



**AN EXPLORATION INTO THE FACTORS INFLUENCING JOB
SATISFACTION AMONG DENTAL TECHNOLOGISTS WORKING
IN THE PUBLIC HEALTH SECTOR IN LAGOS, NIGERIA**

Dissertation submitted in fulfilment of the requirements of the degree of Master of Health Sciences: Dental Technology in the Faculty of Health Sciences at the Durban University of Technology.

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DECLARATION

This dissertation is my own work and has not been submitted in part, or in full, to any other university for any purpose. I have not plagiarised the work of anyone else in completing the requirements for this task. The research was conducted in Lagos, Nigeria in fulfilment of the requirements of the degree of Master of Health Sciences: Dental Technology in the Faculty of Health Sciences at the Durban University of Technology under the supervision of Prof. JD Pillay and Ms DA Skea.

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DEDICATION

This dissertation is dedicated to my beloved wife, Lady Dorathy O. Ndubuisi, for all her sacrifices and inspiration that motivated me to work very hard – night and day – towards completing my studies in South Africa.

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ABSTRACT

There has been a growing concern within the Nigerian dental technology industry regarding job satisfaction particularly among dental technologists working in the public health sector. There are no previous studies of job satisfaction of dental technologists in Nigeria. The aim of this study was, therefore, to explore the factors influencing job satisfaction among dental technologists working in public hospitals and dental centres in Lagos state, South-West Nigeria.

The study was carried out using mainly a qualitative research approach undertaken through a phenomenological research design by learning from the experiences of study participants, otherwise known as interpretivist paradigm. Participants were purposefully selected from both federal (six) and state (12) government establishments within Lagos state, Nigeria. Data was generated by means of semi-structured interviews with 18 (males n=10, females n=8) dental technologists. Interviews were recorded and transcribed verbatim, then analysed and interpreted using thematic content analysis aided by the qualitative research software, Nvivo 11 Pro (QSR International Pty Ltd, 2015).

The results indicate 11 key factors that influenced job satisfaction, including: low employment entry-level, low remuneration, career limiting bar (limited career progression), limited educational advancement. Other factors included: dearth of specialty training, limited funding and opportunity for CPD, strained working relationship between dentists and technologists, low professional status, inadequate professional/work autonomy, lack of equipment and dental supplies and poor working conditions amongst other factors.

The majority of the participants expressed satisfaction and fulfilment in their job (career) as oral health workers, but their job satisfaction was undermined by the challenges mentioned above. In the course of the project, valuable data emerged which contributes to the literature concerning those factors that undermine job satisfaction amongst the dental technology professionals in the African context, particularly in Nigerian. Further large scale studies in this field are recommended. This

study highlights a number of real and potential problems in relation to job satisfaction in the field of dental technology in Nigeria among those employed in the public health sector. It is apparent that change within the structure of education and professional qualification, although largely welcomed, and if the context in which employees work is improved, this will encourage dental technologists to stay in their jobs, and will improve job satisfaction and and improve productivity and job satisfaction and so reduce the likelihood of job turnover.

TABLE OF CONTENTS

DECLARATION.....	ii
DEDICATION.....	iii
ACKNOWLEDGEMENTS	iv
ABSTRACT.....	vi
TABLE OF CONTENTS	viii
LIST OF TABLES.....	xiii
LIST OF ADDENDA	xiv
DEFINITIONS	xv
ACRONYMS AND ABBREVIATIONS	xvii
CHAPTER 1 : INTRODUCTION.....	1
1.1 Introduction.....	1
1.2 Background of the study	2
1.3 Problem statement.....	4
1.4 Purpose of the study.....	5
1.5 Rationale and significance of the study.....	5
1.6 Key research questions	6
1.7 Overview of the dissertation.....	7
CHAPTER 2 : LITERATURE REVIEW	8
2.1 Introduction.....	8
2.2 Definition of job satisfafation	8
2.3 Contextualising the impact of job satisfaction	8
2.4 Factors impacting job satisfaction in the field of dentistry	10
2.5 Evolution of dental technology in Nigeria	13
2.6 Factors impacting job satisfaction in dental technology	13
2.7 Factors influencing job satisfaction	14
2.7.1 Impact of pay/remuneration on job satisfaction.....	15
2.7.2 Impact of promotion opportunities on job satisfaction	15
2.7.3 Impact of leadership style/supervision on job satisfaction.....	16
2.7.4 The impact of inadequate equipment /facilities on job satisfaction	17

2.7.5	The impact of opportunities for career development on job satisfaction	18
2.7.6	The role of work-place socialisation/relationship (co-workers) on job satisfaction	19
2.7.7	The influence of work autonomy on job satisfaction.....	19
2.7.8	Importance of working conditions on job satisfaction	21
2.7.9	Characteristics determining job satisfaction	22
2.7.9.1	Personal characteristics	22
2.7.9.2	Age	22
2.7.9.3	Gender	23
2.7.9.4	Education level	24
2.7.9.5	Tenure	25
2.7.10	Organisational (work-related) characteristics	25
2.7.10.1	Nature of work	26
2.7.10.2	Equitable reward.....	26
2.7.10.3	Job level	27
2.8	The impact of job satisfaction in the workplace.....	27
2.8.1	Satisfaction and absenteeism	28
2.8.2	Satisfaction and employee turnover	29
2.9	Summary	30
CHAPTER 3 : RESEARCH METHODOLOGY		31
3.1	Introduction	31
3.2	Theoretical framework	31
3.3	Study design	33
3.4	Location of the study	33
3.5	Study population	34
3.6	Sampling and sample size	35
3.7	Sampling strategy	36
3.8	Recruitment of study participants.....	37
3.8.1	Inclusion criteria	38
3.8.2	Exclusion criteria.....	38
3.9	Method and instrument of data collection	39
3.9.1	Pre-testing of the interview schedule	40

