational practices seem locked in the pre-technocratic and technocratic models described in Chapter Three and they need to move in the direction of the post-technocratic model which is characterised by professional competence. In other words knowledge has to move from situational and tacit to universal and explicit and *integrating knowledge learned in the academy with knowledge in practice* and for practice (my insertion) (Leinhardt et al., 1995, p.402).

## 6.5 Section two: issues relating to the organisation of courses, teaching, learning and assessment

In this section I build a model in order to offer an exemplar of mobility and of ways of closing the distances between the different dental health science occupational categories in the

interest of building a more efficient team who will provide a more effective dental health service as well as to articulate with the aspirations of the NQF.

*Course design has always been a pragmatic art, aspiring to provide a rich set of experiences for individual students but often settling for what seems achievable given limited time, limited resources and limited human beings* (Toohey, 1999, p. 8).

### **6.5.1 Organisation of courses: course design and course plan – bringing the levels closer together**

It would appear from the information garnered from interviews and questionnaires that courses and units of study for the different occupational categories in both university and technikon are largely based on compartmentalised, discipline-specific arrangements using traditional methods of teaching and learning. In other words, they are content-driven and geared towards the needs to fulfil the requirements of off-loading the content and of passing tests and examinations at the termination of subject-based units of study. This results in what Harden (2001, p. 23) refers to as *the railway timetable approach ...to curriculum development* (course design). Harden explains that with this approach

*the emphasis is on the timetable, what courses are held and when, and the duration of each course. He further stresses that this simplistic view of curriculum planning ignores many of the real challenges facing medical education.*

There seems to be no correlation with, or acknowledgment of, the concepts of educationists like Harden or Toohey. Both have important and helpful things to say about curriculum planning. I would suggest that these writers, and others identified previously, have much to teach those responsible for dental programmes.

It became apparent during the course of my research into dental science education that curriculum design is, for the most part, directed by an ad hoc, pragmatist lack of principled planning. Central to this proposal are the abilities and motivations of individuals at all levels - from the learner to the educator to the manager. It would seem that resisting the adoption of concepts relating to the complex process of curriculum design are the power forces at play by executives in institutes as well as those powers that reside in departments within dental schools. I would suggest that course design and course planning needs to be informed by an understanding of the concepts I have described in Chapter Three rather than ad hoc, repetitive "teaching" and assessment methods, and by a constant and measured evaluation of the effectiveness and relevance of the curriculum. This is part of the quality assurance

process aimed at accountability and should, I suggest, be supported from outside the school/department concerned in the interests of a disinterested audit. SERTEC/CERTEC was disbanded in 2004 but offered many valuable lessons relating to quality assurance and the method of “convenors” where programmes are jointly reviewed that could be adopted with some modifications particularly of its “authoritarian and bureaucratic” processes that may have been perceived as a threat to academic freedom and institutional autonomy particularly within universities. However, external quality audits that do not meaningfully involve the individuals who live the experience can only serve to alienate the practitioners.

During lengthy discussions with dental academics at dental schools in South Africa, one point that surfaced is the lack of capacity – and in some cases I suggest willingness - of some dental school personnel to deliver courses based on educationally sound curriculum design principles.

If teaching and, by inference, learning and assessment, is to be geared towards the development of competent, critically reflective and inquiring professionals, then steps need to be taken to bring closer together the distance that separates

- a didactic style of teaching and alternative styles
- theories and practices
- professional knowledge and education knowledge
- the inequities in provision of clinical facilities across categories
- quality as a process and as practice

The dental educators of today are working in a system that is fundamentally different from the one in which they were students. The very nature of professionalism is not a constant one but one that needs to be regularly critiqued – reflected upon – by those who aim to pass on the knowledge and values of their profession.

### **6.5.2 Designing units of study: bringing occupational groups closer together at the programme level**

In the interests of furthering the changes I described in the previous section, I begin here by looking at how the learning for the different occupational categories can be structured and brought within a framework, thereby closing some of the gaps. Units of learning or competences can then be located within this framework. Overall, the different occupational categories can be placed in different layers with each distinct layer distinguishing occupations

of increasing complexity or differing depths. Although the tasks to be undertaken in each layer are qualitatively different from the tasks in any layer, there will be overlapping knowledge.

The challenge to curriculum planners is, firstly to design units of study that will articulate with each other, and, secondly to move away from subject-based programmes. At present most courses are separated into subject-based courses – for example restorative dentistry or oral pathology or preventive dentistry. So, a topic like dental caries is covered in all three subjects, albeit with a different focus but a potential for conflicting messages. This can result in duplication and division – and occasionally confusion. Each occupational category has its own knowledge and skill requirements but their training can and should be allowed to overlap where possible, facilitating articulation, movement from one category to another and recognition of the roles and responsibilities of the different categories. The model described below proposes the reorganisation of separate physical sites and institutional structures and sub-structures.

The different occupational categories do have specific tasks that are their “own”, thus placing them within their own sub-system. These, as discussed, constitute the “scope of practice” for these professions. However, there are many common outcomes between these occupational groups that could form the basis of placing these on a grid in alignment with the aspirations of the NQF and SAQA. In the course-design process the depth and level at which the units of study interact should reflect this commonality of learning.

One way of achieving this is using the model proposed by the Professional Board for Oral Hygiene and Dental Therapy. This attempts to bring about some “unification” of the three occupational categories of dental assisting, oral hygiene and dental therapy by developing as its foundation *the competency-based ladder training system for oral health professions* (Professional Board for Dental Therapy and Oral Hygiene of the Health Professions Council of South Africa, 1999).

*Laddered training is a system in which personnel on each step of the ladder have all the competencies of the steps below them* (ibid section 1.1)  
and

*trainee Oral Health Personnel will be assessed for practical competencies on each step of the ladder before they pass up to the next step* (ibid section 1.3).

Units of learning, or modules as they are referred to here, were identified and grouped into three broad categories, which are, general, support and clinical competencies (Professional

synthesis and the thesis - making sense of what has been uncovered

Board for Dental Therapy and Oral Hygiene of the Health Professions Council of South Africa, 1999).

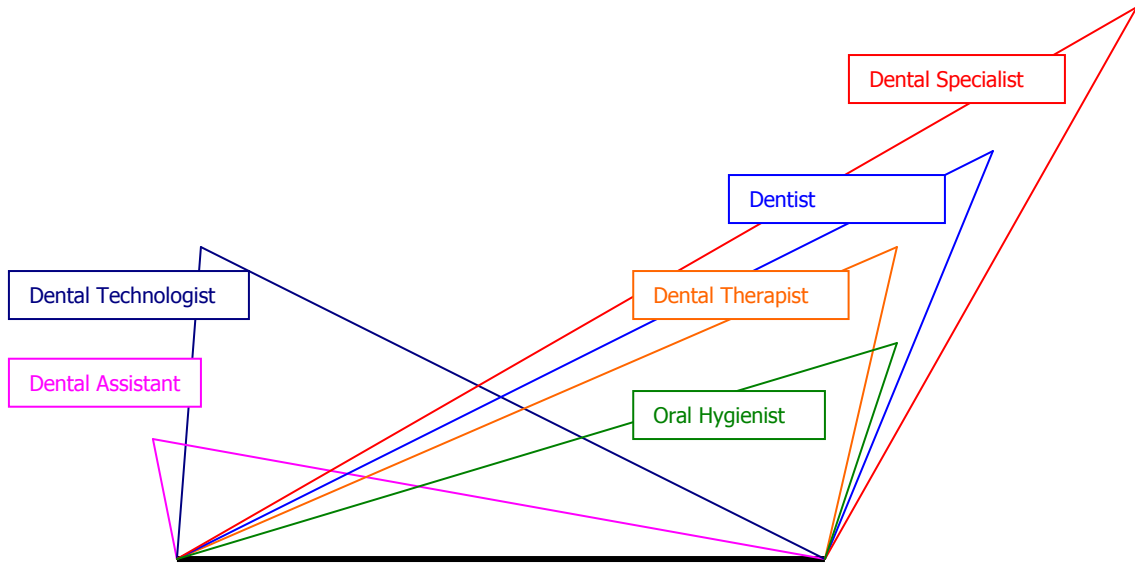
This is a good development but it is too two-dimensional - linear and vertical - in its approach. It focuses on obtaining credits and qualifications through a rigid and step-wise process. A model is proposed here that will encompass the three dimensions of depth, breadth and length. This can be graphically illustrated in only two dimensions.

Of the many possible scenarios, two are presented in Figure 6.4 and Figure 6.5 below to show the nested model of professional development.

synthesis and the thesis - making sense of what has been uncovered

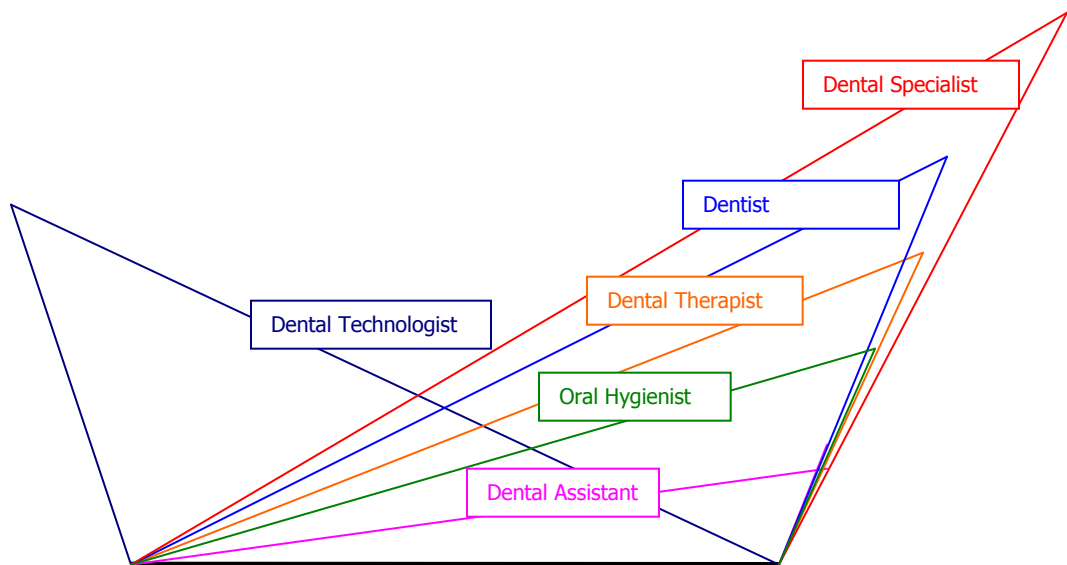
**Figure 6.2: The nested model of dental health science professional development – “The Sydney Opera House”: Scenario 1**

Occupational categories housed under one roof with dental assisting and dental technology showing earlier separation



**Figure 6.3: The nested model of dental health science professional development – “The Sydney Opera House”: Scenario 2**

Occupational categories housed under one roof with dental technology showing earlier separation



These models, termed the "Sydney Opera House", were introduced at a workshop that I attended, facilitated by Michael Samuel (Professional Board for Dental Therapy and Oral Hygiene of the Health Professions Council of South Africa, 2002), and is further developed here. The two scenarios depicted here differ in that in the first, dental assisting and dental technology deviate from the "nest" at an early stage of development whereas, in the second model dental assisting remains within the broader nest of the clinical dimension.

The one dimension that is easier to explain but difficult to depict, is the third plane - the transverse plane. Also, although the graphs follow sharp lines they do not necessarily have to follow this linear path. This is only shown for illustrative purposes. The whole encapsulates the sum total of the knowledge, skills and values that would determine the output of the programme for each of the occupational categories. The main idea that it conveys is that each of the occupational categories has its own scope of practice which is enveloped within the area of the triangle and the dimension that is not depicted. The assumption is that the fixed dimension is the minimum time frame within which the qualification can be achieved that envelopes the shape and provides the roof of programme which is an umbrella that encompasses a variety of shared activities. The common denominator for all occupational categories, which forms the base of the model, is *values*.

I find Miller's (1978) concept of "nesting" relevant here and I suggest that it would be appropriate to describe the units of study as overlapping and nesting. There are areas of natural combinations of knowledge allowing for overlap between the occupational categories where they share similar knowledge, skills, values and goals.

To add to the scaffolding it will be necessary to move away from traditional units of learning that are both based on subjects and compartmentalised within dental schools and in departments and to design a curriculum using an outcomes-based model of learning with levels of competences and abilities. This would also necessitate moving the boundaries and breaking down the walls of departments which generally hamper integrated and competence-based learning.

It should be realised, at this point, that an outcomes-based model does not imply wholesale adoption of OBET. Outcomes are the pre-specified, expected achievements against which to measure both that learning has taken place and the effectiveness (quality) of a specific programme (see 3.5.1.3 for a critique of OBET).

The two broad levels of competences that were identified at the workshop (Professional Board for Dental Therapy and Oral Hygiene of the Health Professions Council of South Africa, 2002) were:-

**general** competences which include

- the nature and dialogue in the workplace.
- business and practice management
- equipment maintenance and basic repair
- community health
- ethical and social issues in terms of community health and primary health care
- communication

**clinical** competences which include

- patient evaluation
- preventive
- therapeutics
- emergencies
- infection control

These competences are shared across the occupational categories but assessment criteria would naturally reflect the levels and complexities of the units of study for each category.

At present - as I learned from the interviews and questionnaires I conducted in the course of my research - each institute, each category of dental professional training, each discipline – and, in some cases, each educator, operates in isolation with few structures in place to facilitate – **in practice** - an overall vision to direct learning along shared and sound educational principles.

### **6.5.3 Teaching and learning**

In the following sub-sections I will theorise my findings related to the business end of dental curriculum and, in particular, teaching, learning and assessment.

These are to examine:

- staff characteristics – teaching
- student characteristics - learning
- the balance between knowledge and skills,

- some alternatives to conventional teaching

#### 6.5.3.1 Teaching: staff characteristics

The difficulty in recruiting suitable staff with both academic (meaning educational) and clinical skills is a recurring theme and has already been highlighted (Chapter Two). An analysis from the handbooks of three dental schools in this study showing the listings of full-time staff and their qualifications show educational qualifications at diploma level ranging from 8% to 22% across schools (see also Chapter 5 and Table 5.2). In contrast, between 2% and 29% have specialist dental qualifications across the three dental schools from which information was available.

It must be mentioned that it is not just the qualifications that are of importance but the management and sustainability of this area of staff development that is critical to implementing and designing programmes. There appears to be few structures to offer support to those innovative and creative educators who presently work in isolation without appropriate recognition or financial rewards.

#### 6.5.3.2 One-dimensional nature of teaching

It is apparent that teaching continues to be didactic and mainly in the *pre-technocratic* "apprenticeship" model. Assessment continues to be primarily geared towards a recall of facts and success here is dependent on rote learning.

The trainer, in the context of the dental curricula, is usually a "professional" in one dimension – that of her/his dental qualification. However, I suggest that s/he should be a dual professional – that is s/he should have both the passion to teach – to hand on the mysteries of her/his profession, and the qualifications and skills in order to do so. Many of the interviewees I spoke to did manifest that passion but found it hard to share it with other members of the teaching staff.

#### 6.5.3.3 Level and depth of teaching, learning and assessment

There are various descriptions used when looking at the depth and levels of learning. These range from that described by Martin as surface and deep (Martin, 1999); by Biggs as surface, deep and strategic (cited in McManus, 2001, p. 383); by CERTEC/SERTEC for the technikons as A-Type (skills, knowledge, learning and memorising), B-Type (application), C-Type (evaluation and analysis); or that by Alverno College (Mentkowski & Doherty, 1984) where

*Alverno's eight abilities* have six levels of performance within these domains of competences in which the abilities are demonstrated. To reiterate, as mentioned in Chapter Three (3.5.2), these are the areas of:

- communication
- analysis
- problem solving
- valuing in decision making
- social interaction
- taking responsibility for the environment
- involvement in the contemporary world
- aesthetic response should be encouraged.

It is important to accept that "depth of learning" is a relative concept. Obviously certain areas of knowledge-learning are much less profound at the dental assisting rung of the learning ladder than they are at the dentistry or dental specialist rung. However, at every level, learning related to the "scope of practice" must be deep. For example, the dental assistant will have a much deeper knowledge of, and understanding about, caring for and cleaning equipment. Thus depth of knowledge must be respected. It is simplistic to assume that the dental assistant, for example, should be taught at a superficial level. Her/his role is essential to the proper functioning of the dental team and to the management and treatment of the patient. Thus s/he must be properly prepared to take on that role and her/his special knowledge affirmed and rewarded.

My research revealed that the overwhelming method of final and "continuous" assessment still involves writing tests and final examinations per subject in the traditional way. This traditional examination system is designed to give a pseudo-measurable precision that can be demonstrated in the form of scores, marks and grades. In order to do so – only shallow learning with easily measurable answers can be examined. Examination in this way masks the competence of students per specific outcome and only demonstrates that the student has passed an examination in that subject. I would suggest that assessment procedures should be designed not only to assess the ability of student to pass a subject but also to include a wide array of formative and summative methods. Teaching staff need in-depth training and orientation in the management of these more meaningful methods of assessment. Since it is

very time-consuming, more resources, including administrative support personnel, will need to be allocated to all institutes.

To be less academic, assessment can be described as the tail that wags the dog! In other words, I argue that it is more appropriate to plan the assessment first as a measure of what should be learned and then work backwards to course planning and teaching methods. Thus, all three aspects; teaching, learning and assessment can be in harmony. Assessment can be planned

- with the emphasis on deep learning
- to allow the learner to integrate theory and practice
- to be continuous i.e. not *continual* with lots of little tests instead of one big one.

This sort of assessment requires lecturers and learners to rethink teaching, learning and assessment. It requires paradigm shifts. It will involve more work and commitment on the part of both lecturer and student.

*Assessment practices should send the right messages to the students about what they should be learning and how they should be learning it* (Biggs, 2003, p.140).

Integrated assessment, referred to in 5.5.0 is assessment which is fully integrated into the curriculum in such a way that it is:

- relevant to the context being taught at any specific time
- related to real life situations and problem-solving skills
- involves creative thinking
- organised across the whole curriculum

These are the skills which continue to be valuable after graduation and throughout the life of the professional.

This is assessment **for** learning (formative) but does not exclude assessment **of** learning (summative). Educators will need help and cannot be expected to implement these changes in isolation. Politicians promulgate these policies but do not follow through to offer resources and guidance to implement them.

The students know this – the assessment is probably the most important aspect of the curriculum to them and looms largely over the whole programme or course. They try to anticipate what they will be assessed on and learn that – Biggs calls this “*backwash*”. The curriculum creator must therefore design the assessment so as to align with what the student should be learning and then teach it – then the “backwash” becomes positive and enhances

meaningful learning. Thus the curriculum objectives indicate what learning-understanding-performance is expected on the completion of a unit or module. It is also necessary to establish at the outset the range of acceptability that indicates the levels of competence reached.

Once again, a forum where creative and proven ideas can be shared across institutes and programmes would benefit all areas of education and training. Teaching staff should also be offered the opportunity for systematic, continuous educational development (CED) to facilitate development of the knowledge and expertise of professional educators above and beyond their discipline-based knowledge and expertise. Newly appointed teaching staff should be selected for their commitment to, and interest in, education and expected to attend CED programmes.