3.9.2	Transcription	40
3.10	Analyses of data	41
3.11	Trustworthiness	43
3.11.1	Credibility	44
3.11.2	Dependability	45
3.11.3	Conformability	46
3.11.4	Transferability	46
3.12	Ethical considerations, confidentiality, anonymity	46
3.13	Data storage	47
3.14	Delimitations of the study	47
3.15	Summary	47
CHAPTER 4	: RESULTS.....	48
4.1	Introduction	48
4.2	Demographics of participants	48
4.3	Emerging themes and sub-themes identified from data collected.....	50
	-Career limiting bar for non-degree holders in the public sector	50
4.3.1	Factors influencing job satisfaction among participants	50
4.3.2	Theme 1: Low employment salary grade entry-level.....	50
4.3.3	Theme 2: Low remuneration	53
4.3.3.1	Sub-theme: Disparity in salary of technologists within public health institution	56
4.3.4	Theme 3: Promotion opportunities	57
4.3.4.1	Sub-theme: Career limiting bar for non-degree holders in the public sector.....	58
4.3.5	Theme 4: Limited educational advancements.....	60
4.3.6	Theme 5: Dearth of opportunities for specialty training.....	64
4.3.6.1	Sub-theme: Limited funding and opportunities for CPD.....	65
4.3.7	Theme 6: Strained working relationships between dentists and technologists	67
4.3.7.1	Sub-theme: Low professional status.....	69
4.3.7.2	Sub-theme: Low professional/work autonomy	70
4.3.8	Theme 7: Poor working conditions.....	73
4.3.8.1	Sub-theme: Lack of equipment and laboratory consumables	74

4.3.8.2	Sub-theme: Restrictive government employment policies	76
4.3.9	Synopsis of the results based on findings as per research objective 1	78
4.3.10	The effect of professional qualification and career progression on participants' job satisfaction	80
4.3.10.1	Theme 8: Limited professional [academic] qualification	81
4.3.10.2	Sub-theme: Non-transformative dental technology teaching curriculum	84
4.3.11	Theme 9: Consequences/implications of the findings on job satisfaction as per research objectives	86
4.3.11.1	Sub-theme: Intent to quit job/change profession (turnover).....	90
4.3.11.2	Sub-theme: Inadequate public awareness of the profession of dental technology	92
4.3.12	Theme 10: Expression of job satisfaction amongst participants	94
4.3.13	Participants' suggestions for making dental technology more attractive as a field of employment (research objective 3).....	95
4.3.13.1	Amendment of restrictive government employment policies for dental technologists' cadre	95
4.3.13.2	Enhancement of employment entry grade level and promotion opportunities	97
4.3.13.3	Improved remuneration	98
4.3.13.4	Promoting professional/job autonomy	99
4.3.13.5	Improving dental technology teaching curriculum.....	99
4.3.13.6	Review of government employment policies	100
4.3.13.7	Improving educational advancement and professional qualification	101
4.3.14	General comments.....	102
4.4	Summary	103
CHAPTER 5 : DISCUSSION AND CONCLUSION.....		105
5.1	Introduction	105
5.1.1	Factors influencing job satisfaction among dental technologist participants in the public health sector in Lagos state, Nigeria	105
5.1.1.1	Low employment entry grade level.....	105

5.1.1.2	Low remuneration.....	107
5.1.1.3	Promotion opportunities.....	108
5.1.1.4	Career limiting bar for non-degree holders on the public health ..	109
5.1.1.5	Limited educational advancements	110
5.1.1.6	Dearth of opportunities for specialty training	110
5.1.1.7	Limited funding and opportunities for continuous professional development.....	112
5.1.1.8	Strained working relationships between dentists and technologists	113
5.1.1.9	Low professional status	114
5.1.1.10	Low professional/work autonomy	115
5.1.1.11	Poor working conditions	116
5.1.1.12	Lack of equipment and laboratory consumables	117
5.1.1.13	Restrictive government employment policies	118
5.1.2	The role of professional qualification and career progression as a motivating factor to career advancement and job satisfaction amongst participants	119
5.1.2.1	Limitation of the academic/professional qualification.....	119
5.1.2.2	Non-transformative dental technology curriculum.....	119
5.1.3	Concluding discussion based on findings as per research objectives	121
5.1.3.1	The consequences/implications of the findings	122
5.1.3.2	Intention to quit or change profession.....	123
5.1.3.3	Expression of job satisfaction amongst dental technolgist.....	124
5.2	Limitations of the study	126
5.3	Recommendations	127
5.4	Suggestions for future research	129
5.5	Conclusion	129
	REFERENCES.....	130
	ADDENDA.....	146

LIST OF TABLES

Table 3.1: Developing of interview guide.....	32
Table 3.2: Dental technologists practicing in Lagos state government hospitals/dental centres	34
Table 3.3: Dental technologists practicing in federal government hospitals/dental centres in Lagos.....	35
Table 3.4: Sampling strategy.....	36
Table 3.5: Sampled dental technologists practicing in State and Federal Government hospitals/dental centres	38
Table 4.1: Demographics of participants	49
Table 4.2: Themes and sub-themes.....	50
Table 5.1: Factors influencing job satisfaction among participants	125

LIST OF ADDENDA

Addendum 1: Scheme of Service for dental technologist cadre	147
Addendum 2: Letter of information for participants and consent form	149
Addendum 3: Letter of permission to the registrar of the DTRBN	153
Addendum 4: Gatekeeper permission letter	155
Addendum 5: Statistical data of dental technologists in Nigeria	156
Addendum 6: List of Government hospitals/dental centres in Lagos State	157
Addendum 7: Interview schedule	159
Addendum 8: Application for approval of amendment.....	160
Addendum 9: Ethical clearance certificate	163
Addendum 10: Editing certificate (2017)	164
Addendum 11: Editing certificate (2020)	165

DEFINITIONS

Bracketing: A way of holding back preconceived ideas, or preconceptions, and personal knowledge by the researcher when exploring and reflecting on the experiences of participants (Mills and Birks 2014).

Call duty: This is earned allowance payable to health professionals in federal hospitals/medical centres and clinics in ministerial departments and government agencies (MDAs.) (Egbule 2009).

Dental technologist: Is a registered member of the dental professional (team), who make various dental appliances and restorative devices, such as dentures, crowns and bridges to a prescription or specification of a dentist (General Dental Council 2009: 9).

Denture: An artificial substitute for missing natural tooth/teeth and surrounding tissues (Heasman and McCracken 2007).

Factor: Is defined as a fact or situation that influences the result of something constituent or an element that actively contributes to an accomplishment, certain effect, result or process (The American Heritage Dictionary of the English Language 2016).

Interpretivist research paradigm: Is described as a research paradigm adopted to obtain an understanding of the world view from an individual's perception (Lincoln, Lynham and Guba 2013).

Job satisfaction: Is simply how people feel about their jobs and different aspects of their jobs. It is the extent to which people like (satisfaction) or dislike (dissatisfaction) their jobs (Spector 1997).

Phenomenological research: Is defined as a method of inquiry in which the researcher identifies the essence of human experiences about a phenomenon as described by participants (Creswell 2014).

Teaching Allowance: This is an allowance payable to health professionals who are engaged in teaching of health professionals-in-training in federal teaching/specialist hospitals and medical centres (Egbule 2009).

Theme: A theme captures something important about the data in relation to the research question, and represents some level of patterned response or meaning within the data collected (Braun and Clarke 2006).

Thematic analysis: A method for organizing, identifying, analysing, and reporting patterns (themes) within data (Braun and Clarke 2006).

Qualitative research: Is defined as an approach or method that is adopted to examine research problems when an in-depth understanding of the phenomena is required (Creswell 2007: 51).

ACRONYMS AND ABBREVIATIONS

ADTN:	Association of Dental Technologists of Nigeria
B-Tech:	Bachelor of Technology
BSc:	Bachelor of Science
CAD:	Computer-Aided Design
CAM:	Computer-Aided Manufacturing
CDT:	Certificate of Dental Technology
C&G:	City and Guilds
CONHESS:	Consolidated Health Salary Structure
CPD:	Continuous Professional Development
DTRBN:	Dental Technologists Registration Board of Nigeria
DTs:	Dental Technologists
SGL:	Salary Grade Level
HND:	Higher National Diploma
MLS:	Medical Laboratory Scientist
NCE:	National Council on Establishment
NSIWC:	National Salaries, Incomes and Wages Commission

CHAPTER 1 : INTRODUCTION

1.1 Introduction

The World Health Organisation (WHO), as reported by the Australian Dental Association (2015), defines dentistry as a branch of medicine concerned with the science and art of preventing, diagnosing and treating diseases, injuries and malformations of the teeth, jaws and mouth. The Australian Dental Association (2015) and Turner, Ross and Ibbetson (2011: 1) assert that dentistry is a wide discipline that encompasses an oral health care team which includes dentists (as leader of the dental team), dental technologists/technicians, dental therapists/hygienists, and dental assistants/nurses. All these professionals, excluding dentists, are also referred to as allied and complementary professionals in dentistry, or as auxiliary dental professionals (Turner, Ross and Ibbetson 2011). Dental technology is a branch of dentistry that deals with the art and science of the manufacture of oral appliances and restorations. This field requires critical analysis of materials for the design and processing of dental prosthetics and corrective devices for malposition of tooth/teeth and restoration of missing natural tooth/teeth and oral tissues (Evans, Henderson and Johnson 2010: 228).

Different countries use the terms or nomenclatures 'dental technologist', 'dental technician' and 'dental laboratory assistant' differently, whereas, they are all referred to as technicians in the United Kingdom (UK) (General Dental Council 2009). In other countries such as South Africa, they imply different professional levels. Dental technologists are degree holders at least a minimum of Bachelor of Technology (B-Tech) in Dental Technology, while dental technicians and dental laboratory assistant are not. The latter (dental technicians and dental laboratory assistants), however, have trained at National Diploma (ND) level in Dental Technology (as indicated by the South African Dental Technicians Act 19 of 1979 as amended) (South Africa 1979). As such dental technicians are only able to work in the employment and supervision of dental technologists and dentists to fabricate removable intra-oral dental appliances such as dentures, inlays, bridges, crowns, and orthodontic braces according to dentists' written instructions. The Bachelor of Technology Degree in dental technology qualification

entitles graduates to become dental laboratory owners as well as employers of diploma graduates, that is, dental technicians (Dental Technicians Act 19 of 1979). Furthermore, a dental laboratory assistant in South Africa means any person employed as such by a dentist, dental technologist or dental technician to assist in performing a simple task in the dental laboratory (Dental Technicians Act 19 of 1979).