#### 6.5.3.4 Time spent in obtaining in acquiring knowledge

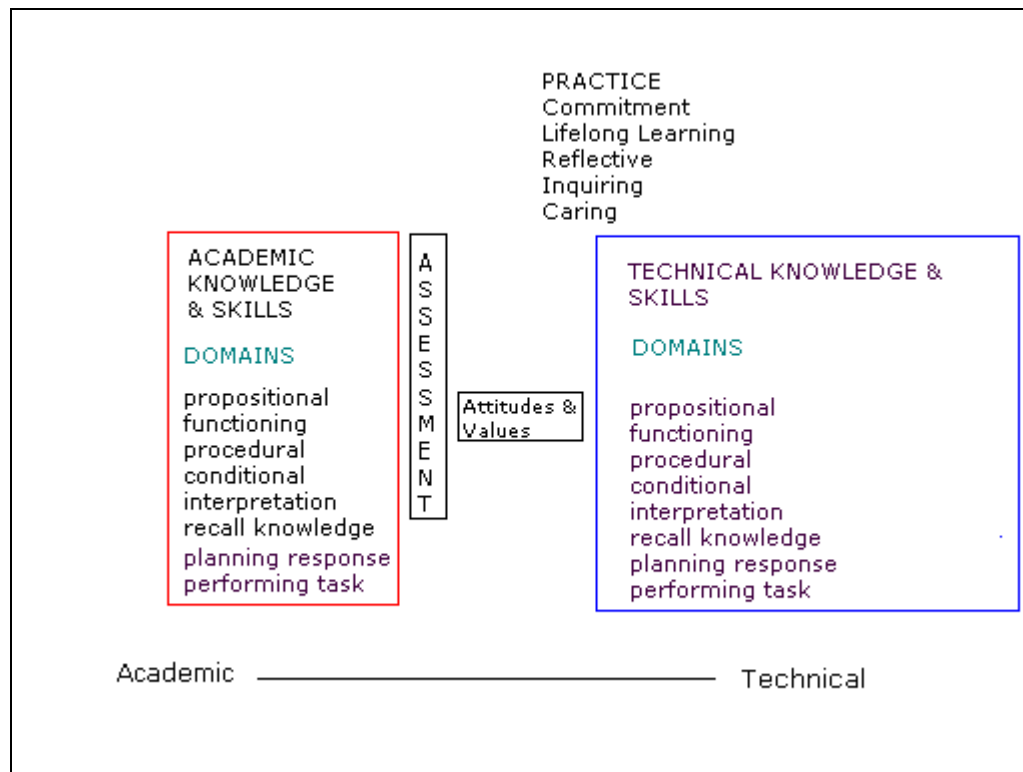
Many courses, where techniques are honed by repeated practice, occupy large chunks of the learners' contact time – usually in the pursuit of meeting “quotas” that are largely aimed at technical knowledge for technical skills and are more in the domain of procedural knowledge. Knowledge for practise that is gained in the different occupational categories of dental health sciences overall, appears to be dominated by technical knowledge - laboratory in the case of dental technology and clinical in the case of oral hygiene, dental therapy and dentistry. In the case of dental assisting it is dominated more by the management of the clinic and, as the name implies, to the techniques of assisting at the chair-side.

Clinical curricula, in particular, can also be looked at from the two paradigms of physician and surgeon/technician, the former requiring a great deal of theoretical knowledge and the latter in acquiring practical skill. Does this mean that teaching research methods be excluded, or that learning in critical cross-field areas be discouraged? To what extent should the curriculum be directed towards practical training? The present dental curriculum is too packed to permit electives, as was frequently remarked by the interviewees. I suggest that, on the contrary, enhancing abilities in the areas of communication, analysis, problem solving, valuing in decision making, social interaction, taking responsibility for the environment, involvement in the contemporary world and aesthetic response should be encouraged and promoted as vital components of a “new” dental science curriculum. These are the true hallmarks of the “professional” at every level. The honorary title of “professional” has been

denied to the dental assistant but, in fact, any person, who has the right attitude, even in the lowliest of job positions, can choose to be a "professional" and should be recognised as such. The duration of the programmes is based on empirical/historical arrangements and this needs to be revisited. Most interviewees have confirmed that programmes are too full and that there is no time for electives or more academic modules. Curricula need to be unpacked to examine what needs to be offered to achieve the stated objective – to develop a competent, effective and caring professional. Once again, an integrated curriculum that breaks down the rigid divisions between departments and disciplines will rationalise teaching and reduce time spent on the often confusing repetition of facts from one discipline to another. A leaner, meaner, more focused curriculum will allow opportunities for the inclusion of the relevant academic skills suggested above. A "size and shape" exercise on curriculum restructuring might be appropriate.

To relieve the congested nature of most programmes – as reported by interviewees – curricula could be viewed as open-ended. It is unrealistic to compact every detail of professional and discipline knowledge into a once-off programme. Basic knowledge and competences should be identified for inclusion and then more advanced or specialist knowledge and competencies included in on-going post-graduate professional development programmes.

The following model depicts the present separation of teaching, learning and assessment into "silos", with their respective domains of the types of knowledge (academic knowledge for academic skills and technical knowledge for technical skills) can be summed up and illustrated diagrammatically in Figure 6.4 below.

**Figure 6.4: Theory of practice and the practise of theory – the “silo” model**

#### 6.5.3.5 Learning: access and student characteristics

Designing courses and selecting for admission students with diverse biographical histories, economic circumstances, abilities (academic and psychomotor), potentials and academic achievements (as a measure of cognitive skills), coupled with their future commitment poses very difficult challenges.

Direct experiences with three institutes show that the demands of throughputs - in the institutional sense of the word - and admissions to reflect the demographic profiles, and the demand to increase the intake of disadvantaged students, place great strain on already understaffed schools and departments. This inevitably compromises the standard of delivery of the courses and may well interfere with learning and inevitably, professional development. The schools and departments must resist the pressure to accept under- and un-prepared applicants. If it is the institute's mission to redress disadvantage then it should be the

institutes who must accept the responsibility for these students. The departments and schools can then select suitable students from this pool.

Interviews suggested that little more than lip service is paid to the other criteria for selection - the manual dexterity of the individual, the intentions of the student upon qualification and the attitudes of the student, and the eventual practitioner, in order to actualise the fine-sounding mission statements that all declare a degree of social responsibility as one of their tenets. Selection and admission criteria must be more aligned to the achievement of these goals.

Dental technology admission criteria place emphasis on all three elements although it was revealed that the weight is still on the side of academic achievements and the population group that the applicant belongs to.

It was apparent from interviews and questionnaires that these other forms of screening applicants to the various categories of dental professional training had been considered and, indeed, tried in some cases. However, time, human resources and financial considerations militate against these time-consuming and resource-intensive methods. In a Utopian world it might be possible to imagine a national clearing house where the resources to select applicants are concentrated under one roof with skilled selectors dedicated to direct applicants and serve the educational institutes who can then select or reject.

As revealed in the interviews the need to make profits and to make programmes viable - as well as marketable - is a further consideration that exerts pressure on the selection of students in terms of numbers.

Intuitively we know that some people can handle more complex tasks than others, but recognising what makes one person more capable than another can be difficult. Matriculation grades may be a predictor but exclude those who are more capable and yet may be B or C grade candidates rather than A. One's ability to handle complexity is not static. It matures with age. If one is perceived not to currently have the ability to handle complexity at the level required of a certain position then barriers should not be placed which could forever block the ambitions of the individual who will mature with time. Planned articulation of courses would allow a means by which such students could mature and show their potential and overcome initial educational barriers. Graduating students who excel at one level should be offered the opportunity to go on to the next with recognition of their prior learning.

### 6.5.3.6 Alternatives to conventional teaching and learning

Conventional dental health science curricula usually consist of basic and applied sciences which are taught in the early months or years and these are followed by practical exercises and/or by clinical instructions and practice. Townsend et. al. (2001, p. 416) suggest that :-

*traditional teaching and learning philosophy has provided insufficient opportunities for students to improve their understanding of the world and develop generic attributes including critical thinking, as part of their growth as life-long learners.*

To encourage critical thinking the teaching and learning planners in schools and departments need to consider the philosophy of problem-based learning and outcomes-based methods - to move away from a paradigm embracing traditional teaching embedded in traditionally structured departments.

The shift in paradigm does not mean that the philosophies of problem-based learning and outcomes-based learning have to be taken in "one swallow", but the values and objectives from them need to be reflected upon and assimilated.

The documents that emanate from these institutes with regards to submissions to SAQA for interim registration of qualifications SAQA - particularly from the university programmes - all display the exit level outcomes in the SAQA format using SAQA-speak, but the "syllabi" are still in the subject and traditional mode focussing on technical competence and rote-learned subject-based knowledge. The technikon programmes exhibit a better understanding of the exit level and specific outcomes with the legacy of SERTEC/CERTEC which produced a shared discourse about pedagogy. Dental assisting is a very small self-standing department managed by one or two full-time people and supported by part-time staff and service departments. My observation is that the staff have been "socialised" by dental schools or dentists so they too are in a similar mould to the dental schools.

It is my belief that students who are examined in the traditional method, meaning that they are examined at the end of a course, through questions and answers which are primarily designed to determine their recall of knowledge through their writing skills, are not really assessed for **development** or **competence**. This dominant and traditional method of assessment masks the competence of an individual candidate in specific tasks/outcomes or their knowledge of that task/outcome and releases potential practitioners as having passed overall subjects. Again, it is worth repeating here the remarks made by Simpson (1976) which was also quoted in Section 5.5.5.

The *traditional examination systems*, as Simpson remarks (1976, p. 22),

*achieve(s) a high degree of pseudo-precision, producing relatively little information that is constructively useful for student or teachers, and conveying it in the form of scores and marks that appear falsely accurate . ...*

and as the results of pass or fail are pasted and posted for the candidates, gives the illusion that the task has been accomplished!

It is my argument that teaching and learning styles reflect on the development of the professional who should be a lifelong learner with responsibility for her/his own learning. Present teaching, learning and assessment practices do not promote this. A change in programmes to allow more study time rather than less, with personal assignments requiring research and self-learning and/or journaling to encourage reflection on practices and processes as well as the use of computer-programmes for self-testing are assessment methods that develop such attitudes. In-service training should be mandatory for all educators to allow them to develop the necessary knowledge and skills to implement these methods. A basic qualification in pedagogy – teaching, learning and assessment should be part of CED. Each centre for academic learning should have an education section to support and mentor dental educators.

#### **6.5.4 Summary**

In this section I have examined issues relating to the organisation of courses, teaching, learning and assessment. The operational aspects of the curriculum - meaning teaching/learning and assessment, were theorised and a model was presented to show how the separation between these can be brought into dialogue. Alternatives to the didactic teaching and rote-learning model of assessment of learning were discussed.

## **6.6 Section three: reconciliation - recalling the critical questions and linking the answers: a curriculum framework for undergraduate studies in dental health science**

As has been argued, there is no such thing as a “pure” curriculum. The curriculum, the curriculum designer and the curriculum consumer are all grounded in a multi-factorial context, which may be explicit or may be hidden.

The concept of a “curriculum framework” may suggest a rigid controlling structure. I use the word framework in the context of this study to mean an overarching umbrella beneath which sound principles and thoughts around curriculum and professional development can be gathered together. Curriculum frameworks can provide important scaffolding for curriculum planning.

*Whilst they may suggest control and direction they can also be a stimulus for evoking creative ideas and activities (Marsh, 2004, p.19).*

The framework that I propose is an implication of this study and is based on the findings of this study, the learning that took place during this study - including the literature reviews - and on the development of my own concepts and principles. It does not attempt to impose any rigid structures but rather an overall approach to curriculum design. The key components of this framework (the scope of practice, access, teaching and learning, assessment, course design and the regulatory frameworks) in the milieu of change have been extensively discussed previously and are brought together in this chapter.

At this juncture it is appropriate to recall the critical questions which were posed at the outset, how they were viewed through the lens, what was examined and what was found.

### **6.6.1 The questions**

The critical questions relate to the development of dental health science professionals and the curriculum required to developing these professionals.

The questions, therefore, were:-

#### **Critical Question 1. Nature of Professional Competence**

What is the nature of professional competences within dental health science?

The sub questions were:

- a) what constitutes the professional knowledge within dental health science occupations?
- b) what are the roles/identities of the different occupational positions?

### **Critical Question 2. Curriculum design**

How are curricula frameworks organised to develop the professional competences?

The sub questions were:-

- a) what are the assumptions/claims/gaps/silences related to professional competence in the offerings of education and training providers in South Africa
- b) what models of professional development were presented in these offerings?

### **6.6.2 The lens**

The multi-focal lens, used to look at these questions, focussed - through interviews, questionnaires, documents and observations, on the two programmes based in technikons - dental assisting (National Certificate: Dental Assisting), Dental Technology (National Diploma and Bachelor's) offered under the auspices of departments – and the three training programmes based in the universities - Oral Hygiene, (University Diploma in Oral Health), Dental Therapy (Bachelor of Dental Therapy) and Dentistry (Bachelor of Dentistry) offered under the auspices of schools and faculties - were listed in Chapters 5 and 6 (Sections 5.5.2 and 6.1 respectively).

These were:-

- roles and identities of the occupational categories
- access to training
- teaching, learning
- assessment practices
- organisation of courses to develop professionals
- managing change - how policies were received

### **6.6.3 Findings**

The distance between issues listed below was examined:

- policy and practice
- statements and practice

- the various regulating bodies
- accessing course of studies and admission
- satisfying local needs and the need to be internationally competitive
- occupational categories of dental assisting, dental technology, oral hygiene, dental therapy and dentistry
- knowledge for service and knowledge from academia
- teaching, learning and assessment
- knowledge, skills, values and attitudes.

I stated in Chapter Two that:

“it is not simply a matter of applying educational theory and principles, but is an amalgam of the complex history and experiences of the individual who is being developed, reinforced or disrupted by a rapidly changing social, economic and political landscape reflected in the policies that are reviewed”.

I have developed this argument throughout this thesis.

The critical questions relating to the nature of professional competence and curriculum design were addressed.

It was found that:

- ❖ The separation within and between the issues listed above and the fragmentation and disharmony throughout did not allow for real change to take place. The scope of practice of the occupational categories other than dentistry appeared to be arrived at in an ad hoc and piecemeal manner as did the regulation of all the different dental health professions
- ❖ Sites of training are fragmented and geographically inappropriate hindering both articulation of programmes and service provision
- ❖ The power of dentistry professionals as educators continues to dominate in most instances. The barriers imposed by the tribal boundaries of institutes and departments within schools in universities inhibit the implementation of a rationalised integrated curriculum
- ❖ Admission and selection procedures are based on criteria that are influenced more by political and administrative issues than to offering access to appropriate candidates

- ❖ From my interviews and observations, no overall structures appear to be in place to promote comprehensive (and comprehended) curricular changes in line with SAQA submissions and SAQA requirements
- ❖ Teaching, learning and assessment, on the whole, remain captured within a traditional mode without deep reflection on the relevance and effectiveness of this approach
- ❖ Dental educators are dental professionals first and, on the whole, no formal education qualifications are required
- ❖ There seems to be no deep understanding or commitment to ongoing quality assurance processes beyond evaluation of examination procedures.

## **6.7 Section four: limitations of study**

### **6.7.1 Selective on what and the way it is reported.**

We form our own style, a vocabulary and a language that is personal and intimate and which becomes our fingerprint. We use this to express - or suppress - our thoughts. Our thoughts tend to veer in the direction of the current trend – political, social and professional. Thus, the way we speak, the words we choose and the way we put sentences together is a public statement of who we are and how we think. Words, as objects, are neutral and universal but people add the specific meaning.

The choice of research approaches and research methods is a conscious attempt to engage with that which happens unconsciously. Research attempts to probe into our own psyche and what is accessed from fellow people and the media (in all their forms) at the time, and to select notions both positive and negative, in order to give them an airing and put forward an objective view. The reporting undergoes rigorous editing and vocabulary can slip in many guises without even knowing it. Ultimately there is the limitation - that of the individual - and the responsibility lies therein.

In Chapter Three I described two elements of curriculum

- the central activity or the core activity that is carried out on a daily basis with the educator/facilitator and the student/learner meaning the teaching, learning and assessment that is operational within a course framework and

▪ the numerous additional and multifactorial forces ranging from access to finance, biographies of the institutes and the students that are at play and which make up what could be called the total curriculum.

I also raised the issues of the formal and informal, and the espoused and hidden curriculum, together with knowledge that is public propositional and knowledge that is private.

However, it has only been possible within the constraints of this study to focus on the elements of the core activities and largely within the boundaries of the formal curriculum.

Future researchers, it is hoped would explore the areas that have been left unopened

### **6.7.2 Selective on what is collected and what is analysed**

It is felt that those interviewed, and, as a corollary those who were not interviewed, would give the researcher sufficient data that can be dealt with confidence - for example those students from the University of the Witwatersrand Dental School were not permitted to participate in completing the questionnaires. Whilst this is a limitation, it is felt that sufficient strength is gained from the students who did participate from all the schools of universities and departments in technikons. Only first and final year students of dental therapy, dental technology and dentistry participated in completing the questionnaires. Although this imposes a further limitation it is felt with some confidence that was not inhibiting as a large number of those who completed the questionnaires responded.

It will be seen from Table 4.6 and A4.1 that from a total of 884 questionnaires that were issued 683 were completed and returned – a satisfactory response rate of 77%.

## **6.8 Section five: implications from this study**

This journey has been a tremendous learning experience for me and I take this opportunity of sharing what I have learned in the expectation of modifying some of the set attitudes and expectations that I encountered at many locations on my journey. Since this research study is grounded theory it is appropriate to make a case for improvements in practice.

### **6.8.1 University or technikon?**

I have argued that the dental programmes presently based in universities are more technical and more skills-based than “academic”. Clinical dentistry, for example, has a large volume of skills which need to be acquired within a minimum period of five years. In this process,

students encounter a variety of cases calling on different skills, but not in a strictly planned or entirely predictable sequence for all the students.

The appropriate locations (and the duration of the programme) of the training sites were highlighted above where the question of the time spent in acquiring knowledge in developing the health professional was raised. All of the occupational categories trained are also of a vocational nature and a very small percentage of graduates enter the academic arena. So, the emphasis should surely be on preparing for a vocation and not preparing for academic careers. So I question why these programmes are based in universities.

The clinical disciplines are based in universities which gives, I suggest, those occupational categories an aura of being academic. The technikon-based programmes have a "technical" label attached to them. The strength of technikons is that they are better able to bring together the academic values associated with theories, principles and concepts and the values linked with being a professional – that of vocation and practice.

Yet the major clinical teaching of university-based programmes is undertaken off campus in community-based hospitals and, to a limited extent, in community-based clinics. The university-based programmes are serviced for their pre-clinical courses on campus and are, I suggest located in these institutes for the award of the degrees and university diplomas.

Whilst this has the advantage of students and some academics being socialised within this setting, it would seem to have three major disadvantages. The teaching is regulated by the parent university and schools have to conform to methods that are not always workable in a clinical setting. The service courses are not in synchronisation with the needs of the dental school and, finally, hard-pressed staff are often engaged in activities relating to faculty and university organisational issues. I would propose that all the teaching be located in Colleges of Dental Health Science – akin to the Academic Health Complexes recommended in the Health Act, way back in 1997 - accessible to the communities that they serve. Moola's draft of the National Oral Health Policy for South Africa (1995) also recommended that the education and training of all "cadres" of oral health personnel take place in Academic Oral Health Centres. It is the attachment to the parent institutes that needs to be reviewed.

These academic learning centres should not be geographically bounded. Outlying clinics, community-centres and outreach activities constitute the academic health complex and will provide practical experience for all categories of learners where knowledge and skills learned in the lecture room will be put into practice. Clinical instructors can be allocated to all sites to

oversee practice. Students can be assessed for their practical competences and patient-management skills on site.

This would make training, clinical practice and commitment to the community more relevant as well as facilitating opportunities for articulation. All resources, human and physical, can be shared instead of the costly, and inequitable, division and duplication of facilities that is the present set up. At the same time, movement from one programme to another is more feasible. It is accepted that, at present, the obstacles to articulation are more complex than just physical separation and this has been discussed above.

This arrangement would facilitate the option for post-graduate studies that include more advanced research skills and teaching skills for those who choose to pursue an academic or specialist career.

### **6.8.2 Co-ordinating the professional categories**

- Team approach - A co-ordinated approach

A team approach in the regulation of the professions is recommended. This requires cooperation between

- Universities and technikons
- Health Professions Council of South Africa and its separate Professional Boards
- HPCSA and the South African Dental Technicians' Council
- South African Qualifications SAQA and HEQC and the Councils
- Schools and departments (between and within)
- Departments of National and Provincial Health

Broader discussions and engagements of items raised by the CDD pertaining to curricula need to take place at the level of departments within schools.

There needs to be a new kind of partnership between the various stakeholders in order to make this team approach realisable. In the course of my research I came across a number of valuable ideas and methods. There should be a forum where these ideas – already proving successful – should be shared.

The role of the professional councils vis a vis the education bodies (CHE and NQF) will need to be re-examined and formalised in the interests of a more effective working partnership that will impact meaningfully on all aspects of the curriculum. Only by establishing such

partnerships can national standards be established across the whole range of dental health science education.

An over-all consensus can be established on learning outcomes that can be used as a yardstick by which to determine not only the learning that has taken place but also the effectiveness (quality) of the programmes. Stakeholders at all levels should be included in this process to ensure a bottom-up approach to assuring quality. The SERTEC/CERTEC process of quality control referred to in Chapter One has much to offer.

*Panels comprised representatives of industry, potential employers of students, professional bodies, students and academic staff ... Panels consistently sought the views of students (Council on Higher Education (CHE), 2000)*

- What about professional development for South Africa?

Irrespective of one's political or sociological standpoint, there will always be the rich and the poor, the advantaged and the disadvantaged. Services generally follow these lines and the education and training of dental health personnel is largely geared towards providing for the minority – that is those who can afford dental treatment and are prepared to pay highly for the more sophisticated treatments. This is in direct contradiction of many of the "mission statements" of the institutes. There is a paradox here. Dentists want – and deserve - to be qualified to compete in the international sphere yet a service must be provided for the majority of the population. How do you get the balance right and teach for South Africa? There should be a fairer system of funding of the educational activities of the schools and departments and an equitable provision of resources, both human and physical.

The arguments presented through the dental association and highlighted in Chapter Two call for the demise of this category of dental professional (dental therapist). The arguments promulgated I suggest, are based on self interest and questions what dental therapists do in practice and where they do it. They centre round the lack of control of dental therapists who provide treatment, beyond their scope of practice, to patients in the private sector, and the lack of job opportunities in the public sector. A further accusation is that they focus largely on the "drill and fill" techniques in the private sector. It will be recalled from Chapter Two that of the dentists registered with the HPCSA 78% are based in the three provinces of Gauteng, Western Cape and KwaZulu-Natal and the majority operate in the private sector and possibly in the three metropolitan areas of the provinces. Dental therapists, I suggest,

are the appropriate mid-level dental professionals to provide services to the majority of South Africa's population at present. This category of dental personnel must be retained and increased resources provided for their training, their proper deployment within communities and their financial rewards. Dentists are not, by and large, offering a service to disadvantaged communities who require basic dental care that can be provided by this category of dental professional. This is not to imply that this is a second-rate service or that dental therapists are second-rate professionals. It is an appropriate service with professionals trained at an appropriate level. The case of denturists providing a service to the disadvantaged should also not be overlooked. Strategies for training and service provision should be aimed at the size and shape of an equitable and appropriate distribution of dental health professionals. They should have acquired the knowledge, skills and values through a teaching, learning and assessment experience that is of a quality and be committed to provide care for those who can afford and those who cannot afford to pay for dental health care.

- Curriculum Management and Course Design

Actual management of the curriculum should be an ongoing process with a person, preferably with experience in educational principles and concepts and a commitment to engage with these. S/he should be appointed to co-ordinate, lead and monitor the programme. Staff should be regularly evaluated for participation and understanding of curriculum activities. My impression is that present qualifications in education and/or "orientation" to the curriculum are insufficient for the better implementation of the programme. Opportunities to contribute to the design of the courses should not be limited to those units for which they have the responsibility to teach.

Whilst a national curriculum is in the realms of fantasy for the foreseeable future, an overall curriculum consultative process would bring coherence and co-operation to the process. Included in this consultative process should be representatives of the potential employers and consumers so that curricula can be relevant to the work situation and to service provision.

It also appears that many of the lecturing staff have a limited understanding of, or commitment to, a broad curriculum and are focussed on what they perceive as their subject and their range of knowledge and skills rather than on the development of the

curriculum as a whole, living system. Ongoing staff development should feature in all educational institutions.

- Admission and Selection

Discrimination of one kind or another is inherent in the selection. That there is a hierarchy of personnel with dentists at the top is probably inevitable. I would suggest, however, that this hierarchy is made conscious and the essential roles of the "lower ranks" affirmed and acknowledged. This will enhance recruitment, promote self-respect within all ranks and result in better performances – to the betterment of service-delivery and consumer satisfaction. Obtaining the level of grades is partially determined by the social level and the ability of the individuals to access secondary education facilities. This cements and preserves the "elitist" position of the occupational categories that enjoy higher status.

The demands around selection numbers and categories need to be reviewed.

Higher education institutes, and the schools and departments linked to them, have attempted to address the challenges posed by the SAQA demand for social mobility. The admission and selection bar is sometimes lowered by schools and departments for particular population groups in order to "balance the books" with regards to transformatory issues. At the same time, some departments and schools in technikons and universities have also addressed this by taking in those with unacceptably lower grades by providing bridging programmes, mentorship programmes, academic development programmes and language development programmes. This may have addressed the challenges in the short term and directed at a few and given a "feel good" factor to those involved. As suggested, course design should allow for qualification mobility and inclusion of those who have not met the initial admission criteria but have performed well at a subsequent post matriculation level. It is, however, unrealistic to imagine that any educational institution can redress social, economic and political inequities – even should they aspire to do so. As Bundy remarked *to take education out of apartheid may be easier than taking apartheid out of education*. (Bundy, 2002).

The administrative method of selection, which relies entirely on matriculation grades, with some manipulation to "balance the books", should be discouraged as should the quota system which demands a certain racial pattern to acceptance.

Issues related to the neo-liberal approach which moves away from the public good to free trade must also be examined. Within the neo-liberal approach private enterprise is freed from

government control and, as a result, there is a reduction in social spending. In the context of higher education this means that profit margins dominate. Within the development of dental health professionals it implies that provision for the wealthier population is favoured.

To this I would add that selection should aim at characteristics that are more likely to predict future professional behaviour. These include learning style and motivation, communicative ability and integrity. To these I would also add manual dexterity. Of course, selection processes which focus on these alternative traits will be time-consuming and require skills far beyond analysis of subject-passes and grades but in the end will result in competent and satisfied learners and, eventually, consumers.

- Teaching Strategies

Whilst there is some lip-service paid to problem-based learning and teaching, most of the teaching, I discovered, is based around didactic methods in classrooms and by demonstrations (sometimes remonstrations) in "how to do" methods by the "chair-side" and mainly within the confines of the traditional subject manner. Teaching, learning and assessment should be based around competences within an enquiry framework. Reflection on learning should be promoted for both educator and student.

At present, most teaching is educator - and administration-centred. A revolutionary move would be to make it learner- and consumer-centred and so align itself to the declared aim of the health services to move from a professional and bureaucratic-centred to one that is patient- centred.

This research has allowed me to deconstruct the discourse underlying most of present curricula. I would suggest that the technological discourse - described in Chapter Three, 3.4.2 – is closest to what I found.

The weaknesses highlighted by Bines (Bines, 1992) and reported in Chapter Three – 3.5.1.3 – were confirmed by my research in that:

- there may be variations in concepts of professional competence, the knowledge base that is transmitted and approaches in the approaches to teaching both theory and practice and degrees of student's choice,
- it can easily fragment overall learning into unrelated parts,
- it fails to reflect the nature of professional knowledge and action and the ways in which professionals actually develop their practice.

It is appropriate to refer again to Leinhard et. al. (1995, p.403) with his types of knowledge that seem to encapsulate the dichotomy I have described:

- professional knowledge that tends to be procedural, specific and pragmatic and deals with executing, applying and making priorities whereas
- university knowledge that tends to be declarative, abstract and conceptual and deals with labelling, differentiating, elaborating and justifying.

- Assessment

In order to bring about meaningful changes in teaching and learning, changes in the methods and timing of assessment must be effected. At present, as I have shown, the majority of assessment is summative and focussed on examining “the tip of the iceberg” of the sum of knowledge that makes up the professional – what can be objectively tested to demonstrate ‘learning’.

Competence-based learning and continuous assessment focuses on the deep learning – the much more significant ‘knowledge in action’ that lies beneath the surface.

Deep learning, as reported in Chapter Three, is more likely to be engendered by:

- assessment methods that foster active and long term engagement with learning tasks
- stimulating and considerate teaching
- clearly stated academic expectations
- opportunities to exercise responsible choices in the method and content of study
- previous experience of educational settings that encourage these approaches (Martin, 1999, p.28).

- Vocational Training

All of the educational categories trained are of a vocational nature and a very small percentage of graduates enter academia. Dentists may prefer the term “professional” but, as I have argued, the majority are being trained for the technically-intensive vocation of dentistry. Incidentally, the term “vocation” which is currently used in a somewhat demeaning way, means “a calling” and was ascribed to nurses and to religious community members. In all the occupational categories an emphasis on practice management and training within a practice environment needs to be given some attention. In my experience, learning really

begins once one has achieved the basic qualification and begins to practise. Post-graduate training in certified practices should become mandatory for an "intern" year following basic qualification.

Within the education – especially of dentists – there is also a liberal discourse (see Chapter Three, Section 3.4.2) the "cultural identity" of the profession is passed on from generation to generation as an implicit part of the curriculum. This hegemonic paradigm is established by the dominant group in any organisation and accepted uncritically by the majority. These roles are often very resistant to change (Beecham, 2000). I refer back to Chapter Three (Section 3.5) in which I present Eraut's definitions (Eraut, 1992, p.98) of *professionalism* as opposed to *professionalization*. It would appear that, in light of the findings related to the career ambitions of dental students (Chapter Five) it is the latter definition related to the status, elitism and rewards that is the hegemonic definition that is passed down the developing dentist. It is the former definition, emphasising the ideology of service that should be the emphasis. The new dental professional should be able to reflect on not only on her or his own service provision but service provision to South Africa as a whole and be a force for positive change.

- Resources

In South Africa, the skewed geographical distribution of dental training schools, with five "full" faculties located in two provinces and in close proximity of each other, means that their facilities are physically not accessible to large sections of the population. Human resources - or lack of sufficient appropriately trained human resources - must reduce the effectiveness of even the best curriculum. The allocation of resources, physical and human, is a political issue and government must demonstrate its belief in the new education system by allocating the resources with which to implement it. It is not just the academic staff that impact on the effective implementation of the curriculum but also the back-up administrative staff, the library personnel and even the general staff. The funding of the dental education institutes needs to be reviewed to ensure equity of resource delivery. One Academic Learning Centre should be allocated to each province facilitating access both for students and for consumers ensuring an equitable distribution of quality dental health care.

It is only through a significant governmental initiative and significant input into the relevant education and training of dental health professionals that the present incongruities of dental health service provision can be redressed.

- Research

The opportunities for further research in all the broad areas covered is manifest. Research into more meaningful assessment methods will impact upon teaching and learning. I mentioned in Chapter Two that collection of data related to dental health education is erratic and unreliable and there are few research papers around this issue. There is an obvious need for a reliable mechanism for data collection, storage and dissemination to be used for both research into improving dental health education and for appropriate service provision.

Whilst not directly related to my own research, a new national oral health survey of all South Africans would give an indication for the categories, numbers and allocation policy of dental health personnel required.

Further research is necessary into the appropriate pedagogical strategies that will prove most effective for the development of relevant dental health professionals.

A huge gap has become evident in that the broader aspects of curriculum have been necessarily ignored in this study (see below 6.7.1) and this is another area for research.

## 6.9 Chapter six: general conclusion

*All developed health care systems operate on the basis of tribalism. That is, they are composed of various tribes, including managers, clinicians, nurses and professionals allied to medicine, all of which are represented by various professional associations. All of these tribes have slightly different goals and perceptions of what constitutes effective care and are pulling in somewhat different directions. As well as inter-professional tribalism, there can also be intra-professional tribalism. Health care systems are not monolithic entities but pluralistic organizations in which competing interests jockey for attention. Within particular tribes, like clinicians, there are subgroups or factions made up of the separate specialities. The task of management has been to bring the various tribes together in order to make them work as a team and to show corporate loyalty to the organization as distinct from their particular profession. Health care reform, which has become something of a pandemic over the past few years, has at its core a concern with these issues. In particular, reform has stressed the need for improved management as a means of achieving increased efficiency among health care personnel and better accountability for what they do through closer performance monitoring (Hunter, 1996, p. 799).*

Change is an inevitable phenomenon within a living system and, it seems, has been for throughout human history.

*It seems that nothing much has changed in over 2000 years!  
We trained hard but it seemed that every time we were beginning to form up teams, we would be reorganised. I was to learn that later in life that we tend to meet any new situation by reorganisation: And what a wonderful method it can be for creating the illusion of progress while producing confusion, inefficiency and demoralisation  
Petronius Arbiter, Greek Navy 210 BC*

It seems appropriate to conclude with the same quotation that opened this exploration.

Bryan Nicholson, Chairman of the National Council for Vocational Qualifications in the United Kingdom, writes in the foreword to the book *Developing Professional Education* (Nicholson, 1992, p.viii).

*as we approach the end of the twentieth century, higher education and the world of work are increasingly being urged to work together to meet social and economic priorities. Training, directed towards the acquisition of skills and competences, and education, directed towards acquisition of knowledge and development of self-critical reflection, are also on a converging and mutually reinforcing path. In some senses not much of this is new. International comparisons with our national record of participation in post-compulsory education, as well as of the outcomes in terms of highly skilled personnel, have been debated between government, educational providers and employers at least since the Royal Commissions of the late nineteenth century. When we get behind the data war of the government and educational statisticians, it remains true that education, industry, and the professions must work together to fill the skills gap and to supply people of vision and judgement in order to meet our immediate and long-term objectives.*

Educators will indeed be faced with a myriad number of challenges that are likely to be immeasurably more difficult to negotiate than the years that have gone before, not least because they may be tempted into a false sense of having arrived at their destination, when the truth of the matter is that we still have a long way to go.

The journey continues.....

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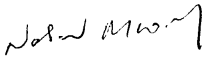
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## **Appendices**

Appendix 1: Ethical Clearance .....	270
Appendix 2: Interview schedule .....	271
Appendix 3: Questionnaire.....	275
Appendix 4: Tables and Figures .....	284
Appendix 5: Glossary.....	316
Appendix 6: Regulations defining the scope of the profession of oral hygiene .....	323
Appendix 7: Regulations defining the scope of the profession of dental therapy.....	324
Appendix 8: Regulations defining the scope of the profession of dentistry .....	326
Appendix 9: Document output .....	328

**Appendix 1: Ethical Clearance**

	<b>University of Durban-Westville</b>	PRIVATE BAG X54001 DURBAN 4000 SOUTH AFRICA TELEGRAMS: 'UDWEST' TELEX: 6-23228 SA FAX: (031)204 4383 ☎ (031)204-4111
		<b>RESEARCH ADMINISTRATION</b>
02 MAY 2001		
<b>DR. MHE LAHER EDUCATIONAL STUDIES</b>		TEL: (031)204 5000 FAX: (031)204 4083
ALL CORRESPONDENCE TO BE ADDRESSED TO: THE HEAD – RESEARCH ADMINISTRATION		
Dear Dr. Laher		
<b><u>ETHICAL CLEARANCE NUMBER: 01033A</u></b>		
I wish to confirm that ethical clearance has been granted for the following project, but subject to an acceptable interview schedule and questionnaire (reviewed by Faculty Research Committee) being submitted to Research Administration:		
<b>“A curriculum framework for undergraduate studies in Dental Science.”</b>		
Thank you		
Yours faithfully		
		
<b>NELSON MOODLEY HEAD: RESEARCH ADMINISTRATION</b>		
<b>PS: The following general condition is applicable to all projects that have been granted ethical clearance:</b>		
<b>THE RELEVANT AUTHORITIES SHOULD BE CONTACTED IN ORDER TO OBTAIN THE NECESSARY APPROVAL SHOULD THE RESEARCH INVOLVE UTILIZATION OF SPACE AND/OR FACILITIES AT OTHER INSTITUTIONS/ORGANISATIONS</b>		
cc. Director of School cc. Supervisor		

**Appendix 2: Interview schedule**

**M.H.E. Laher: A Curriculum Framework for Undergraduate Studies in Dental Science**

**INTERVIEW SCHEDULE WITH CURRICULUM PLANNERS**

**Semi structured interview - List of questions to be asked at meetings with members of Faculty/Department/Programmes who were involved with completing the SAQA submissions and/or are involved with curriculum planning**

**Note:**

1. All information obtained in this interview will be used with the strictest of confidence and will be used only for research purposes. No names of individuals or Institutes will be mentioned in any written documents or general communications except with the permission of the Institute
2. An audio recording of the meeting will be done with the permission of all the participants.

**PURPOSE**

**Meetings 1 & 2 - Curriculum Planners**

The purpose of the interview is:

- to ascertain from the curriculum planners what are their perceived roles of the different occupational categories within dental health sciences
- to establish how the perceptions influenced the development of the curriculum frameworks designed by the institution and the delivery
- to determine what curriculum frameworks have been formally established to achieve those roles
- to determine what perceptions there are in the named institute of preparing the dental professional

**Date, place and time of interview :** .....

**Name/s of Curriculum Planners/Committee members** (to complete table below)

Name	Qualifications	Remarks

## QUESTIONS

### 1. PREPARATION AND PROCESS OF SAQA SUBMISSIONS

1. What processes in your institution were set up when asked in 1999 to submit applications for registration of your programmes with SAQA?
2. Who compiled your documents? Why?
3. Who else was involved in the preparations of the documents? Why?
4. What influence did this process have on the curriculum development within the institution?

### 2. QUALIFICATION TITLE

1. What qualifications do you offer at this Institute?
2. Does the name of the qualification accurately reflect the course you are offering? Why? Why not?
3. If NO, what name would you give to this qualification? Why?

### 3. PURPOSE OF QUALIFICATION

1. Do you agree that the purpose of your course is to supply competent professionals to the dental profession?
2. What does this purpose mean for you as an educator of these professionals?
3. If NO, how would you define this purpose?

### 4. ACCESS

1. What Matric. grades do you think would make the optimal dental professional for the qualifications you offer?
2. Do you think it is absolutely necessary to have Mathematics, Science and/or Biology at Matric. in order to study for the qualifications you offer? Why? Why not?
3. What processes are used to select students into the programmes you offer?

### 5. DURATION OF THE COURSE

1. How has stipulated the duration of the course been stipulated?
2. Do you think you could do with more time or less time for each of the programmes to prepare your student for practice? Why? Why not?

### 6. LEVEL DESCRIPTORS

1. What do you think is the understanding of the teaching staff of the SAQA framework for Higher Education?
2. How did you arrive at the level descriptors that you have shown on your SAQA submission?