In the Nigerian context, a dental technician is referred to as a dental laboratory assistant, that is, someone who assists a dental technologist in carrying out their job in the dental laboratory, and it is also the term that is used to describe a dental surgery assistant (DSA) currently known as dental surgery technician (DST), generally known as a dental assistant. Additionally, as per the Dental Technologists Registration Board of Nigeria (DTRBN) Decree 43 of 1987 (Amendment Act Cap D6 of 2004), a dental technologist is one who, by his/her qualification in dental technology, is empowered to engage in the practice of construction and reconstruction of dental prostheses, irrespective of the type of qualification he/she possesses, such as a BSc or Diploma. This includes those working at dental laboratories, hospitals with dental departments/units, and dental technology training institutions (Dental Technologists Registration Board of Nigeria [DTRBN] 2004). As mentioned above, one can therefore conclude that these terms are used interchangeably depending on how they are constituted in a country. For the purpose of this study the term 'dental technologist' will be used.

1.2 Background of the study

The concept of job satisfaction and the assessment thereof began in 1911 with the research of Frank Taylor in the context of the 'industrial revolution', particularly in the United Kingdom, where the labour movement objected to industrial mechanisation (Ugwa and Ugwa 2014; Ezeja *et al.* 2010: 143). Job satisfaction research among health workers in particular started on laboratory personnel in the United States of America (USA) in 1971 (Ugwa and Ugwa 2014; Ezeja *et al.* 2010). This research provided insight into job satisfaction of health workers relating to patient care, patient satisfaction, improved patient outcomes, and overall health care delivery quality (Ugwa and Ugwa 2014: 29; Ezeja *et al.* 2010: 143).

Several studies (Mohase and Khumalo 2014; Blaauw *et al.* 2013; Georgellis, Lange and Tabvuma 2012; Sageer, Rafat and Agarwal 2012; Adzei and Atinga 2012; Lambrou, Kontodimopoulos and Niakas 2010; Omolase *et al.* 2010; Willem, Buelens and De Jonghe 2007) in various disciplines such as social sciences, management sciences and the health care industry have linked employees' job satisfaction to observable workplace behaviours such as absenteeism, organisational commitment, productivity and likelihood to quit. It is therefore not surprising that many studies emphasise the importance of identifying the determinants of job satisfaction, exploring both work and non-work-related factors. Such factors include poor remuneration, large workload, lack of equipment, limited workplace socialisation, low autonomy and lack of training opportunities (Georgellis, Lange and Tabvuma 2012: 464).

In the health care industry, as reported by Blaauw *et al.* (2013: 128), job satisfaction amongst health workers has been shown to be influenced by a combination of both individual and organisational factors, including personality, the work itself, poor working conditions, low remuneration, limited workplace socialisation, lack of training opportunities, lack of professional development and poor leadership styles. Importantly, job satisfaction depends not only on the job's characteristics but also on employee expectations of what their job should provide (Blaauw *et al.* 2013). Job satisfaction enhances increased productivity, improves job performance and increases organisational commitment (Lambrou, Kontodimopoulos and Niakas 2010).

Within dentistry, as in other health professions, the role of allied and complementary professionals cannot be over-emphasised (Turner, Ross and Ibbetson 2011). The College of Dental Technologists of Ontario (2012) describe dental technology as one of the many health professions in dentistry that play a significant role in the health care delivery system.

In the dental technology profession there is a paucity of information on factors such as job satisfaction. Studies regarding factors that negatively impact job satisfaction among dental technology professionals have mainly been conducted in the developed countries, particularly in the United Kingdom (UK) (Ross, Turner and Ibbetson 2012; Ross, Ibbetson and Turner 2007; Ross and Ibbetson 2005; Bower *et al.* 2004). Researchers have found that poor remuneration, lack of opportunity for career

development and lack of educational structure as well as lack of funding for specialty training are the main sources affecting job satisfaction within the dental technology profession from the UK perspective.

One of the main determinants of an employee's job performance is his/her satisfaction on the job (Blaauw *et al.* 2013). Several studies have been conducted in other health professions both in the developed countries and sub-Saharan Africa on factors influencing job satisfaction and their impact on employees' performance and overall organisational commitment. Studies on job satisfaction within the field of dental technology have been neglected in the African continent, particularly in the Nigerian context.

Anecdotally, in the Nigerian context there has been growing concern over the increasing number of dental technologists leaving their jobs particularly those working in the public sector (Jokomba 2000). The only retrievable studies on job satisfaction amongst oral health care professionals in Nigeria were not specific to dental technologists. These studies (Ezeja *et al.* 2010; Jeboda *et al.* 2007; Saheeb and Mafeni 1999) were of oral health workers in Nigeria and included dentists, dental surgery assistants, dental technologists and dental therapists. To date, there is no information in the published literature regarding factors influencing job satisfaction among dental technologists in Nigeria.

1.3 Problem statement

Within the Nigerian dental technology industry there have been several concerns expressed regarding existing discrepancies on the entry-level employment salary grade for dental technologists entering the public health sector, as well as limited career progression, dearth of specialty skills, and educational training challenges within the profession (Osuagwu 2013; Akpa 2012; Ogunbodede 2011; Jokomba 2000). Bearing in mind the problems associated with job satisfaction of dental technologists in the public health sector, this study investigated factors influencing job satisfaction among dental technology professionals in the public health sector, and offers strategies that may be applied to improve job satisfaction within the dental technology industry in Nigeria.

1.4 Purpose of the study

The purpose of this study is to explore factors influencing job satisfaction among dental technologists working in the public health sector in Lagos, Nigeria.

The specific objectives included the following:

- 1) To explore possible factors influencing job satisfaction among dental technologists in the public health sector in Lagos state.
- 2) To establish the role of professional qualification and career progression amongst dental technologists in the public health sector as tools for job satisfaction in Lagos state, Nigeria.
- 3) To determine how factors militating against job satisfaction among dental technologists in the public health sector in Lagos state can be addressed.

1.5 Rationale and significance of the study

Studies have shown that health workforce turnover is directly influenced by inadequate compensation, lack of opportunities for continued professional development, poor working conditions such as lack of equipment, and poor workplace safety (Blaauw *et al.* 2013; World Health Organization [WHO] 2006). Nonetheless, to date, no studies specific to dental technologists have been conducted to assess the perceived level of job satisfaction among dental technologists in Nigeria. Furthermore, there is limited literature on factors impacting job satisfaction among dental technology professionals in the African continent. This study, therefore, focuses on dental technology professionals with an in-depth, qualitative research approach to expand the existing body of knowledge.

In the keynote address to the National conference/annual general meeting of the Association of Dental Technologists of Nigeria (ADTN) in Lagos in 2011, Ogunbodede (2011) expressed concern regarding educational advancement as a prerequisite to achieving the universal benchmark in Nigeria, considering the challenges facing the dental technology profession in the 21st century. The implication here is that the structure of education and further advancement can be a tool towards achieving job satisfaction and career progression in the dental technology profession in Nigeria. This line of reasoning is supported by the reports of Osuagwu (2013) and Akpa (2012)

which suggest that improved professional qualification can be a tool to attaining a universal benchmark within the dental technology industry in Nigeria, and to career progression and job satisfaction. Similarly, keynote addresses at the national conference/annual general meetings of Association of Dental Technologists of Nigeria in Makurdi in 2012 (Akpa 2012), and Umuahia in 2013 (Osuagwu 2013) identified that the entry level employment salary grade for dental technology professionals entering the public health sector is too low, remuneration in general is too low, and career advancement is limited. The speakers also raised the issue that the educational training of dental technologists was mostly at Higher National Diploma (HND) level rather than degree level which was career limiting in the public health sector. In the absence of previous studies, and to follow through with the concerns raised in these keynote addresses, this study explored the factors influencing job satisfaction among dental technologists employed in the public health sector. This study seeks to:

- 1) Provide insight into the factors that contribute to perceived job satisfaction of dental technology professionals in the public health sector.
- 2) Provide information that may assist policy makers and employers in formulating policies that will help create/improve job satisfaction.
- 3) Provide information that may assist policy makers and employers with recruitment and retention strategies of dental technologists within the public health sector in Nigeria.

1.6 Key research questions

- 1) What are the factors influencing job satisfaction among dental technologists in the public health sector in Lagos state, Nigeria?
- 2) What is the role of professional qualification and career progression amongst dental technologists in the public health sector as motivating tools for job satisfaction in Lagos state, Nigeria?
- 3) How can the possible factors affecting job satisfaction amongst dental technologists in the public health sector in Lagos state, Nigeria, be addressed?

1.7 Overview of the dissertation

This dissertation has been structured into five chapters. In this chapter, a brief description of the dental technology profession and the role of this profession in health care is presented. This chapter also provides the reader with background information on job satisfaction. The chapter additionally presents the purpose and rationale of the study, aims and purposes and identifies the key research questions which guided the research.

Chapter 2 of this dissertation includes an extensive review of literature related to the study regarding job satisfaction. This includes discussions on job satisfaction within the health care industries globally and particularly in the Nigerian context. The major theories of work motivation are discussed as well as the theoretical frameworks underlying this study, namely, Herzberg's two-factor theory of job satisfaction and motivation and Adams' equity theory.

The research methodology and relevant ethical issues are discussed in Chapter 3. This includes an explanation of the theoretical approach used as well as the rationale for adopting a qualitative sampling approach.

The findings of this study are presented in Chapter 4. Analyses of the results based on the perspectives of the participants are offered and the findings with respect to job satisfaction amongst dental technologists in the public sector are presented.

The findings of this study are discussed in Chapter 5 in the light of the literature reviewed. The limitations of the study as well as the recommendations and suggestions for further research are presented.

CHAPTER 2 : LITERATURE REVIEW

2.1 Introduction

This chapter reviews the literature regarding job satisfaction and the factors that influence it, and research on job satisfaction among health workers in general as well as in Africa and Nigeria. Special attention is paid to any research related to job satisfaction of dental technologists.

2.2 Definition of job satisfation

Job satisfaction, in simple terms, has been described as “how pleased an employee is with his or her position of employment” (Moyes, Shao and Newsome 2008: 65). The concept of job satisfaction has been explored in various contexts by different researchers and there is, therefore, no single definition of job satisfaction.

2.3 Contextualising the impact of job satisfaction

Locke (1976 cited in Ugwa and Ugwa 2014: 30) defines job satisfaction as the pleasurable or positive emotional state that results from the appraisal of one's job or job experience. In the opinion of Willem, Buelens and De Jonghe (2007: 1011), job satisfaction is the feeling and emotion of employees as a result of their work experiences. Their view is that job satisfaction is a multi-faceted characteristic whereby people take certain available resources such as their time, talent, and energy and commit them toward organisational goals. To improve job satisfaction, workers therefore should be able to attain their personal objectives in their jobs. Zhu (2013: 293) defines job satisfaction as the positive and satisfied approaches that employees have toward their work, whereas those with negative and unpleasant perceptions towards their work are often dissatisfied with their jobs.