**7. CURRICULUM AND SYLLABI**

1. Does your Institute offer a year programme or a modular programme?
2. If MODULAR, how is your modular programme constructed?
3. Are all your modules core modules or do you have any elective modules?
4. Is the curriculum detailed in your SAQA submission identical to or contradicts the curriculum offered in the Institute calendar?
5. How does your curriculum, as shown in your current calendar, compare with your pre-SAQA curricula?
6. Since your SAQA submission planning, how are primary health care issues reflected in your curriculum?
7. Are primary health care issues delivered in a separate module or are they integrated across the curriculum?
8. In what ways have you ensured that all teaching staff members have been familiarised with primary health care outcomes?
9. What difference does/would the inclusion of primary health care outcomes into the curriculum make to the methods of teaching and learning in your programmes?

**8. EXIT LEVEL OUTCOMES AND ASSOCIATED ASSESSMENT CRITERIA**

1. How were the exit level outcomes and associated criteria arrived at?
2. What categories of people were involved in establishing the exit level criteria and associated criteria? Why? Why not?
3. Have your assessment methods changed in the past two to three years?

**9. INTEGRATED ASSESSMENT**

1. Are the different methods of integrated assessment applied across all modules?
2. How have teaching staff members been trained to apply the different methods of integrated assessment?
3. Are all teaching staff members familiar with and comfortable with the different methods of integrated assessment?

**10. CREDITS**

1. What were the elective components of the curriculum framework?
2. How were the electives selected/elected/recommended/prescribed?
3. Do you see value for the students in engaging with the elective courses?

**11. ARTICULATION POSSIBILITIES**

1. If your student leaves at any point in the training, is it possible for them to enter another training Institute and recommence training at the same point? Why? Why not?
2. If YES, what steps have you taken to ensure that this happens?

**12. CRITERIA FOR THE REGISTRATION OF ASSESSORS**

1. How are your assessors/examiners selected?
2. Are all examiners/assessors familiar with the whole curriculum and its underlying principles?

**13. MODERATION OPTIONS**

1. What role does the professional board/council play in the planning of your curriculum?
2. What role does the professional board/council play in the moderation of your examinations/assessments?
3. How many examiners/assessors are involved at each level of assessment/examination?

**14. QUALITY ASSURANCE**

1. What quality assurance measures are in place? Institutional/ Faculty/ Section/individual?
2. What is your level of satisfaction with the quality of students who are exiting from your programmes at the present time?

**15. ENROLMENT**

1. Do you think that the number of professionals that you are enrolling/training will all find jobs?

**16. REGISTERING BODY**

1. What role did the professional body play in the designing and submission of your programme/s?
2. Did you submit a copy of your documents to the professional body?

**17. ANY QUESTIONS, ISSUES, REMARKS**

1. Is there anything you wish to add?

**18. THANK YOU**

**Appendix 3: Questionnaire****A Curriculum Framework for Undergraduate Studies in Dental Science****Questionnaire to be completed by undergraduates****PURPOSE OF QUESTIONNAIRE**

The purpose of this questionnaire is to establish your views about: -

- your entry into the current programme of studies
- your experiences of the learning process in place
- the opportunities you hope to pursue

**Dear Student,**

**You will greatly assist me by taking about 15-20 minutes in completing the questions.**

All information obtained from this questionnaire will be used with the strictest of confidence and will be used only for research purposes. No names of individuals or Institutes will be mentioned in any written documents or general communications.

**Thank you for taking the time to complete this questionnaire.**

M.H.E. Laher.  
July, 2002.

-----

SERIAL NO.

--	--

**QUESTIONS TO BE COMPLETED**

**(Note)** The information you provide below will only be used for the sorting out and grouping of data for analysis.

**Please complete all information on this questionnaire by placing a X where appropriate.**

**1 Personal Details**

1.1 Gender

MALE	1	FEMALE	2
------	---	--------	---

1.2 Population Group

BLACK	1
WHITE	2
INDIAN	3
COLOURED	4
OTHER (SPECIFY)	5

**2 Schooling**

2.1 Which type of secondary school would you say you attended?

FORMER BLACK	1
FORMER WHITE	2
FORMER INDIAN	3
FORMER COLOURED	4
PRIVATE	5
OTHER (SPECIFY)	6

**3 Access**

3.1 What type of Matriculation Certificate have you obtained?

WITH EXEMPTION	1	WITHOUT EXEMPTION	2
----------------	---	-------------------	---

3.2 What was your overall aggregate?

A	1
B	2
C	3
D	4
E	5
OTHER (SPECIFY)	6

3.3 Do you have any of the following subjects in your Matriculation Certificate?

MATHS	YES		1	NO		4
SCIENCE	YES		2	NO		5
BIOLOGY	YES		3	NO		6

3.4 Do you think it is necessary to have the following subjects in order to do the course that you are presently doing?

MATHS	YES		1	NO		4
SCIENCE	YES		2	NO		5
BIOLOGY	YES		3	NO		6

3.5 Do you have any other post matriculation certificates and or attended other courses before you registered for the current degree/diploma that you are studying for? Please specify.

(eg.B.Sc. First Year) \_\_\_\_\_

3.6 How easy was it for you to gain admission into the degree/diploma that you are studying for at present?

VERY DIFFICULT		1
DIFFICULT		2
EASY		3
VERY EASY		4

3.7 Did you apply to study for a dental sciences course/programme at any other institution?

YES		1
NO		2
NOT SURE		3

3.8 If yes, state the name/s of the institute and the course/programme for which the application was made.

COURSE		1
INSTITUTE		2

COURSE		3
INSTITUTE		4

COURSE		5
INSTITUTE		6

3.9 Do you think you need to have good subject grades in Matric in order to do well in your current degree/diploma programme?

YES		1
NO		2
NOT SURE		3

**4 Course details**

4.1 Which course are you presently studying?

---

4.2 What year of study?

---

4.3 What is the title of the degree/diploma?

---

4.4 As a student are you registered with a professional body/council?

YES		1
NO		2
NOT SURE		3

4.5 If your answer is yes to the above question please specify which body/council

---

4.6 How long is your degree/diploma programme?

1 YEAR		1
2 YEARS		2
3 YEARS		3
4 YEARS		4
5 YEARS		5
6 YEARS		6

**5 Satisfaction**

5.1 Do you think your degree/diploma programme is too long, too short, or just right?

TOO LONG		1
TOO SHORT		2
JUST RIGHT		3

5.2 If too long or too short, how long do you think your degree/diploma programme should last?

\_\_\_\_\_ years \_\_\_\_\_ months

---

5.3 Would you like to have done another degree/diploma instead?

YES		1
NO		2
NOT SURE		3

5.4 If yes what would you like to have done?

\_\_\_\_\_

**6 Time Table**

6.1 Do you think your timetable allows for sufficient free or study time?

YES		1
NO		2
NOT SURE		3

6.2 If NO, how many hours per day would you like to have allocated for this purpose?

1-2 HOURS		1
2-3 HOURS		2
3-4 HOURS		3
MORE THAN 4 HOURS		4

6.3 Which courses/modules do you think you spend too much time on?

\_\_\_\_\_

6.4 Which courses/modules do you think you spend too little time on?

\_\_\_\_\_

6.5 Which course/modules do you think are irrelevant or unnecessary?

\_\_\_\_\_

**7 Outreach/ Community Work**

7.1 Do you regularly do any work outside your institute, e.g. outreach clinic or community clinic?

YES		1
NO		2
NOT SURE		3

7.2 Do you think this work is a waste of time?

YES		1
NO		2
NOT SURE		3

**8 Tests/Examinations**

8.1 (Complete one of the options below). Which of the following methods of assessment do you prefer?

To write only a final examination in a course/module at the end of the year?		1
To write tests/assignments/and other forms of assessment in each course instead of a final examination?		2
To write tests/assignments/and other forms of assessment in each course as well as a final examination?		3
Any other preferences? please specify.		4

**9 Lecture Notes/ Study Guides**

9.1 Generally, are you provided with study guides and/or lecture notes (handouts) in some, most or all of the modules/courses?

<b>STUDY GUIDES</b>	1	<b>Lecture notes/Handouts</b>	7
SOME	2	SOME	8
MOST	3	MOST	9
ALL	4	ALL	10
NONE	5	NONE	11
NOT SURE	6	NOT SURE	12

9.2 When you are given notes/guides, do you make further notes from text books/journals?

YES		1
NO		2
NOT SURE		3

9.3 How often do you use the library for your own work?

ONCE A WEEK		1
TWICE A WEEK		2
THREE TIMES A WEEK		3
MORE THAN THREE TIMES A WEEK		4
NEVER		5
OTHER (SPECIFY)		6

**10 Electives**

10.1 Do you do any elective courses?

YES		1
NO		2
IF YES SPECIFY WHICH		3

10.2 Do you think electives are a waste of time?

YES		1
no		2
NOT SURE		3

**11 Teaching/Learning**

11.1 Do you have any courses that employ the problem-based learning (PBL) method of teaching/learning?

YES		1
no		2
NOT SURE		3

11.2 If yes, do you prefer it to the conventional method of attending lectures?

YES (PREFER PBL)		1
no (prefer conventional)		2
NOT SURE		3

11.3 Do you have any courses that employ the experiential method of teaching/learning?

YES		1
no		2
NOT SURE		3

11.4 If yes, do you prefer it to the conventional method of attending lectures?

YES (PREFER EXPERENTIAL)		1
no (prefer conventional)		2
NOT SURE		3

11.5 Do you think that attending lectures is really necessary?

YES		1
no		2
NOT SURE		3

11.6 Which of the following do you mainly use to study for examinations?

method of information	mainly	1	occasion-ally	7	rarely	13	never	19
Lecture notes/handouts		2		8		14		20
Own notes		3		9		15		21
Study guides		4		10		16		22
Text books		5		11		17		23
Other (specify)		6		12		18		24

**12 Professional Structure**

12.1 Would you agree that the dental profession has the following hierarchical structure?

- 1 Dentist
- 2 Technician
- 3 Therapist
- 4 Hygienist
- 5 Assistant

YES		1
no		2
NOT SURE		3

**13 Career**

13.1 Community Service: Do you agree with the following statement?

	1	2	3	4
Statement	strongly agree	agree	disagree	strongly disagree
When I complete my studies I do not feel that I have to pay back by doing community service				

13.2 Read the following statements. Number them 1-5 in order of importance to you (1= very important....5=not so important).

13.2.1 earning a high income		1
13.2.2 status as a professional		2
13.2.3 that I am highly skilled		3
13.2.4 providing a highly technical "state of the art" service to those who can afford it		4
13.2.5 providing basic services to the community		5

13.3 When you qualify where would you like to work (after you have completed community service, if applicable)?

PRIVATE PRACTICE		1
HOSPITAL		2
CLINIC		3
UNIVERSITY/TECHNIKON		4
ABROAD		5
OTHER (SPECIFY)		6

13.4 Where do you think you would most likely find a job?

PRIVATE PRACTICE		1
HOSPITAL		2
CLINIC		3
UNIVERSITY/TECHNIKON		4
ABROAD		5
OTHER (SPECIFY)		6

13.5 Would you like to further your studies?

\_\_\_\_\_

13.6 What would you like to do?

\_\_\_\_\_

**14 further comments about your programme/ course?**

\_\_\_\_\_  
 \_\_\_\_\_

**15 further comments about your role in the development of the country?**

\_\_\_\_\_  
 \_\_\_\_\_

**THANK YOU FOR TAKING THE TIME TO COMPLETE THIS QUESTIONNAIRE**

## Appendix 4: Tables and Figures

### Tables

Table A4.1: No. and percentage of responses to questionnaires (August-October 2002).....	286
Table A4.2: Percentage and Number (n) of students per occupational category per institute .....	287
Table A4.3: Percentage of students per occupational category and per department/school (study) .....	288
Table A4.4: Percentages of students per department/school.....	289
Table A4.5: Number of students enrolled in the different occupational categories in dental institutes .....	290
Table A4.6: Percentage of students enrolled within the different occupational categories in dental institutes .....	290
Table A4.7: Percentage of students and type of matriculation certificate .....	291
Table A4.8: Number of students and the aggregate matriculation grade.....	292
Table A4.9: Percentage of dental assisting students and matriculation grades .....	293
Table A4.10: Percentage of dental technology students and matriculation grades .....	293
Table A4.11: Percentage of oral health students and matriculation grades.....	294
Table A4.12: Percentage of dental therapy students and matriculation grades .....	294
Table A4.13: Percentage of dentistry students and matriculation grades .....	295
Table A4.14: Response to the question "do you think you need to have good subject grades"?	296
Table A4.15: Learning style per occupational category .....	297
Table A4.16: Learning styles used when studying for examination purposes .....	298
Table A4.17: Provision of study guides .....	299
Table A4.18: Provision of lecture notes.....	300
Table A4.19: Provision of Lecture Notes/Study Guides and further notes .....	301
Table A4.20: Time spent in libraries .....	301
Table A4.21: Level of free time available on the time-table.....	302
Table A4.22: Free-time on time-table .....	302
Table A4.23: Continue to further studies .....	303
Table A4.24: Continue to further studies in dental therapy .....	304
Table A4.25: Further their studies in the area of dentistry. ....	304
Table A4.26: Work after qualification .....	305
Table A4.27: Preferences of work after qualification.....	306
Table A4.28: Percentage of students per occupational category who ranked in order of importance to the statements .....	307
Table A4.29: Profession is hierarchical with dentists at the top (n)? .....	308
Table A4.30: Profession is hierarchical with dentists at the top (%)? .....	308

**Appendix 4****Figures**

Figure A4.1: Percentage of students per occupational category per institute.....	309
Figure A4.2: Percentage of students enrolled within different occupational categories.....	310
Figure A4.3: Percentage of dental assisting students and matriculation grades .....	311
Figure A4.4: Percentage of dental technology students and matriculation grades.....	311
Figure A4.5: Percentage of oral health students and matriculation grades .....	312
Figure A4.6: Percentage of dental therapy students and matriculation grades.....	312
Figure A4.7: Percentage of dentistry students and matriculation grades .....	313
Figure A4.8: Free-time on the time-table .....	314
Figure A4.9: Profession is hierarchical with dentists at the top (%)?.....	315

Appendices

A curriculum framework for undergraduate studies in dental health science

appendix 4 – table A4.1

**Table A4.1: No. and percentage of responses to questionnaires (August-October 2002)**

Number of students per qualification, per institute, per year of studies, per programme of studies.

Note: Figures in columns:- Row 1 \* denotes the number of students in a given year of study to whom questionnaires were issued (class size); Row 2 numbers in brackets ( ) indicate the number of questionnaires that were completed and returned 3; Row 3 in percentages the rate of responses from the total number of students in any one year; Total 1 = students targeted, Tot 2 = all students

Institute	Dental Assist	Dental Technology				Oral Health			Dental Therapy			Dentistry					Tot	Tot	
	Yr 1	Yr 1	Yr 2	Yr 3	Yr 4	Yr 1	Yr 2	Yr 3	Yr 1	Yr 2	Yr 3	Yr 1	Yr 2	Yr 3	Yr 4	Yr 5	Yr 5+	1	2
Free State Technikon	*24 (18) 75%																	24 (18) 75%	24 (18) 75%
ML Sultan Technikon	*36 (34) 94%																	36 (34) 94%	36 (34) 94%
Pretoria Technikon	*36 (29) 81%	*25 (23) 92%	18	18	*9 (5) 56%													70 (57) 81%	106 (57) 54%
Pentech	*35 (32) 91%	*25 (25) 100%	23	19	*15 (15) 100%													75 (72) 96%	117 (72) 62%
Natal Technikon		*27 (18+9) 100%	25	15	*15 (10) 67%													42 (37) 88%	82 (37) 45%
UDW						*6 (5) 83%	3	---	*21 (21) 100%	20	*17 (15) 88%							44 (41) 93%	67 (41) 61%
MEDUNSA						*9 (9) 100%	*5 (5) 100%	---	*7 (7) 100%	22	*12 (7) 58%	*43 (41) 95%	50	44	45	*45 (22) 49%	---	121 (91) 75%	282 (91) 32%
Wits University						*12 (0)	*7 (0)	---				*36 (0)	40	32	39	*31 (0)	*5 (0)	91 (0) 0%	202 (0) 0%
Pretoria University						*21 (13) 62%	*19 (15) 79%	---				*64 (10) 16%	63	65	54	*51 (48) 94%	---	155 (86) 55%	337 (86) 26%
Stellenbosch University						*13 (12) 92%	*18 (18) 100%	---				*67 (34) 51%	49	37	*42 (38) 90%	*48 (33) 69%	---	188 (135) 72%	274 (135) 49%
UWC						*20 (10) 50%	*15 (13) 87%	*8 (3) 38%				*64 (57) 89%	44	48	29	*32 (29) 91%	---	139 (112) 80%	260 (112) 43%
Totals	131	77	66	52	39	81	67	8	28	42	29	274	246	226	209	207	5	985	1787
-Wits	131	77	66	52	39	69	60	8	28	-	-	238	206	194	170	176	0	884	1585
(-Wits)	(113)	(75)	-	-	(30)	(49)	(51)	(3)	(28)	-	(22)	(142)	-	-	(38)	(132)	-	(683)	(683)
-Wits	86%	97%	-	-	77%	71%	85%	38%	100%	-	76%	60%	-	-	90%	75%	-	77%	43%
+Wits																		69%	38%

**Table A4.2: Percentage and Number (n) of students per occupational category per institute**  
(Calculated from respondents)

Course	Institute	Population Group										Total (n)
		not filled in	Black	White	Indian	Coloured	Malay	South African	Chinese	African	dont know	
dental assisting	Pret Tech	3 (1)	21 (6)	72(21)	0	3(1)	0	0	0	0	0	(29)
	Pen tech	0	28 (9)	3 (1)	3(1)	66(21)	0	0	0	0	0	(32)
	MLS Tech	0	100(34)	0	0	0(0)	0	0	0	0	0	(34)
	FS Tech	0	50 (9)	39 (7)	0	11(2)	0	0	0	0	0	(18)
dental technology	Pret Tech	0	11 (3)	86(24)	4(1)	0(0)	0	0	0	0	0	(28)
	Pen tech	0	10 (4)	68(27)	3(1)	18(7)	3(1)	0	0	0	0	(40)
	NatalTech	0	38 (14)	19(7)	41(15)	3(1)	0	0	0	0	0	(37)
oral health	Stell Univ	0	3 (1)	77(23)	0	20(6)	0	0	0	0	0	(30)
	UWC	0	19 (5)	4(1)	0	73(19)	0	4	0	0	0	(26)
	UDW	0	40 (2)	0	60(3)	0	0	0	0	0	0	(5)
	MEDUNSA	0	100(14)	0	0	0	0	0	0	0	0	(14)
	Pret Univ	0	7 (2)	93(26)	0	0	0	0	0	0	0	(28)
dental therapy	UDW	3 (1)	42 (15)	0	50(18)	6(2)	0	0	0	0	0	(36)
	MEDUNS	0	100(14)	0	0	0	0	0	0	0	0	(14)
dentistry	Stell Univ	1 (1)	1 (1)	81(85)	7(7)	10(11)	0	0	0	0	0	(105)
	UWC	2 (2)	28 (24)	1(1)	29(25)	34(29)	0	0	2	2(2)	1(1)	(86)
	MEDUNSA	2 (1)	86 (55)	3(2)	9(6)	0	0	0	0	0	0	(64)
	Pret Univ	0	7 (4)	88(51)	5(3)	0	0	0	0	0	0	(58)
Total % (N)		1 (6)	32 (216)	40 (276)	12 (80)	14 (99)	0 (1)	0 (1)	0 (2)	0 (2)	0 (1)	100 (684)

**Table A4.3: Percentage of students per occupational category and per department/school (study)**  
(obtained from study and through questionnaires administered)