Several studies (Jaiswal *et al.* 2014; Mohase and Khumalo 2014; Ugwa and Ugwa 2014; Blaauw *et al.* 2013; Marinucci *et al.* 2013; Sageer, Rafat and Agarwal 2012; Omolase *et al.* 2010; Ogunrin, Ogunrin and Akerele 2007) have linked job satisfaction

to employees' retention, motivation, performance/commitment, their role in improving the objectives of the organisational goals, and their intention to stay or leave. In the context of health care, Mutale *et al.* (2013: 2) define health worker job satisfaction as the attitude towards one's work and the related emotions, beliefs, and behaviours which result from complex interactions between on-the-job experience, organisational environment and motivation. Blaauw *et al.* (2013: 127) assert that job satisfaction is an important determinant of health worker motivation, retention, and performance, which are critical to improving the functioning of health care systems in low and middle-income countries. This is consistent with the earlier work of Omolase *et al.* (2010: 1), who noted that job satisfaction describes how content an individual is with his/her job. They further noted that the efficiency of health care systems depends mainly on the drive of the employees, and that satisfied workers generally perform well with reduced level of absenteeism from work and reduced voluntary turnover. A number of authors observe that work absenteeism is indicative of low job satisfaction which correlates with high turnover rates of employees (Mohase and Khumalo 2014; Adzei and Atinga 2012; Sageer, Rafat and Agarwal 2012). Bonenberger *et al.* (2014: 1) state that job satisfaction is identified as a key factor in relation to health worker retention and turnover in low and middle-income countries.

According to Fogarty *et al.* (2014: para. 2 line 1), Mohase and Khumalo (2014: 94), Ojaka, Olango and Jarvis (2014: para. 1 line 1-2), Faye *et al.* (2013: para. 2 line 8), Blaauw *et al.* (2013: 127), and the World Health Organisation (WHO) (2006: 23), sub-Saharan Africa faces a shortage of trained health workers due to the legacy of insufficient government investment in the health sector and the migration of trained health workers to countries offering higher wages and a better quality of life. Nigeria's health care system, like other sub-Saharan nations, is hindered due to infrastructure decay and poor workers' incentives as a consequence of decades of military rule and economic instability (Federal Government of Nigeria 2007: 21). Furthermore, studies within Nigeria amongst health workers (Ugwa, Muhammed and Ugwa 2014; Yakasai, Ugwa and Abubakar 2013; Akinyemi and Atilola 2013; Ayamolowo, Irinoye and Oladoyin 2013; Ugwa, Yakasai and Abubakar 2012; Omolase *et al.* 2010; Ogunrin, Ogunrin and Akerele 2007) have found low levels of job satisfaction among Nigerian doctors, nurses and other health care professionals. Research by Ugwa, Yakasai and Abubakar (2012: 67) on job satisfaction among resident doctors in a tertiary health

care setting in Nigeria revealed that Nigerian doctors are less satisfied when compared to their colleagues in other countries such as the United Kingdom (UK), the United States of America (USA), Germany and South Africa. A study by Akinyemi and Atilola (2013: e47) showed that low remuneration, poor working conditions and low job satisfaction are the leading factors responsible for the dearth of health professionals in sub-Saharan Africa. Hence, it is pertinent to explore the impact of job satisfaction in dentistry in particular.

2.4 Factors impacting job satisfaction in the field of dentistry

Like any job, the practice of dentistry has a number of characteristics that can produce either satisfaction or dissatisfaction (Sur *et al.* 2004: 153). Research interest has increased regarding the relationship of working conditions and job satisfaction among dental health professionals (Al Jazairy *et al.* 2014: 324). Factors affecting job satisfaction among the dental workforce differ, leading to a range in the level of satisfaction (Hamasha *et al.* 2019: p. 2 para 2 line 4). Studies from the developed countries (da Silva 2019: 321; Hamasha *et al.* 2019; Abdullah and Saeed 2013; Fahim 2012: 49; Goetz *et al.* 2012: 1; Freeman 2005; Gilmour *et al.* 2005) have shown that the overall job satisfaction of dentists is high as oral health practitioners. Some specific aspects of their jobs, however, have been reported to influence job satisfaction including productivity, the level of stress and burnout, low remuneration, long working hours, the perceived quality of staff relationships, and lack of opportunities for speciality training.

Luzzi and Spencer (2011: 23) and Luzzi *et al.* (2005: 179) report that low job satisfaction has been linked to higher turnover rates amongst dentists and dental auxiliaries with resultant loss of productivity and reduced quality of patient care. They further indicate that changes in workplace structures, financial changes and shortages in auxiliary staff all contribute to the changes experienced in the dental workplace. This is perceived to have implications for the recruitment and retention of dentists in active clinical practice (Hamasha *et al.* 2019: p. 1 para. 5 line 2; Luzzi and Spencer 2011: 23; Luzzi *et al.* 2005: 179). This also suggests that what affects dentists could directly or indirectly influence professionals complementary to dentistry such as dental technologists (Turner, Ross and Ibbetson 2011: 1; Al Jazairy *et al.* 2014: 324).

Naidu, Newton and Ayers (2006: p.2 para. Line 6) conducted a comparative study among dental professionals working in three different countries from the dental therapist's/hygienist's perspective. Their findings indicate several difficulties facing these professionals, such as the lack of career structure, a narrow scope of practice, outdated facilities and inadequate remuneration. Other studies (Newton and Gibbons 2001; Turner, Ross and Ibbetson 2011; Loretto, Caldas and Coelho Junior 2013) have reported high levels of job satisfaction in general but low satisfaction in some aspects of their job such as poor remuneration, lack of conducive work environment, large workload and the dentist's personality (i.e. attitude of some dentists towards them).

In a qualitative study on job satisfaction among dental therapists carried out in South Africa, Singh (2014: 28) found high levels of dissatisfaction amongst these professionals. In the private sector, respondents were frustrated with their limited scope of practice, while in the public sector, the lack of positions, lack of dental facilities and poor remuneration were the major factors that negatively affected their job satisfaction.

There are limited studies in the African continent, particularly in the Nigerian context, on job satisfaction among dental professionals. The only available published literature among oral health professionals in Nigeria concerns studies among all oral health workers including dentists (Saheeb and Mafeni 1999), dental nurses, dental technologists, dental therapists and dental record officers (Ezeja *et al.* 2010; Jeboda *et al.* 2007). None of these were specific to dental technologists.

Findings from the study conducted by Ezeja *et al.* (2010: 143) amongst oral health workers in Nigeria found that dental auxiliaries (dental nurses, dental therapist, dental technologists, and dental record officers) were more satisfied than dentists. This study was a quantitative study, therefore no reasons explaining the satisfaction were recorded. Similarly, Jeboda *et al.* (2007) made the same assertion in a conference paper. The researcher was only able to find the abstract of this paper. Every effort was made to contact Jeboda *et al.* through electronic mails requesting the full text of the conference paper, but this was not successful. Therefore, the findings of their study could not be substantiated.

There appears to be no published research undertaken in Nigeria regarding dental technologists working in the public health sector specifically. According to the Registrar of the DTRBN, Dr Olaiya (personal communication by telephone conversation on 16 September 2015), over 80% of dental technologists work in the public sector, while 20% are either employed in the private sector (e.g. private hospitals dental laboratory) or private practice. Dr Olaiya said that the major difference between dental technologists in the public and private sector is that in the public sector dental technologists work in a well-structured scheme of service such as salary structure (remuneration packages), and career pathway advancement. There are no guidelines for salary structure and scheme of service within the private sector because employees are at the behest of their employers who are profit-driven.

Because this study focusses on dental technologists in the public sector, an explanation of the Nigerian Civil Service framework document which determines the employment/career pathway for dental technology professional cadres in the public sector is warranted.

The Nigerian Civil Service Schemes of Service (Nigerian Civil Service 2000; 2003: 74-79), specifies the employment career pathway of various professions (including health professions) in the public service sector. The document indicates the entry-level as well as method of career advancement up to retirement level for each profession. The use of Salary Grade Level (SGL) or Consolidated Health Salary Structure (CONHESS) determines the employment entry level on which new employees are placed at the commencement of their career in the civil service (public sector) up to their retirement levels. According to the Nigeria's employment policy document, two categories of workforce exists: junior level cadres in SGL 1-7, and senior level cadres from SGL 8-17. Dental technologist cadres are regarded as allied health care professional cadres and their entry level is tacked at SGL 08 for government employed dental technologists. The retirement cadres for dental technologists is tacked at SGL 14 for Higher National Diploma (HND) holders and SGL 17 for degree holders at both state and federal government levels (see Addendum 1). Furthermore, for the purpose of this study a brief account of the evolution of dental technology educational qualification in Nigeria is offered.

2.5 Evolution of dental technology in Nigeria

According to the evidence provided by the immediate past president of the ADTN, Mr Okeke (2016, pers. comm. 19 January), and Ogunbodede (2015: 96), the first professional qualification to be awarded to the early dental technologists were awarded by the City and Guilds (C & G) of London, which started in 1957 and was coordinated by the British which ended in 1989 with the establishment of the Dental Technologists Registration Board of Nigeria (DTRBN). The DTRBN took over and coordinated the final examinations which marked the inception of the Certificate of Dental Technology (CDT) in 1991 and ended in the year 1998. The Higher National Diploma (HND) was established by the National Board for Technical Education (NBTE) in 1998 and continues until today. The quest for further educational advancement within the profession gave rise to the establishment in 2009 of the Bachelor of Technology (B-Tech) in dental technology at the Federal University of Technology Owerri (FUTO) in Imo state. This is still the only university degree awarding institution in Nigeria for dental technology (Okeke 2016, pers. Comm. 19 January). Thus, four out of the five training institutions currently award a Higher National Diploma (HND), with only one institution offering a degree programme in dental technology. Exploring the impact of job satisfaction within the dental technology industry is presented.

2.6 Factors impacting job satisfaction in dental technology

Studies among dental technology professionals have mostly been conducted in developed countries (Ross, Turner and Ibbetson 2012; Ross, Ibbetson and Turner 2007; Ross and Ibbetson 2005; Bower *et al.* 2004). Such studies have identified low remuneration, lack of opportunity for career development and lack of educational structure as well as lack of funding for specialty training as some of the problems affecting job satisfaction among dental technology professionals.

In the Nigerian context, there are several concerns that need to be addressed with regard to job satisfaction within the dental technology profession. These concerns are most prominent amongst the dental technologists in public health sector employment who are often disgruntled with their jobs (Osugwu 2013; Jokomba 2000). Evidence suggests that there has been an increase in the number of dental technologists in

Nigeria leaving the profession (Jokomba 2000). Osuagwu (2013), Akpa (2012), Ogunbodede (2011) and Jokomba (2000) indicate that dental technologists are leaving their profession and moving to other health professions that are more attractive in the public service due to problems relating to discrepancy in the entry-level employment salary grade, remuneration, educational challenges, limited career advancement, and dearth of specialty training. To date, no formal studies have been conducted on the factors influencing job satisfaction amongst dental technologists in Nigeria. Moreover, retrievable studies available regarding dental professionals within Africa, and particularly in the Nigerian context (Singh 2014; Ezeja *et al.* 2010; Saheeb and Mafeni 1999) were not specific to dental technologists and most of these studies were conducted using quantitative questionnaires (Ezeja *et al.* 2010: 144).