Occupational category	dept/school	Population Group						Total %	Total No. (N)
		not filled	black	white	indian	coloured	Other		
dental assisting	Pret Tech	3	21	72	0	3	0	100	29
dental assisting	Pen tech	0	28	3	3	66	0	100	32
dental assisting	MLS Tech	0	100	0	0	0	0	100	34
dental assisting	FS Tech	0	50	39	0	11	0	100	18
dental technology	Pret Tech	0	11	86	4	0	0	100	28
dental technology	Pen tech	0	10	68	3	18	3	100	40
dental technology	Natal Tech	0	38	19	41	3	0	100	37
oral health	Stell Univ	0	3	77	0	20	0	100	30
oral health	UWC	0	19	4	0	73	4	100	26
oral health	UDW	0	40	0	60	0	0	100	5
oral health	MEDUNSA	0	100	0	0	0	0	100	14
oral health	Pret Univ	0	7	93	0	0	0	100	28
dental therapy	UDW	3	42	0	50	6	0	100	36
dental therapy	MEDUNSA	0	100	0	0	0	0	100	14
dentistry	Stell Univ	1	1	81	7	10	0	100	105
dentistry	UWC	2	28	1	29	34	6	100	86
dentistry	MEDUNSA	2	86	3	9	0	0	100	64
dentistry	Pret Univ	0	7	88	5	0	0	100	58
	TOTAL	1	32	40	12	14	0	100	684

**Table A4.4: Percentages of students per department/school**  
- (MESAB)

Occupational category	department /school	Population Group					Total %	Total No. (N)
		not filled	black	white	indian	coloured		
dental assisting	Pret Tech	0	34	61	0	5	100	38
dental assisting	Pen tech	0	28	0	3	69	100	36
dental assisting	MLS Tech	100	0	0	0	0	100	0
dental assisting	FS Tech	0	50	35	0	15	100	26
dental technology	Pret Tech	0	7	92	0	1	100	90
dental technology	Pen tech	0	9	62	4	26	100	82
dental technology	Natal Tech	0	42	25	32	1	100	88
oral health	Stell Univ	0	3	78	0	19	100	32
oral health	UWC	0	20	0	0	76	100	24
oral health	UDW	0	67	0	33	0	100	9
oral health	MEDUNSA	0	100	0	0	0	100	13
oral health	Pret Univ	0	10	90	0	0	100	42
oral health	Wits	100	0	0	0	0	100	0
dental therapy	UDW	0	48	0	48	3	100	58
dental therapy	MEDUNSA	0	100	0	0	0	100	58
dentistry	Stell Univ	0	1	81	5	13	100	291
dentistry	UWC	0	31	1	34	34	100	235
dentistry	MEDUNSA	0	83	4	13	0	100	224
dentistry	Pret Univ	0	14	72	12	2	100	280
dentistry	Wits	0	48	12	39	1	100	353
		0	34	37	18	11	100	1999

**Table A4.5: Number of students enrolled in the different occupational categories in dental institutes**

Data obtained from MESAB - data supplemented by own study, data for MLS assisting and no data for Wits Oral Health was available to MESAB

Course	Population Group				Total
	black	white	indian	coloured	
<b>dental assisting</b>	70	32	1	31	134
<b>dental technology</b>	50	156	31	23	260
<b>oral health</b>	29	63	3	25	121
<b>dental therapy</b>	86	0	28	2	116
<b>dentistry</b>	473	490	295	125	1383
<b>all</b>	708	741	358	206	2014

**Table A4.6: Percentage of students enrolled within the different occupational categories in dental institutes**

Data obtained from MESAB - data supplemented by own study, data for MLS assisting and no data for Wits Oral Health was available to MESAB

Course	Population Group				Total
	black	white	indian	coloured	
<b>dental assisting</b>	52	24	1	23	100
<b>dental technology</b>	19	60	12	9	100
<b>oral health</b>	24	52	2	21	100
<b>dental therapy</b>	74	0	24	2	100
<b>dentistry</b>	34	35	21	9	100
<b>all</b>	35	37	18	10	100

**Table A4.7: Percentage of students and type of matriculation certificate**

- per occupational category per institute.

Which course presently registered for	Institute	Type of matriculation certificate obtained (%)			
		not filled in	with exemption	without exemption	Total
dental assisting	Pret Tech	0	55	45	100
	Pen tech	3	34	63	100
	MLS Tech	0	56	44	100
	FS Tech	0	28	72	100
dental technology	Pret Tech	4	86	11	100
	Pen tech	0	65	35	100
	Natal Tech	3	76	22	100
oral health	Stell Univ	0	93	7	100
	UWC	0	42	58	100
	UDW	0	80	20	100
	MEDUNSA	0	100	0	100
	Pret Univ	4	96	0	100
dental therapy	UDW	0	100	0	100
	MEDUNSA	0	100	0	100
dentistry	Stell Univ	3	93	4	100
	UWC	2	97	1	100
	MEDUNSA	2	98	0	100
	Pret Univ	0	100	0	100
	Total	1	83	16	100

**Table A4.8: Number of students and the aggregate matriculation grade**

- in matriculation examinations per occupational category per institute.

		not filled in	Grd A	Grd B	Grd C	Grd D	Grd E	other	dent assisting	dent technology	oral health	dent therapy	Dentistry
dental assisting	FS Tech	3	2		2	8	2	1	18				
	MLS Tech	15	1	2	9	4	1	2	34				
	Pret Tech	4		4	16	4	1	0	29				
	Pen Tech	5	1	2	7	12	4	1	32				
dental technology	Pret Tech	1	1	6	17	3		0		28			
	Pen tech	2		7	17	11	2	1		40			
	Natal Tech	1	1	5	14	14	2			37			
oral health	UDW	2				3		0			5		
	MED-UNSA	3		1	2	3	3	2			14		
	Pret Univ	3		13	11	1		0			28		
	Stell Univ			13	15	2		0			30		
	UWC	1		1	10	11	3	0			26		
dental therapy	UDW	2	1	16	13	4		0				36	
	MED-UNSA	2			4	7		1				14	
dentistry	MED-UNSA	3	4	13	22	17	3	2					64
	Pret Univ	1	21	28	4	2	1	1					58
	Stell Univ	1	54	45	4	1		0					105
	UWC	1	13	32	30	7	1	2					86

**Table A4.9: Percentage of dental assisting students and matriculation grades**

- per institute per population group

Institute	Pop Group	Percentage of students and the Matriculation Grades							No N
		not filled in	Grade A	Grade B	Grade C	Grade D	Grade E	other	
Pret Tech	not filled in	0	0	0	100	0	0	0	1
Pret Tech	black	17	0	0	17	50	17	0	6
Pen tech	black	0	0	0	11	44	33	11	9
MLS Tech	black	44	3	6	26	12	3	6	34
FS Tech	black	33	0	0	0	44	11	11	9
Pret Tech	white	14	0	19	62	5	0	0	21
Pen tech	white	100	0	0	0	0	0	0	1
FS Tech	white	0	14	0	29	43	14	0	7
Pret Tech	coloured	0	0	0	100	0	0	0	1
Pen tech	coloured	19	5	10	29	38	0	0	21
FS Tech	coloured	0	50	0	0	50	0	0	2
Pen tech	indian	0	0	0	0	0	100	0	1
Pret Tech	TOTALS	14	0	14	55	14	3	0	29
Pen tech	TOTALS	16	3	6	22	38	13	3	32
MLS Tech	TOTALS	44	3	6	26	12	3	6	34
FS Tech	TOTALS	17	11	0	11	44	11	6	18

**Table A4.10: Percentage of dental technology students and matriculation grades**

- per institute per population group

Institute	Pop Grp	Percentage of students and the Matriculation Grades							No N
		grade not filled in	Grade A	Grade B	Grade C	Grade D	Grade E	other	
Pret Tech	black	33	33	33	0	0	0	0	3
Pen tech	black	0	0	25	0	25	50	0	4
Natal Tech	black	7	0	14	21	57	0	0	14
Pret Tech	white	0	0	21	71	8	0	0	24
Pen tech	white	4	0	19	44	30	0	4	27
Natal Tech	white	0	0	14	71	0	14	0	7
Pen tech	coloured	0	0	14	71	14	0	0	7
Natal Tech	coloured	0	0	0	100	0	0	0	1
Pret Tech	indian	0	0	0	0	100	0	0	1
Pen tech	indian	0	0	0	0	100	0	0	1
Natal Tech	indian	0	7	13	33	40	7	0	15
Pen tech	Malay	100	0	0	0	0	0	0	1
Pret Tech	Total	4	4	21	61	11	0	0	28
Pen tech	Total	5	0	18	43	28	5	3	40
Natal Tech	Total	3	3	14	38	38	5	0	37

**Table A4.11: Percentage of oral health students and matriculation grades**  
- per institute per population group

Institute	Pop Grp	Percentage of students and the Matriculation Grades							No N
		not filled in	Grade A	Grade B	Grade C	Grade D	Grade E	other	
Stell Univ	black	0	0	0	0	100	0	0	1
UWC		20	0	0	40	40	0	0	5
UDW		100	0	0	0	0	0	0	2
MEDUNSA		21	0	7	14	21	21	14	14
Pret Univ		50	0	0	0	50	0	0	2
Stell Univ	white	0	0	52	43	4	0	0	23
UWC		0	0	0	0	100	0	0	1
Pret Univ		8	0	50	42	0	0	0	26
Stell Univ	coloured	0	0	17	83	0	0	0	6
UWC		0	0	5	42	42	11	0	19
UDW	indian	0	0	0	0	100	0	0	3
UWC	S African	0	0	0	0	0	100	0	1
Stell Univ	Total	0	0	43	50	7	0	0	30
UWC		4	0	4	38	42	12	0	26
UDW		40	0	0	0	60	0	0	5
MEDUNSA		21	0	7	14	21	21	14	14
Pret Univ		11	0	46	39	4	0	0	28

**Table A4.12: Percentage of dental therapy students and matriculation grades**  
- per institute per population group

Institute	Pop Grp	Percentage of students and the Matriculation Grades								No N
		not filled in	Grade A	Grade B	Grade C	Grade D	Grade E	other	TOTALS	
UDW	not filled in	0	0	0	100	0	0	0	100	1
UDW	black	13	0	27	40	20	0	0	100	15
MEDUNSA	black	14	0	0	29	50	0	7	100	14
UDW	coloured	0	0	0	100	0	0	0	100	2
UDW	indian	0	6	67	22	6	0	0	100	18
UDW	Total	6	3	44	36	11	0	0	100	36
MEDUNSA	Total	14	0	0	29	50	0	7	100	14

**Table A4.13: Percentage of dentistry students and matriculation grades**  
- per institute per population group

Institute	Pop Grp	Percentage of students and the Matriculation Grades								No N
		not filled in	Grade A	Grade B	Grade C	Grade D	Grade E	other	TOTAL S	
Stell Univ	not filled in	0	0	100	0	0	0	0	100	1
UWC	not filled in	0	50	50	0	0	0	0	100	2
UWC	dont know	0	0	0	100	0	0	0	100	1
MEDUNSA	not filled in	0	0	0	0	100	0	0	100	1
Stell Univ	black	0	0	100	0	0	0	0	100	1
UWC	black	4	21	21	33	13	0	8	100	24
MEDUNSA	black	5	2	16	38	29	5	4	100	55
Pret Univ	black	0	0	0	25	25	25	25	100	4
Stell Univ	white	1	56	42	0	0	0	0	100	85
UWC	white	0	0	100	0	0	0	0	100	1
MEDUNSA	white	0	0	50	50	0	0	0	100	2
Pret Univ	white	2	41	51	4	2	0	0	100	51
Stell Univ	coloured	0	18	36	36	9	0	0	100	11
UWC	coloured	0	3	38	52	3	3	0	100	29
Stell Univ	indian	0	57	43	0	0	0	0	100	7
UWC	indian	0	20	52	24	4	0	0	100	25
MEDUNSA	indian	0	50	50	0	0	0	0	100	6
Pret Univ	indian	0	0	67	33	0	0	0	100	3
UWC	chinese	0	50	50	0	0	0	0	100	2
UWC	African	0	0	0	0	100	0	0	100	2
Stell Univ	Total	1	51	43	4	1	0	0	100	105
UWC	Total	1	15	37	35	8	1	2	100	86
MEDUNSA	Total	5	6	20	34	27	5	3	100	64
Pret Univ	Total	2	36	48	7	3	2	2	100	58

**Table A4.14: Response to the question “do you think you need to have good subject grades”?**

- Percentage of students per occupational category from the various institutes who responded to the question “do you think you need to have good subject grades in Matric in order to do well in your current degree/diploma programme?”

Course	Institute	need to have good subject grades in order to do well in present course?(N)					
		yes	no	not sure	not filled in	Total	N
dental assisting	Pret Tech	52	31	17	0	100	29
	Pen tech	28	50	22	0	100	32
	MLS Tech	59	26	15	0	100	34
	FS Tech	72	22	6	0	100	18
	Total	50	34	16	0	100	113
dental technology	Pret Tech	54	29	18	0	100	28
	Pen tech	43	30	28	0	100	40
	Natal Tech	35	43	16	5	100	37
	Total	43	34	21	2	100	105
oral health	Stell Univ	70	17	13	0	100	30
	UWC	42	50	8	0	100	26
	UDW	60	20	20	0	100	5
	MEDUNSA	50	36	7	7	100	14
	Pret Univ	61	11	25	4	100	28
	Total	57	26	15	2	100	103
dental therapy	UDW	64	17	19	0	100	36
	MEDUNSA	50	36	14	0	100	14
	Total	60	22	18	0	100	50
dentistry	Stell Univ	72	21	7	0	100	105
	UWC	55	40	6	0	100	86
	MEDUNSA	64	25	9	2	100	64
	Pret Univ	45	41	14	0	100	58
	Total	61	31	8	0	100	313

**Table A4.15: Learning style per occupational category**

	Dental Assisting		Dental Technology		Oral Health		Dental Therapy		Dentistry		Total
	Count	% within study	Count	% within study	Count	% within study	Count	% within study	Count	% within study	Count
Mainly Lecture notes	80	74.1	78	75.7	90	87.4	46	92	266	85.3	560
Mainly own notes	67	62	57	55.3	50	48.5	16	32	148	47.4	338
Mainly Study guides	11	10.2	27	26.2	17	16.5	5	10	71	22.8	131
Mainly text books	43	39.8	50	48.5	34	33	13	26	145	46.5	285
Mainly Other	0	0	1	1	3	2.9	1	2	7	2.2	12
Occ Lecture Notes	21	19.4	17	16.5	12	11.7	1	2	33	10.6	84
Occ Own Notes	21	19.4	32	31.1	35	34	25	50	100	32.1	213
Occ Study Guides	31	28.7	21	20.4	24	23.3	8	16	72	23.1	156
Occ Text Books	26	24.1	33	32	35	34	24	48	106	34	224
Occ Other	0	0	3	2.9	2	1.9	1	2	7	2.2	13
Rarely Lecture Notes	2	1.9	1	1	2	1.9	2	4	3	1	10
Rarely Own Notes	6	5.6	4	3.9	8	7.8	3	6	24	7.7	45
Rarely Study Guides	23	21.3	22	21.4	23	22.3	11	22	53	17	132
Rarely Text Books	10	9.3	8	7.8	17	16.5	8	16	34	10.9	77
Rarely Other	2	1.9	4	3.9	0	0	3	6	6	1.9	15
Never Lecture Notes	0	0	1	1	1	1	0	0	1	0.3	3
Never Own Notes	1	0.9	0	0	1	1	1	2	3	1	6
Never Study Guides	13	12	8	7.8	13	12.6	14	28	38	12.2	86
Never TB	8	7.4	3	2.9	5	4.9	0	0	5	1.6	21
Never Other	2	1.9	3	2.9	8	7.8	3	6	13	4.2	29
Total Cases	108		103		103		50		312		676

**Table A4.16: Learning styles used when studying for examination purposes**

- Dentistry students responses (multiple responses invited) to the question of the learning styles used when studying for examination purposes

Dentistry									
Learning Styles	Stell Univ		UWC		MEDUNSA		Pret Univ		Totals
	Count	% within study	Count	% within study	Count	% within study	Count	% within study	
Mainly Lecture notes	101	96	61	71	55	86	49	84	
Mainly own notes	45	43	54	63	25	39	24	41	
Mainly Study guides	18	17	20	23	23	36	10	17	
Mainly text books	25	24	68	79	31	48	21	36	
Occ Lecture Notes	2	2	17	20	6	9	8	14	
Occ Own Notes	32	30	20	23	22	34	26	45	
Occ Study Guides	26	25	12	14	15	23	19	33	
Occ Text Books	49	47	11	13	23	36	23	40	
Occ Other	1	1	4	5	0	0	2	3	
Rarely Lecture Notes	0	0	3	3	0	0	0	0	
Rarely Own Notes	9	9	6	7	6	9	3	5	
Rarely Study Guides	17	16	12	14	8	13	16	28	
Rarely Text Books	17	16	3	3	4	6	10	17	
Rarely Other	2	2	2	2	0	0	2	3	
Never Lecture Notes	0	0	1	1	0	0	0	0	
Never Study Guides	16	15	13	15	4	6	5	9	
Never TB	2	2	1	1	1	2	1	2	
Never Other	4	4	3	3	0	0	6	10	
Mainly Other	1	1	4	5	2	3	0	0	
Never Own Notes	0	0	2	2	1	2	0	0	
Total Responses	367		317		226		225		1135
Total Cases	105		86		64		58		313
Percentages and totals are based on responses.									

**Table A4.17: Provision of study guides**

- Responses in percentages to the question of the level provision STUDY GUIDES - % within count

Occupational category	Institute	not filled in	some	most	all	none	not sure	Total	No. of students
dental assisting	Pret Tech	7	7	45	41	0	0	100	29
	Pen tech	3	9	9	69	6	3	100	32
	MLS Tech	12	41	3	3	41	0	100	34
	FS Tech	6	0	39	56	0	0	100	18
	Total	7	17	21	40	14	1	100	113
dental technology	Pret Tech	0	7	32	57	0	4	100	28
	Pen tech	0	10	38	45	5	3	100	40
	Natal Tech	0	14	22	65	0	0	100	37
	Total	0	10	30	55	2	2	100	105
oral health	Stell Univ	7	23	43	23	0	3	100	30
	UWC	4	46	12	12	19	8	100	26
	UDW	0	20	0	0	80	0	100	5
	MEDUNSA	7	29	21	21	21	0	100	14
	Pret Univ	4	21	39	36	0	0	100	28
	Total	5	29	29	22	12	3	100	103
dental therapy	UDW	6	25	8	0	56	6	100	36
	MEDUNSA	0	36	21	14	21	7	100	14
	Total	4	28	12	4	46	6	100	50
dentistry	Stell Univ	8	28	23	22	18	2	100	105
	UWC	0	52	14	0	33	1	100	86
	MEDUNSA	13	31	25	9	19	3	100	64
	Pret Univ	0	22	53	24	0	0	100	58
	Total	5	34	27	14	19	2	100	313

**Table A4.18: Provision of lecture notes**

- Responses in percentages to the question of the level provision lecture notes - % within count

Category	Institute	not filled in	some	most	all	none	not sure	TOTAL	No. of students
dental assisting	Pret Tech	7	14	48	31	0	0	100	29
	Pen tech	19	13	19	34	9	6	100	32
	MLS Tech	6	35	29	29	0	0	100	34
	FS Tech	6	44	17	33	0	0	100	18
	Total	10	25	29	32	3	2	100	113
dental technology	Pret Tech	11	32	39	11	7	0	100	28
	Pen tech	10	30	25	20	13	3	100	40
	Natal Tech	3	35	35	22	5	0	100	37
	Total	8	32	32	18	9	1	100	105
oral health	Stell Univ	7	3	43	47	0	0	100	30
	UWC	0	54	23	23	0	0	100	26
	UDW	0	40	60	0	0	0	100	5
	MEDUNSA	7	29	43	21	0	0	100	14
	Pret Univ	14	39	39	7	0	0	100	28
	Total	7	31	38	24	0	0	100	103
dental therapy	UDW	6	56	36	3	0	0	100	36
	MEDUNSA	7	21	57	14	0	0	100	14
	Total	6	46	42	6	0	0	100	50
dentistry	Stell Univ	10	13	61	15	1	0	100	105
	UWC	9	57	17	8	7	1	100	86
	MEDUNSA	3	34	48	13	2	0	100	64
	Pret Univ	7	66	21	3	3	0	100	58
	Total	8	39	39	11	3	0	100	313

**Table A4.19: Provision of Lecture Notes/Study Guides and further notes**

- Responses in percentages to the question of the level provision of Lecture Notes/Study Guides and whether further notes are made when these are provided - % within count

Category	Institute	Yes	No	Not Sure	not filled in	sometim es	TOTAL	No. of students
dental assisting	Pret Tech	86	10	3	0	0	100	29
	Pen tech	63	34	3	0	0	100	32
	MLS Tech	82	9	9	0	0	100	34
	FS Tech	78	17	0	6	0	100	18
	Total	77	18	4	1	0	100	113
dental technology	Pret Tech	71	25	4	0	0	100	28
	Pen tech	78	8	8	5	3	100	40
	Natal Tech	76	22	3	0	0	100	37
	Total	75	17	5	2	1	100	105
oral health	Stell Univ	53	43	3	0	0	100	30
	UWC	65	27	4	4	0	100	26
	UDW	80	20	0	0	0	100	5
	MEDUNSA	79	7	14	0	0	100	14
	Pret Univ	50	46	4	0	0	100	28
	Total	60	34	5	1	0	100	103
dental therapy	UDW	64	28	8	0	0	100	36
	MEDUNSA	64	21	14	0	0	100	14
	Total	64	26	10	0	0	100	50
dentistry	Stell Univ	59	30	10	2	0	100	105
	UWC	90	6	3	0	1	100	86
	MEDUNSA	77	20	3	0	0	100	64
	Pret Univ	69	28	3	0	0	100	58
	Total	73	21	5	1	0	100	313

**Table A4.20: Time spent in libraries**

- Percentage of dentistry students from /schools from the different universities and the declared amounts of time spent in libraries

Institute	Not filled in	once	twice	thrice	>three	never	other	every day	Not sure	N
Stell Univ	3	30	5	3	1	34	23	1	0	105
UWC	1	20	15	21	23	8	10	0	1	86
MEDUNSA	2	19	9	16	14	17	23	0	0	64
Pret Univ	0	33	2	3	3	26	33	0	0	58
Total Dent	2	26	8	11	10	22	21	0	0	313

\*month- once, twice, 6 months, when required, twice a yr

**Table A4.21: Level of free time available on the time-table**

- Percentage of students per occupational category and institute who indicated their response to the level of free time available on the time-table

Course		Time Table - sufficient free or study time				Total (N)
		not filled in %	Yes %	No %	Not Sure %	
dental assisting	Pret Tech	0	97	3	0	29
	Pen tech	3	66	25	6	32
	MLS Tech	3	79	3	15	34
	FS Tech	6	50	39	6	18
	Total	3	75	15	7	113
dental technology	Pret Tech	0	82	14	4	28
	Pen tech	0	68	18	15	40
	Natal Tech	0	30	65	5	37
	Total	0	58	33	9	105
oral health	Stell Univ	0	33	53	13	30
	UWC	0	19	73	8	26
	UDW	0	0	100	0	5
	MEDUNSA	0	79	14	7	14
	Pret Univ	0	25	71	4	28
	Total	0	32	60	8	103
dental therapy	UDW	0	22	78	0	36
	MEDUNSA	0	64	14	21	14
	Total	0	34	60	6	50
dentistry	Stell Univ	1	58	36	5	105
	UWC	0	55	44	1	86
	MEDUNSA	0	45	50	5	64
	Pret Univ	0	33	57	10	58
	Total	0	50	45	5	313

**Table A4.22: Free-time on time-table**

Percentage of students per institute who indicated their response to the question of the amount of time available as free time on the time-table

Institute	sufficient free or study time			Not Sure	Total (N)
	not filled in	Yes	No		
Pret Tech	0	89	9	2	57
Stell Univ	1	53	40	7	135
UWC	0	46	51	3	112
Pen tech	1	67	21	11	72
Natal Tech	0	30	65	5	37
MLS Tech	3	79	3	15	34
FS Tech	6	50	39	6	18
UDW	0	20	80	0	41
MEDUNSA	0	53	39	8	92
Pret Univ	0	30	62	8	86
Total (N)	4	352	285	43	684

**Table A4.23: Continue to further studies**

- Number of responses of the total number of students per institute and per occupational category who indicated their intention to continue to further their studies and the percentage who said yes.

Occupational Category	Institute	not filled in (n)	yes (n)	no (n)	not sure (n)	Total (N)	% yes
dental assisting	Pret Tech	2	23	4		29	79
	Pen tech	1	30	1		32	94
	MLS Tech		34			34	100
	FS Tech		18			18	100
	Total	3	105	5	0	113	93
dental technology	Pret Tech	1	15	9	3	28	54
	Pen tech	1	21	16	2	40	53
	Natal Tech	3	23	6	5	37	62
	Total	5	59	31	10	105	56
oral health	Stell Univ	2	18	8	2	30	60
	UWC	2	16	4	4	26	62
	UDW		4	1		5	80
	MEDUNSA		13	1		14	93
	Pret Univ	2	7	16	3	28	25
	Total	6	58	30	9	103	56
dental therapy	UDW	1	30	4	1	36	83
	MEDUNSA		13	1		14	93
	Total	1	43	5	1	50	86
dentistry	Stell Univ	5	67	17	16	105	64
	UWC	1	63	16	6	86	73
	MEDUNSA		52	2	10	64	81
	Pret Univ	2	39	8	9	58	67
	Total	8	221	43	41	313	71
TOTAL						684	71

**Table A4.24: Continue to further studies in dental therapy**

- Number of responses of the total number of students per Institute and per occupational category and the number and percentage who indicated their intention to continue to further their studies in the area of dental therapy.

Occupational Category		No. Not filled	No of students	No. who would like to do dental therapy	% who would like to do dental therapy
dental assisting	Pret Tech	29	29	0	0
	Pen tech	32	32	0	0
	MLS Tech	18	34	16	47
	FS Tech	16	18	2	11
	Total	95	113	18	16
dental technology	Pret Tech	28	28	0	0
	Pen tech	40	40	0	0
	Natal Tech	37	37	0	0
	Total	105	105	0	0
oral health	Stell Univ	30	30	0	0
	UWC	25	26	1	4
	UDW	4	5	1	20
	MEDUNSA	13	14	1	7
	Pret Univ	28	28	0	0
	Total	100	103	3	3

**Table A4.25: Further their studies in the area of dentistry.**

- Number of responses of the total number of students per Institute and per occupational category and the number and percentage who indicated their intention to continue to further their studies in the area of dentistry.

		not filled in	no of students	No. who would like to do dentistry	% who would like to do dentistry
dental assisting	Pret Tech	28	29	1	3
	Pen tech	27	32	5	16
	MLS Tech	27	34	7	21
	FS Tech	13	18	5	28
	Total	95	113	18	16
dental technology	Pret Tech	28	28	0	0
	Pen tech	34	40	6	15
	Natal Tech	30	37	7	19
	Total	92	105	13	12
oral health	Stell Univ	26	30	4	13
	UWC	23	26	3	12
	UDW	1	5	4	80
	MEDUNSA	4	14	10	71
	Pret Univ	26	28	2	7
	Total	80	103	23	22
dental therapy	UDW	9	36	27	75
	MEDUNSA	13	14	1	7
	Total	22	50	28	56

**Table A4.26: Work after qualification**

- No. of students per Institute and per occupational category who indicated their preferences of work after qualification (multiple responses were invited)

Occupational Category	Institute	not filled in	priv practice	hospital	clinic	univ/tech	abrd	other	no responses	N
dental assisting	Pret Tech	1	17	3	4	6	6	1	38	29
	Pen tech	1	12	15	9	2	8	0	47	32
	MLS Tech	0	8	17	2	1	10	3	41	34
	FS Tech	2	15	0	0	0	1	0	18	18
	Total	4	52	35	15	9	25	4	144	113
dental technology	Pret Tech	1	20	1	0	1	9	0	32	28
	Pen tech	0	29	0	0	1	12	2	44	40
	Natal Tech	3	19	1	0	1	18	0	42	37
	Total	4	68	2	0	3	39	2	118	105
oral health	Stell Univ	0	21	2	4	1	10	1	39	30
	UWC	0	10	6	4	4	8	0	32	26
	UDW	0	2	1	1	1	0	0	5	5
	MEDUNSA	0	6	6	2	1	0	0	15	14
	Pret Univ	0	21	1	2	1	11	0	36	28
	Total	0	60	16	13	8	29	1	127	103
dental therapy	UDW	0	24	6	3	1	6	0	40	36
	MEDUNSA	0	3	11	1	1	1	0	17	14
	Total	0	27	17	4	2	7	0	57	50
dentistry	Stell Univ	0	63	16	10	9	39	1	138	105
	UWC	0	42	13	7	8	18	4	92	86
	MEDUNSA	0	25	17	5	6	25	4	82	64
	Pret Univ	0	38	4	4	3	23	0	72	58
	Total	0	168	50	26	26	105	9	384	313

**Table A4.27: Preferences of work after qualification**

- Percentage of responses of the total number of students per Institute and per occupational category who indicated their preferences of work after qualification (multiple responses were invited)

Occupational Category	Institute	not filled in	priv practice	hospital	clinic	univ/tech	abrd	other	no responses	N
dental assisting	Pret Tech	3	59	10	14	21	21	3	38	29
	Pen tech	3	38	47	28	6	25	0	47	32
	MLS Tech	0	24	50	6	3	29	9	41	34
	FS Tech	11	83	0	0	0	6	0	18	18
	Total	4	46	31	13	8	22	4	127	100
dental technology	Pret Tech	4	71	4	0	4	32	0	32	28
	Pen tech	0	73	0	0	3	30	5	44	40
	Natal Tech	8	51	3	0	3	49	0	42	37
	Total	4	65	2	0	3	37	2	112	100
oral health	Stell Univ	0	70	7	13	3	33	3	39	30
	UWC	0	38	23	15	15	31	0	32	26
	UDW	0	40	20	20	20	0	0	5	5
	MEDUNSA	0	43	43	14	7	0	0	15	14
	Pret Univ	0	75	4	7	4	39	0	36	28
	Total	0	58	16	13	8	28	1	123	100
dental therapy	UDW	0	67	17	8	3	17	0	40	36
	MEDUNSA	0	21	79	7	7	7	0	17	14
	Total	0	54	34	8	4	14	0	114	100
dentistry	Stell Univ	0	60	15	10	9	37	1	138	105
	UWC	0	49	15	8	9	21	5	92	86
	MEDUNSA	0	39	27	8	9	39	6	82	64
	Pret Univ	0	66	7	7	5	40	0	72	58
	Total	0	54	16	8	8	34	3	123	100

**Table A4.28: Percentage of students per occupational category who ranked in order of importance to the statements**

:- (non filled responses ignored)

1. earning a high made a selection that they agree with
2. status as a professional
3. that I am highly skilled
4. providing a highly technical “state of the art” service to those who can afford it
5. providing basic services to the community

<b>Dental Assisting</b>	1	2	3	4	5	Total
dental assisting - basic services	29	22	13	14	22	100
dental assisting - high tech	12	5	16	31	36	100
dental assisting - income	31	20	17	13	19	100
dental assisting - skill	18	22	28	18	14	100
dental assisting - status	15	23	21	29	12	100
<b>Dental Technology</b>	1	2	3	4	5	
dental technology - basic services	16	12	11	22	40	100
dental technology - high tech	12	17	20	27	24	100
dental technology - income	33	24	19	11	13	100
dental technology - skill	29	25	20	16	10	100
dental technology - status	11	21	25	26	17	100
<b>Oral Health</b>	1	2	3	4	5	
oral health - basic services	17	21	15	17	30	100
oral health - high tech	5	13	23	27	33	100
oral health - skill	46	23	11	11	8	100
oral health- income	19	26	20	19	16	100
oral health- status	16	19	27	25	13	100
<b>Dental therapy</b>	1	2	3	4	5	
dental therapy - basic services	50	13	4	15	17	100
dental therapy - high tech	10	12	17	33	29	100
dental therapy - income	21	24	24	17	14	100
dental therapy - skill	26	21	29	12	12	100
dental therapy- status	7	27	32	15	20	100
<b>Dentistry</b>	1	2	3	4	5	
dentistry - basic services	28	18	17	14	23	100
dentistry - high tech	14	19	21	19	27	100
dentistry - skill	39	28	15	15	4	100
dentistry- income	16	20	20	21	22	100
dentistry- status	7	15	26	29	23	100

**Table A4.29: Profession is hierarchical with dentists at the top (n)?**

Number, per occupational category of students, and their response to the question of whether they agree with the statement that the profession is hierarchical with dentists at the top.

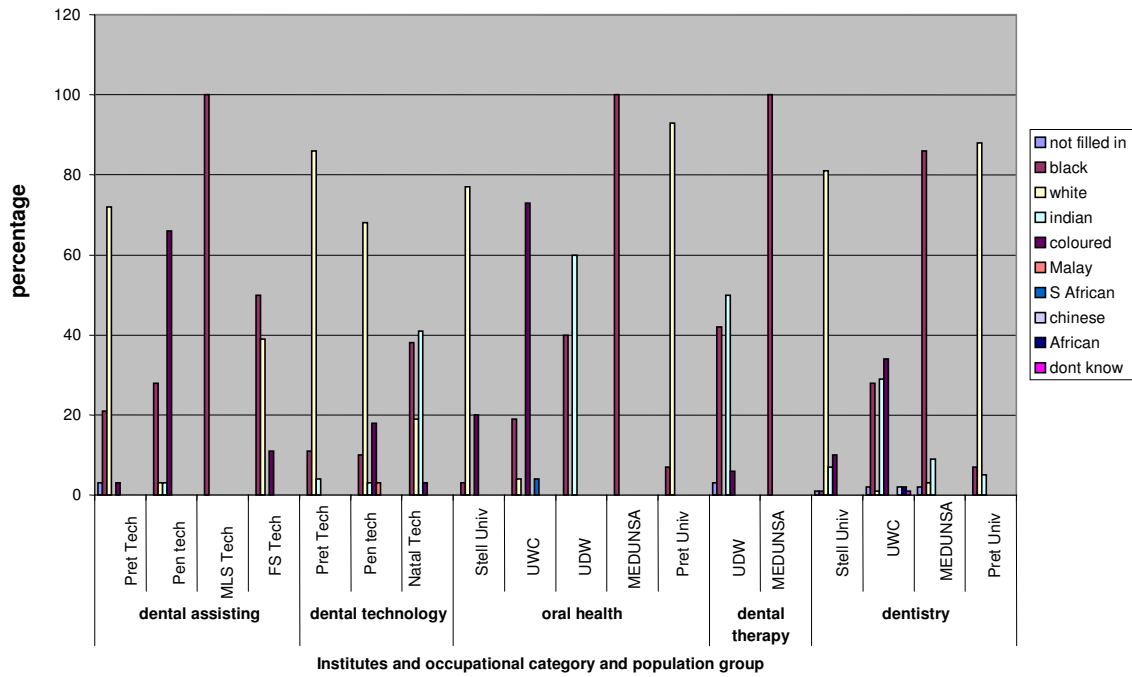
Occupational Category	not filled in	Yes	No	Not sure	
dental assisting	4	90	12	7	113
dental technology	0	75	22	8	105
oral health	2	63	26	12	103
dental therapy	0	34	13	3	50
dentistry	3	251	36	23	313
Total	9	513	109	53	684

**Table A4.30: Profession is hierarchical with dentists at the top (%)?**

- Percentage, per occupational category of students, and their response to the question of whether they agree with the statement that the profession is hierarchical with dentists at the top

Occupational Category	not filled in	Yes	No	Not sure	Total
dental assisting	4	80	11	6	100
dental technology	0	71	21	8	100
oral health	2	61	25	12	100
dental therapy	0	68	26	6	100
dentistry	1	80	12	7	100

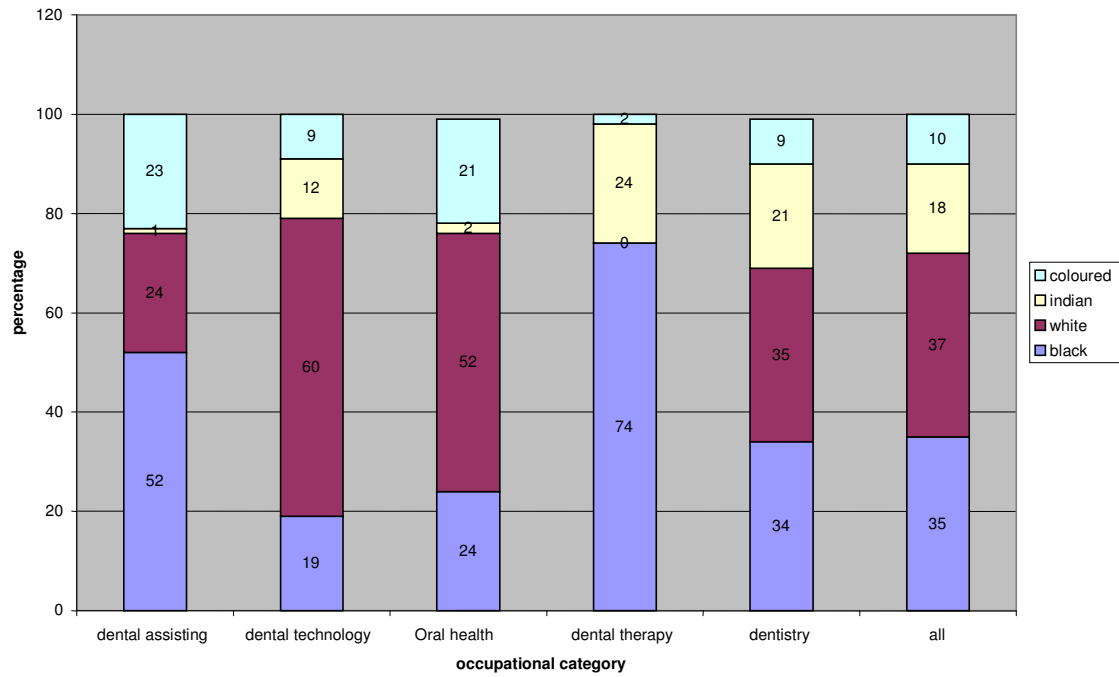
**Figure A4.1: Percentage of students per occupational category per institute**  
(calculated from respondents)



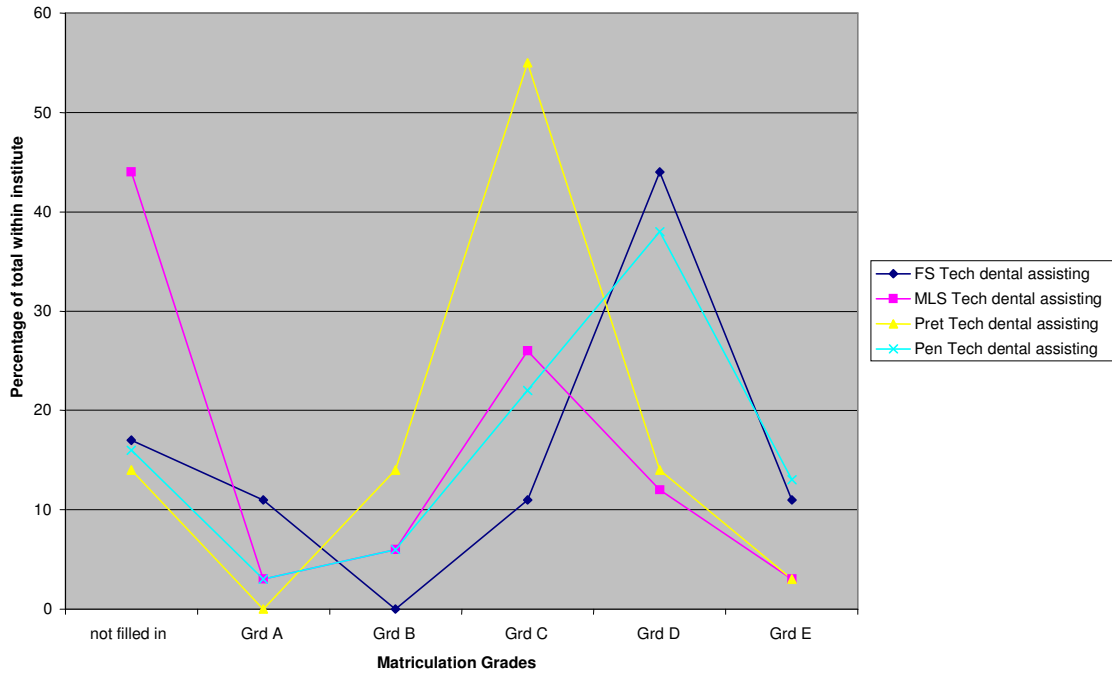
**Figure A4.2: Percentage of students enrolled within different occupational categories**

- per population group per institute

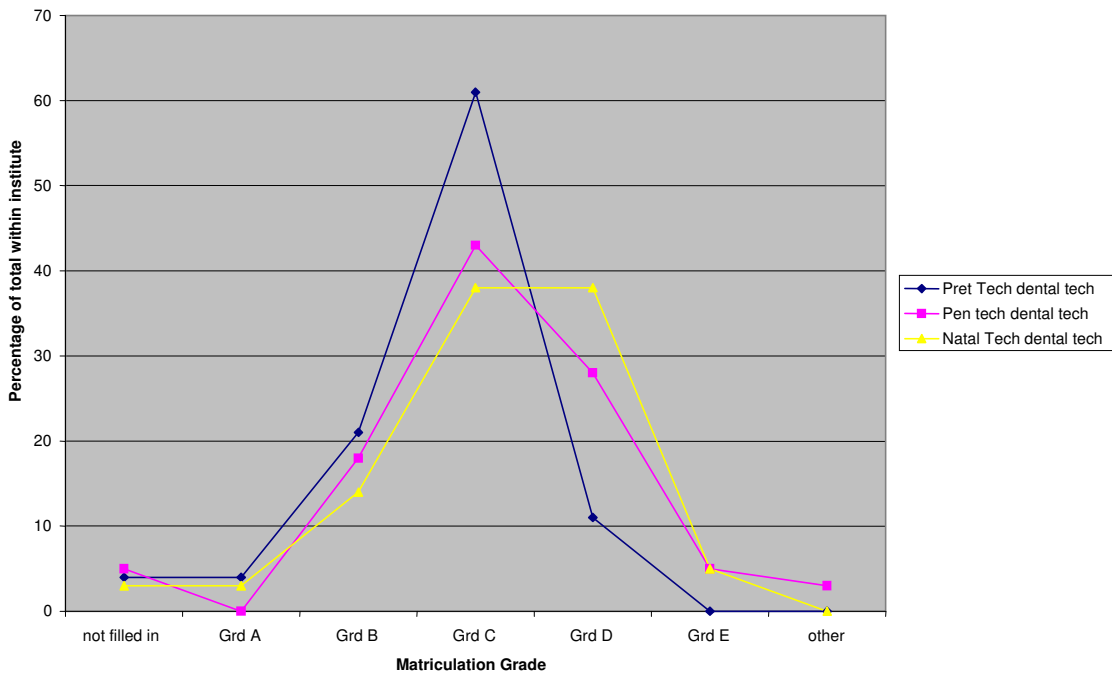
Data obtained from MESAB - data supplemented by own study, data for MLS assisting and no data for Wits Oral Health was available to MESAB



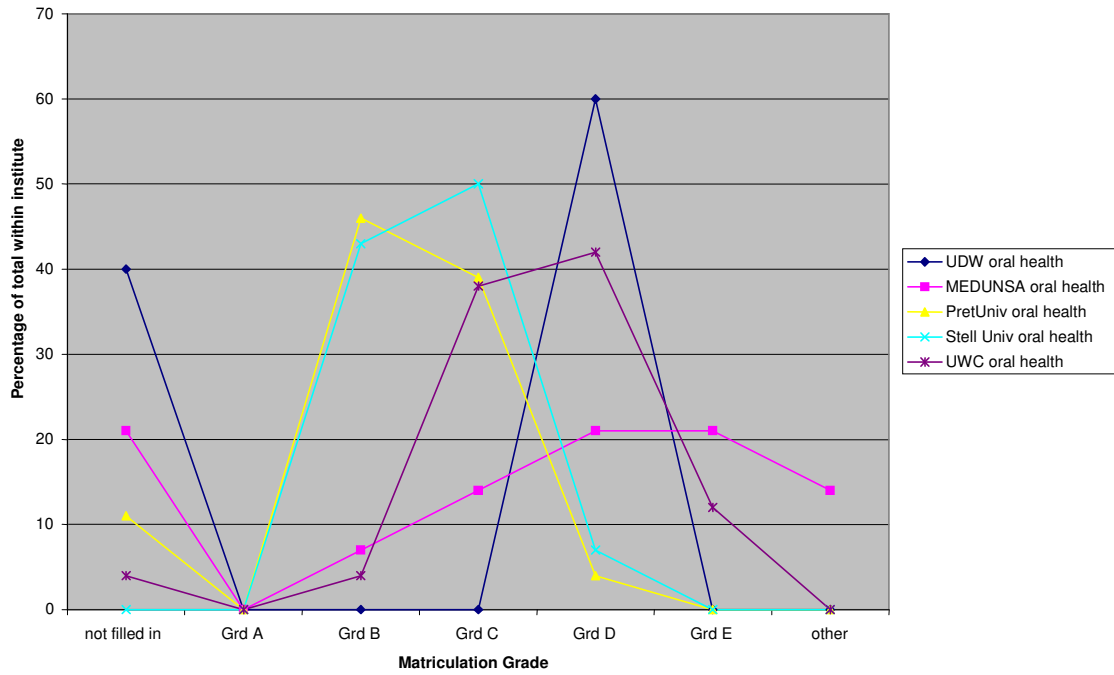
**Figure A4.3: Percentage of dental assisting students and matriculation grades**  
- per institute



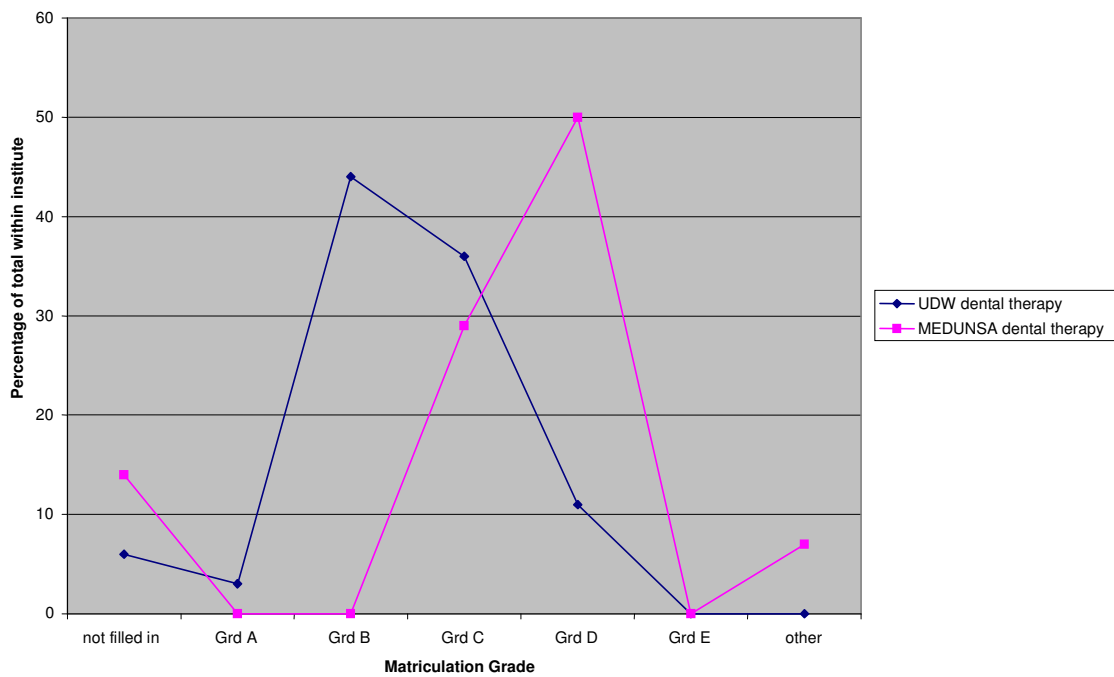
**Figure A4.4: Percentage of dental technology students and matriculation grades**  
- per institute



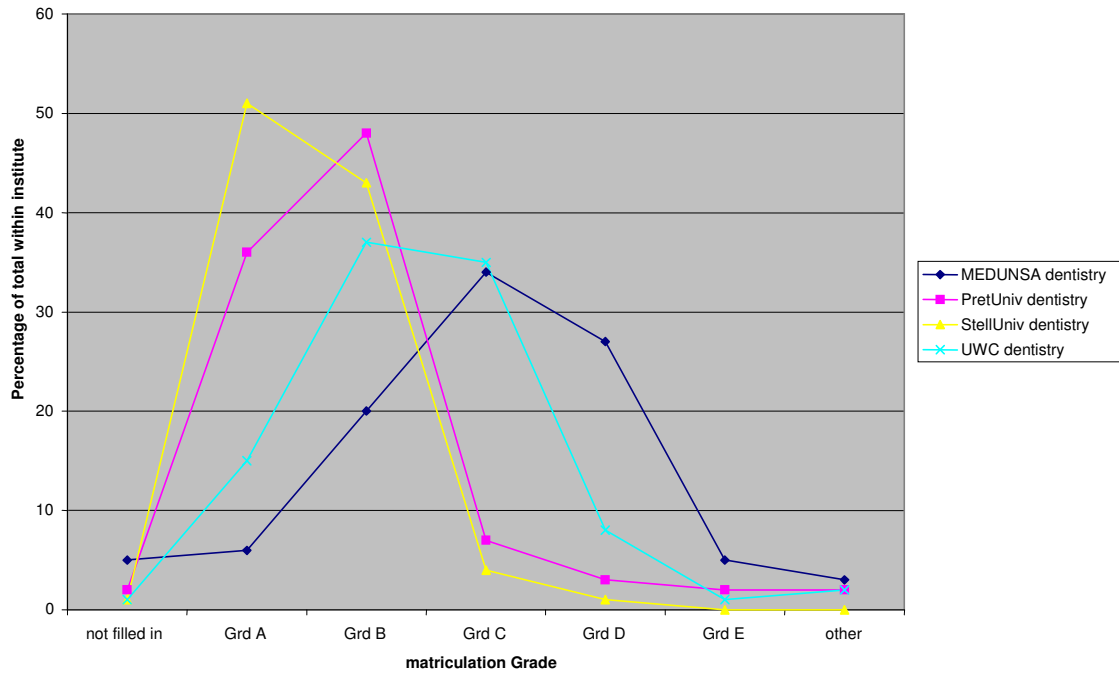
**Figure A4.5: Percentage of oral health students and matriculation grades**  
- per institute



**Figure A4.6: Percentage of dental therapy students and matriculation grades**  
- per institute

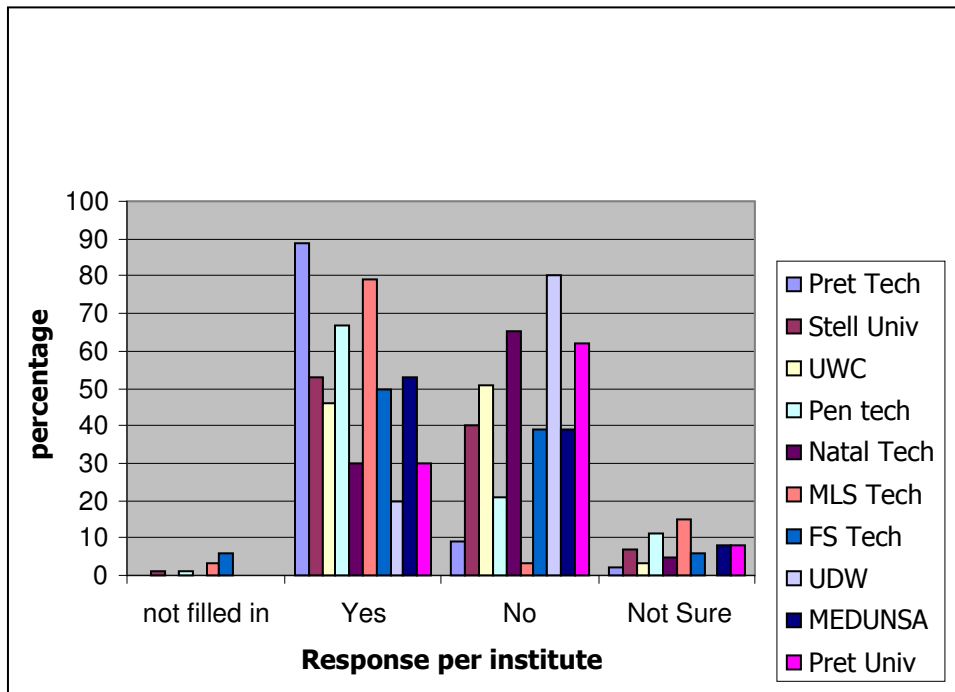


**Figure A4.7: Percentage of dentistry students and matriculation grades**  
 – per institute



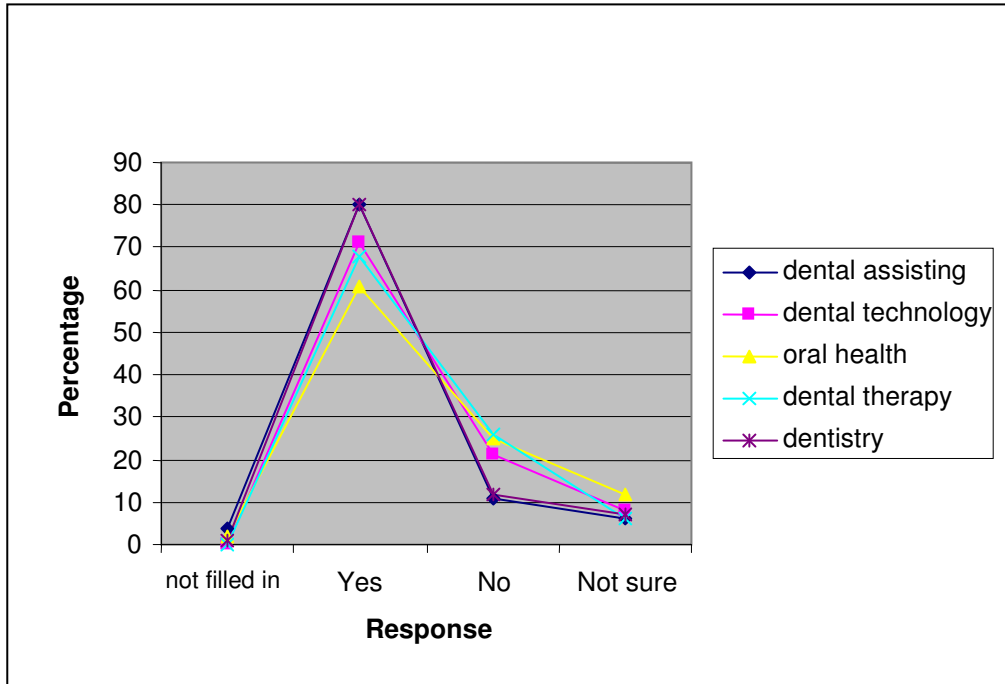
**Figure A4.8: Free-time on the time-table**

- Percentage of students per institute who indicated their response to the question of the amount of time available as free time on the time-table



**Figure A4.9: Profession is hierarchical with dentists at the top (%)?**

Percentage per occupational category of students, and their response to the question of whether they agree with the statement that the profession is hierarchical with dentists at the top.



## Appendix 5: Glossary

### Terminologies associated with curriculum, courses and institutes

- *Disentangling the Definitional Conundrum!* (Dhunpath, 2003, p.52) and clearing a path through a landscape littered with terminologies.

#### Introduction

This glossary offers clarification of some terminologies that I tripped over, that I found confusing as the terms were sometimes being used simplistically and rather loosely. This gave me reason to clarify the concepts for myself and also to share with the reader my understanding. As Lawton (1983, p.1) reminds us, *definitions do not necessarily help understanding, but it is sometimes necessary to attempt to clarify meanings, especially where words are used in quite different contexts.*

To define is to confine! However, for any framework to be organised there needs to be a clear understanding of the terms that are used and the concepts and ideologies that underpin these terms. It is the unclear understanding of terminology that is one of the barriers to progress to a shared understanding of curriculum issues.

#### Selected terms

What follows is an understanding of selected terms that are frequently associated with the themes of teaching and, learning that underpin the daily activities within the curriculum and the structures where the learning opportunities are based.

#### Competence

Competence/s refers to the outcomes that are expected from a particular unit of study whether it be broad or specific.

Competency/ies refers to the performance that is demonstrated for an outcome or competence. The level at which the competence is demonstrated depends on what is expected of the candidate (i.e. exposed to a skill; involved in a skill; attempted the skill; competent to perform the skill independently; or proficient in the skill by being able to perform it routinely, and without supervision and can teach it to others (Harden, 2001, p.31)..

#### Course

An entity which may be a course of study followed by an individual or a single course offered to an individual or to specific group of students. With modularisation **a unit of study** or a course may be termed a module and a course may also be an individual's programme of study. Brown (1992, p.120) offers some clarity with the idea that units through a "course structure rule" can be combined to form a course.

#### Course plan

What the student follows in order to construct a qualification is a programme of studies which consists of a course plan that is made up of units of study (in the form of courses, modules – core and optional, subjects, topics, themes) which are sequentially arranged (not necessarily with any horizontal, vertical and diagonal network), assessed and accumulated in the form of credits in order to gauge and whether the student can be awarded the qualification and at a level that is appropriate.

### Curriculum

I examined the difficult concept of curriculum and highlighted its broad nature. I separated out the two main elements of curriculum into:-

- the central or core activity that is carried out on a daily basis with the teacher/lecturer/educator/facilitator and the student/learner meaning the teaching, learning and assessment that is operational within a course framework
- the numerous additional and multifactorial forces ranging from access to finance, biographies of the Institutes and the students, policies, politics and their management, relationships, structures and resources that make up what could be called the **total** curriculum.

### Educational Provision

What is organised and offered to the students by the institution or what is organised and offered to the students by the teachers/lecturers/educators within that institution.

### Institutes

Some basic terms that I use to describe tertiary centres of education and training.

- Institutes

These are the overarching organisations under which colleges, faculties, schools, units and departments, where all the educational offerings are housed and broadly administered at the macro level. Two main types of institutes of tertiary education have been identified viz., universities and technikons (now called Universities of Technology).

- Colleges

Where they exist, for example the College of Health Sciences, then these are the larger units at the macro-level which make up the academic administrative and management units of the institute.

- Faculties

These are also larger academic units which can be a subset of the institute or college and operate at the meso-level within colleges and macro level of institutes if a college structure does not exist.

- Schools

A further subset of faculties where disciplines or departments (see below) are grouped together to function as an administrative and management unit. A school could comprise of disciplines that are slightly dissimilar (for example physiotherapy and occupational therapy) or one where the root is the same (for example dental health science).

- Departments

This usually consists of a specific discipline and sub discipline and functions within a faculty (e.g., Department of Restorative Dentistry and Department of Oral Health in the Faculty of Dentistry) or as a group of departments within a larger Faculty (e.g., Department of Restorative Dentistry in the School of Dentistry of the Faculty of Health Sciences) in a Faculty.

- Disciplines – this term represents a field of education and in this case dental health science. The administrative arm is represented by schools in universities or departments in technikons. Within dental schools sub disciplines are represented by Oral Health, Dental Therapy, Dentistry and the Specialities. The latter usually make up the departments in dental schools.

- Hospitals and Clinics, Oral and Dental Training Hospitals, Oral Health Centres, Academic Complexes

These are clinical facilities “owned” by the relevant Department of Health and are managed jointly with the schools in the university-based programmes.

Learning

What the students acquire from the educational provision

Module

A self-contained block or unit of study which has a standard size or some method of agreeing a standard value.

Programme

A programme may be either a prospectus or a section of it or actual numbers of courses that are organised after enrolment. This term is also used as an overall term for offerings either by institute and/or school or faculty and/or department or discipline.

Qualification

A qualification as defined in the South African policy context over the past decade and continued in the recent draft document for discussion "The Higher Education Qualifications Framework" (Ministry of Education, 2004) is *the formal recognition and certification of learning achievement awarded by an academic institution.*

Self-directed or small group-directed learning

This refers to the learning experiences gained by individuals on their own projects.

Skill

By "skill", we mean technique, know-how, and practice.

Standard

A standard is a level at which a particular outcome is pegged and measured and the quality is a measure of that product

Total Learning Situation

All the learning experiences, intended or unintended, provided by the institution or that part of it to which reference is being made.

The learning outcomes should include critical cross-field or generic skills, discipline, domain-specific or specialised knowledge, skills and reflexivity. "A programme is a purposeful and structured set of learning experiences that leads to a qualification". Programmes have the following features:-

- they may be discipline based, professional, career-focused, trans-, inter- or multidisciplinary in nature,
- recognised entry and exit points,
- taught programmes should have core and elective components.

Units of study

Units of study (which could be modules or courses) are assessed as distinct entities and when the credits from these units are combined they lead to form a qualification in a course of study (programme).

**In a bid to clarify these concepts and to rationalise them for this study I will offer an understanding of the terms as I have encountered them and which are frequently used in relation to curriculum and adopt the terms in an attempt to standardise them for this study.**

Educational Provision – i.e. what is organised and offered to the students by the institution or what is organised and offered to the students by the teachers/lecturers/educators within that institution.

Learning – i.e. what the students have acquired from the educational provision,

Large group/student population and individual/small group – i.e. the actual or potential student population of a whole or large part (like a college) of an institute or sections (like a department within the college) whereas the small group may refer to a single group within a department or even a smaller group working within a class.

Within the spheres of education provision and learning by large or small groups of students Jarvis (1995) elaborates by adding in the following:

Total Learning Situation – i.e. all the learning experiences, intended or unintended, provided by the institution or that part of it to which reference is being made.

Self-directed or small group-directed learning – i.e. this refers to the learning experiences gained by individuals on their own projects.

Programmes, courses and learning outcomes –

A **programme** may be either a prospectus or a section of it or actual numbers of courses that are organised after enrolment. This term is also used as an overall term for offerings either by institute and/or school or faculty and/or department or discipline.

A **course** is an entity which may be a course of study followed by an individual or a single course offered to an individual or to specific group of students. With modularisation a **unit of study** or a course may be termed a module and a course may also be an individual's programme of study. Brown (1992, p.120) offers some clarity with the idea that units through a "course structure rule" can be combined to form a course. In fact he goes even further to accommodate courses within courses through the "course structure rule"

Ram (1989, p.3) brings these elements together in the following fashion "a **module** or course unit is a self-contained block or unit of study which has a standard size or some method of agreeing a standard value.... A **course** comprises the range of units of study available to students leading to a particular award ..... A *programme of studies* is an individual student's pathway through the course".

Although, these terms cause confusion and is difficult to standardise, because of the wide range of usage, depending on the situation. Jarvis (1995) concludes this section, by stating what is a little clearer, in that "the term curriculum tends to reflect the totality of the learning as if it is a comprehensive and coherent whole, whereas programme implies that there are several parts to the whole, parts of which students might choose for themselves".

In the South African context the usage of the term programmes has come to the fore since 1996 with the changes in education policy to a programme based approach and the use of the term programme as a unit in academic planning (National Commission on Higher Education (NCHE), 1996(National Commission on Higher Education, 1996a), White paper, Department of Education (DoE) 1997(Department of Education (DoE), 1997a), A new academic policy for programmes and qualifications in higher education (NAP) (Department of Education (DoE), 2002)). A qualification as defined in the South African policy context over the past decade and continued in the recent draft document for discussion "The Higher Education Qualifications Framework" (Ministry of Education, 2004) "is the formal recognition and certification of learning achievement awarded by an academic institution". The learning outcomes should include critical cross-field or generic skills, discipline, domain-specific or specialised knowledge, skills and reflexivity. "A programme is a purposeful and structured set of learning experiences that leads to a qualification". Programmes have the following features:-

- they may be discipline based, professional, career-focused, trans-, inter- or multidisciplinary in nature,
- recognised entry and exit points,
- taught programmes should have core and elective components.

#### Qualification

A qualification is therefore a series of units of studies which together makes up a whole and leads towards a qualification.

#### Skill

By "skill", we mean technique, know-how, and practice.

#### Competence

By "competence" we mean aptitude and attitude, whatever adds "soul" to the basic toolset turns it into something greater than the sum of its parts (Grant & Borchers, 2002, p.v).

Competence and competency; performance and outcome; standard and quality.

Competence/s refers to the outcomes that are expected from a particular unit of study whether it be broad or specific.

Competency/ies refers to the performance that is demonstrated for an outcome or competence. The level at which the competency is demonstrated depends on what is expected of the candidate (i.e. exposed to a skill; involved in a skill; attempted the skill; competent to perform the skill independently; or proficient in the skill by being able to perform it routinely, and without supervision and can teach it to others (Harden, 2001, p.31).

A standard is a level at which a particular outcome is pegged and measured and the quality is a measure of that product.

#### **Course/s - Usage of terminology in this study.**

The preferred terms for this study are

**Units of study** (which could be modules or courses) which are assessed as distinct entities and when the credits from these units are combined they lead to form a **qualification** in a course of study (programme) in a particular field or **discipline** (dental health science is a discipline and the qualifications are the occupational categories vocational or sub disciplines-see also below).

A5.4 Institutes/Colleges/Faculties/ Schools/Departments/Disciplines – Some basic terms that are in use to describe tertiary centres of education and training.

Universities and Universities of Technologies (Technikons) have undergone rapid internal and external restructuring and reorganisation during the period of this study. Alongside was the reorganisation and restructuring of departments and faculties with varying levels of

autonomy and exertion of independence within the institute at the different levels. Ultimately different levels of management structures impact on the curriculum.

The usage of terminologies applied to the administrative and functional units of the programmes that are offered through the tertiary institutes vary and are not uniform. So as to avoid contradictions in the usage of the different management terms used in places of learning the terms listed below have firstly been identified and an understanding of this is described alongside. Secondly an understanding of the terminology adopted for this study will then be described. Thirdly the impact of these management units on the critical questions posed will be fore grounded. There are various ways in which branches can “branch off” and one such possibility is described below. They are listed in the highest or uppermost level to the lowest level in a hierarchically organised set of structures that moves from a broad or general set to narrower subsets where the business end dental health science is located.

- Institutes – These are the overarching organisations under which colleges, faculties, schools, units and departments, where all the educational offerings are housed and broadly administered at the macro level. Two main types of Institutes of tertiary education have been identified viz., Universities and Technikons (now called Universities of Technology).
- Colleges – Where they exist, for example the College of Health Sciences, then these are the larger units at the macro level which make up the academic administrative and management units of the Institute.
- Faculties – These are also larger academic units which can be a subset of the Institute or of Colleges and operate at the meso level within Colleges and macro level of Institutes if a College structure does not exist.
- Schools – A further subset of Faculties where disciplines or departments (see below) are grouped together to function as an administrative and management unit. A School could comprise of disciplines that are slightly dissimilar (for example or Physiotherapy and Occupational Therapy) or one where the root is the same (for example Dental Health Science).
- Departments – This usually consists of a specific discipline and sub discipline and functions within a Faculty (e.g., Department of Restorative Dentistry and Department of Oral Health in the Faculty of Dentistry) or as a group of departments within a larger Faculty (e.g., Department of Restorative Dentistry in the School of Dentistry of the Faculty of Health Sciences) in a Faculty.
- Disciplines – this term represents a field of education and in this case Dental health Science. The administrative arm is represented by Schools in Universities or Departments in Technikons. Within Dental Schools sub disciplines are represented by Oral Health, Dental Therapy, Dentistry and the Specialities. The latter usually make up the Departments in Dental Schools.

A5.5 For clarity and for the purposes of this study,

- Dental Health Science is the **Discipline**
- where a particular professional sub discipline is described then the terms **occupational category** will be used (i.e. Dental Assisting, Dental Technology, Oral Health, Dental Therapy, and Dentistry) - The qualifications are Oral Hygiene or Oral health, Dental Therapy and Dentistry, The occupations are hygienist, (dental) therapist and dentist.
- where the administrative and management structure for a particular programme leading to a specific qualification is described then the term **department** will be used when it applies to the programmes in Technikons (i.e. the Departments of Dental Assisting and Dental Technology), and **Schools (i.e. dental schools) in Universities** where a group of programmes leading to qualifications in Oral Health, Dental Therapy and Dentistry are accommodated. Except for the University of Durban-Westville which only offers Dental

Therapy and Oral Health, in the other Dental Schools Oral Health is usually managed as a separate unit, usually a department within a department within the School, and Dentistry is managed as a whole and is the "School". The only other Dental Therapy programme which is based in MEDUNSA is "co-ordinated" within the School. So in the context of academic management, the term **Unit within a School** will be used when the academic management of the two programmes of Oral Health, Dental Therapy are discussed. For Dentistry the whole School is the Unit and is made up of Departments from the sub-disciplines which in effect are the Dental Specialities. The term **Departments of Dental Schools** will be used for this level of academic management.

- the term **Faculty**, as in the "The Faculty of Health Sciences", will be used for a group of Schools or departments, including Dental Health Sciences, within an Institute constituting a larger management whole. Where Faculties of Dentistry exist they will be termed Schools of Dentistry or Dental Schools for the purposes of this study.

**Appendix 6: Regulations defining the scope of the profession of oral hygiene  
No R1150                      17 November 2000**

**HEALTH PROFESSIONS COUNCIL OF SOUTH AFRICA**

**REGULATIONS DEFINING THE SCOPE OF THE PROFESSION OF ORAL HYGIENE**

The Minister of Health has, in terms of section 33 (1) of the Health Professions Act, 1974 (Act No. 56 of 1974), on the recommendation of the Health Professions Council of South Africa, made the regulations in the Schedule.

**SCHEDULE**

1. In these regulations any expression to which a meaning has been assigned in the Act shall bear such meaning and, unless the context otherwise indicates –  
    **“the Act”** means the Health Professions act, 1974 (Act No 56 of 1974)
  
2. The following acts shall for the purposes of the application of the Act be deemed to be acts pertaining to the profession of oral hygiene:
  - a. Provincial examination and charting of conditions of the mouth, with particular reference to the teeth and periodontium;
  - b. Scaling, root planning and polishing of the teeth, including trimming and polishing of restoration;
  - c. Performing dental radiography;
  - d. Topical application of agents appropriate to the practice of the oral hygienist, including caries-preventive agents, tooth-desensitising agents, surface anaesthetics and plaque-controlling agents;
  - e. Application and removal of periodontal packs;
  - f. Taking impressions and casting of study and primary work models;
  - g. Placement of temporary fillings as an emergency measure prior to referral to a dental therapist or dentist;
  - h. Temporary cementing of inlays, crowns and bridges;
  - i. Placement of glass ionomer cement on sensitive dentine or cervical abrasion lesions;
  - j. Placement of soft linings in dentures as tissue conditioners;
  - k. Taking of cytological smears, for example to test for candida infections;
  - l. Performing specified functions in orthodontics –
    - i. cephalometric tracings;
    - ii. relief of trauma caused by intra- and extra – oral appliances, for example the cutting of distal ends of arch wires;
    - iii. the placement of pre-activated orthodontic appliances and the removals of orthodontic attachments and bands;
  - m. Administering of applicable local analgesia as appropriate to the scope of the professions of oral hygiene.
  
3. The regulations promulgated by Government Notice No R 1729 of 9 August 1985 are hereby repealed.

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Regs defining the scope of DOHTT/ 02

**Appendix 7: Regulations defining the scope of the profession of dental therapy**

**No R1741**                      **17 September 1993**

**HEALTH PROFESSIONS COUNCIL OF SOUTH AFRICA**

**REGULATIONS DEFINING THE SCOPE OF THE PROFESSION OF DENTAL THERAPY**

In terms of section 33(1) of the Medical, Dental and Supplementary Health Service Professions Act, 1974 (Act 56 of 1974), the Minister of Health and Welfare, acting on the recommendation of the South African Medical and Dental Council, has made the regulations set out in the Schedule hereto.

**SCHEDULE**

1. In this Schedule "the Act" shall mean the Medical, Dental and Supplementary Health Service Professions Act, 1974 (Act 56 of 1974), and, unless the context otherwise indicates, any expression to which a meaning has been assigned in the Act shall bear such meaning.

**Scope of the profession of dental therapy**

2. In terms of section 33(1) of the Act the following acts are hereby specified as acts which shall, for the purposes of the application of the Act, be deemed to be acts pertaining to the profession of dental therapy:
  - (a) the examining of patients and the charting of their dental status;
  - (b) the scaling and polishing of teeth in order to prevent periodontal diseases and to treat reversible tissue change, where the only treatment necessary to reverse such tissue change is scaling and polishing;
  - (c) direct conservative procedures, except restorations which are prepared outside the mouth on models or from impressions taken in the mouth;
  - (d) the removal of teeth under local anaesthesia;
  - (e) the treatment of post-extraction bleeding and the local treatment of alveolar osteitis, including the placement of sutures;
  - (f) the application of primary preventive measures;
  - (g) the treatment of minor traumatic injuries of the teeth and surrounding tissues; and
  - (h) the taking on intra – oral and extra –oral radiographs for the purpose of performing those acts that pertain to the profession of dental therapy.
3. A registered dental therapist may practice his profession subject to the following conditions:

- (a) He may not practise independently unless he has practised for at least one year under the control and supervision of a dentist or another dental therapist approved by the council for the purpose of these regulations.
  - (b) He shall refer to a dentist for treatment all cases of -
    - i. pulpal exposure, excluding the emergency treatment thereof;
    - ii. impacted teeth; and
    - iii. oral diseases and dental abnormalities, such as tumours, mucosal diseases, developmental defects and infections, requiring systemic treatment.
  - (c) He may remove the roots of teeth only by means of hand instruments, without any incision into the soft tissues.
  - (d) He shall not construct or repair dentures or other dental appliances involving the taking of impressions.
4. The regulations published by Government Notice No. R.844 of 19 April 1991 are hereby withdrawn.

**Appendix 8: Regulations defining the scope of the profession of dentistry**

**DEPARTMENT OF HEALTH**

**NO. R.** .....

..... **2004**

**HEALTH PROFESSIONS COUNCIL OF SOUTH AFRICA**

**REGULATIONS DEFINING THE SCOPE OF THE PROFESSION OF DENTISTRY**

The Minister of Health intends, in terms of section 33(1), read together with section 61(2) of the Health Professions Act, 1974 (Act No. 56 of 1974), on the recommendation of the Health Professions Council of South Africa, to make the regulations in the Schedule.

Interested persons are invited to submit any substantiated comments or representations on the proposed regulations to the Director-General: Health, Private Bag X828, Pretoria, 0001 (for the attention of the Director: Human Resource Development), within one months of the date of publication of this notice.

**SCHEDULE**

**Definitions**

1. In these regulations “the Act” means the Health Professions Act, 1974 (Act No. 56 of 1974), and any expression to which a meaning has been assigned in the Act shall bear such meaning, and unless the context otherwise indicates -

“**board**” means the Medical and Dental Professions Board established in terms of section 15(1) of the Act;

“**dentistry**” means the profession of a person registered as a dentist in terms of the Act; and

“**section**” means a section of the Act.

**Scope of the profession**

2. The following acts are hereby specified by the board under section 33 as acts which, for the purposes of the Act, shall be deemed to be acts pertaining to the profession of dentistry:

- (a) The physical examination of the oral and related structures of a person;
- (b) Making a diagnosis of (including determining the relevance of systemic conditions) and / or giving advice on illnesses and conditions of the oral and related structures;

- appendix 8 – regulations dentistry
- (c) The performance of procedures and / or the prescribing of medicines aimed at managing the health of a patient (prevention, treatment and rehabilitation);
  - (d) The performance of any procedure on a patient aimed at the fitting or supply of a dental prosthesis or appliance; and
  - (e) The performance of any other aesthetic procedure as taught at dental schools.
3. The provisions of regulation 2 shall not be construed as prohibiting:-
- (a) a medical practitioner, not registered also as a dentist, from performing in the course of his or her practice acts pertaining to the practice of dentistry in cases of emergency or where no dentist is readily available;
  - (b) the employment by and under the supervision of a dentist of any person registered under the Dental Technicians Act, 1979 (Act 19 of 1979), for the purpose of making or repairing dentures or other dental appliances;
  - (c) any person from making or repairing artificial dentures or other dental appliances for his or her own profit: Provided that such work is carried out on the instructions and to the order of a dentist, and does not includes the taking of any impression or bite or any trying in or fitting in the mouth; or
  - (d) a person registered in terms of the Act in respect of a profession connected with the practice of dentistry, from performing any act pertaining to the practice of dentistry under the control and supervision of a dentist.

#### **Registration a prerequisite to practice**

4. Any person who wishes to perform any of the acts referred to in regulation 2 shall apply to the
- board in the prescribed manner for registration as a dentist and submit proof of having
- complied with the prescribed requirements for such registration.

#### **Repeal and Commencement**

5. These regulations shall come into operation on the date of promulgation of the Health Professions Amendment Act.

**M.E. TSHABALALA-MSIMANG**

**MINISTER OF HEALTH**

**DATE**

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### **Appendix 9: Document output**

**Operating System:** Microsoft Windows XP Professional Service Pack 2

**Word processing:** Microsoft Office Word 2003

**Bibliography:** EndNote initial version 7, final upgrade version X1, APA 5<sup>th</sup>

**References and Citations:** As per UKZN Doctoral Studies, Faculty of Education, Information Brochure 2009, Template for Citations pp. 33-35

**Data Analysis:** SPSS initial version 11.5.1, final upgrade version 15

**Font:** Tahoma, Overall Size 10, Line Spacing 1.5 (*direct quotations, italics line space 1.0*) except references- font calibri

**Style:** Headings for Chapters 20 pt., Titles 16 pt.(Chapters and other), Section 1.2 14pt.; Section 1.2.3 and 1.2.3.4 12pt; All other Sections 11pt;direct quotations in *italics*

**Captions:** Tables, Figures, Appendices

**Printing:** HP DeskJet 970 Cxi, Normal Quality (drafts)/b.k. bookbinders (final).