2.7 Factors influencing job satisfaction

There are several factors that can contribute to an employee's level of job satisfaction (Moyes, Shao and Newsome 2008: 65). Luthans (2010: 141) declares that there are three main dimensions to job satisfaction: firstly, job satisfaction is an emotional response to a job situation. As such, it cannot be seen, it can only be inferred. Secondly, job satisfaction is often determined by how well outcomes meet or exceed expectations. For example, if individuals in an organisation feel that they are working much harder than others in the department but are receiving fewer rewards, these employees will have a negative attitude towards their work, supervisor, and co-workers. On the other hand, if employees feel that they are being treated well and are being paid equitably, they are likely to have a positive attitude towards their job. Thirdly, job satisfaction represents several related attitudes such as absenteeism, lack of organisational commitment and low performance as well as employees' intention to quit their job (Luthans 2010). Rad and Yarmohammadian (2006: 12) concur with Moyes, Shao and Newsome's (2008: 65) assertion that the factors that influence employee's job satisfaction include: salaries, fringe benefits, achievement, autonomy, recognition, communication, working conditions, job importance, co-workers, degree of professionalism, organisational environment, interpersonal relationships, supervisory support, positive affectivity, job security, workplace flexibility, working within a team environment. Studies over the years have identified five key measurements to represent the most important factors of a job satisfaction about

which employees have affective responses (Luthans 2010: 142; Spector 1997). These are the work itself, pay, promotion opportunities, supervision style and co-worker relationships. A more detailed analysis of some of these factors follows.

2.7.1 Impact of pay/remuneration on job satisfaction

Josias (2005: 53) describes pay as the amount of monetary remuneration or package that is received and the degree to which this is regarded as equitable in comparison to that of others in the organisation. Money is vital not only in the sense that it helps people attain their basic needs but is of utmost importance in providing upper level need satisfaction. Seraj *et al.* (2014: 48) discuss the impact of remuneration on job satisfaction noting that the monetary issue and salary have been described as the most negative aspect of the work environment. In addition, their report on job satisfaction among dental academic staff indicates that issues of remuneration were the most prominent reason for dental faculty members leaving academia and turning to private practices. A study among dental assistants in Brazil by Al Jaziray *et al.* (2014: 324) found that poor remuneration was the most cited factor that negatively influenced job satisfaction among these professionals. Nevertheless, the authors report that 76.5% of participants in their study were satisfied with their work as dental assistants, and 48% were dissatisfied with the remuneration they earned from their employer.

Tella, Ayeni and Popoola (2007: 3) state that remuneration can be used as a motivational tool. Their view is that remuneration reflects the importance the organisation attaches to each job, encouraging workers by rewarding them according to their performances.

2.7.2 Impact of promotion opportunities on job satisfaction

Robbins, Odendaal and Roodt (2003: 77) define promotional opportunities as the chances for advancement in an organisation. This also includes opportunities for lateral movement and career growth. Promotional opportunities enable employees to progress in their career pathway in an organisation. Luthans (2010: 142) points out that promotions take different forms and have a variety of accompanying rewards. For

instance, individuals who are promoted on the basis of seniority often experience job satisfaction but not as much as those who are promoted on the basis of performance. Additionally, a promotion with a 10 percent salary rise is typically not as satisfying as one with a 20 percent salary rise (Luthans 2010; Tella, Ayeni and Popoola 2007). These differences may explain why executive promotions may be more satisfying than promotions that occur at the lower levels in an organisation (Luthans 2010: 142). Luthans (2010: 142) further suggests that a positive work environment and opportunities for employees to grow intellectually while also broadening their skills, has for many employees, become more important than promotion opportunities.

2.7.3 Impact of leadership style/supervision on job satisfaction

Leadership style contributes significantly to the success and failure of an organisation (Lok and Crawford 2004: 322). The relationship of leadership style, motivation and employee performance has been extensively studied by scholars and findings are that there is a significant relationship between a supportive supervisory style on motivation and employees' performance as well as organisational commitment (Rad and Yarmohammadian 2006; Lok and Crawford 2004). Rad and Yarmohammadian (2006: 21) indicate that employee job satisfaction depends upon the leadership style of the supervisor/manager. They further suggest that managers should select the best form of leadership style according to organisational culture of hospitals and what is optimal for employees' growth. Rad and Yarmohammadian (2006: 21) indicate that a participative leadership style of management is not necessarily the best leadership style of management model, but George (2015: 104) disagrees, stating that this style is well suited to the management of health care establishments. The author states that this style of leadership allows professional workers to feel that their professional knowledge and skills are valued and that they are able to make decisions about issues which they perceive are within their professional domain.

According to Luthans (2010: 143), there are two dimensions of supervisory style that affect job satisfaction. The first dimension is employee-centeredness, which is measured by the degree to which a supervisor takes a personal interest in and cares about the employee. This is manifested in ways such as checking to see how well the employee is doing, providing advice and assistance to the individual, and

communicating with the individual on a personal as well as an official level. In a study among American employees, Luthans (2010: 143) found that employees generally complain that their supervisors do not do a very good job on these dimensions. He further asserts that considerable empirical evidence suggests that one of the major reasons employees give for quitting their job in a company is the fact that their supervisor does not care about them (Luthans 2010). The second dimension is participation or influence, as illustrated by employers who allow their employees to participate in decisions that affect their own jobs. In most cases, this approach leads to higher job satisfaction. A participative atmosphere created by the supervisor or employer seems to have a more substantial effect on workers' satisfaction than does participation in a specific decision (Luthans 2010: 143).

The ability of the supervisor to provide technical assistance and behavioural support is referred to as 'supportive supervision'. Karia and Asaari (2006: 32) suggest that employers should employ Total Quality Management (TQM) practices to improve job satisfaction, job involvement and organisational commitment. They maintain that empowerment and teamwork significantly enhance job involvement, job satisfaction, career satisfaction, and organisational commitment. Karia and Asaari (2006: 34) also suggest that continuous improvement and problem prevention significantly enhances job satisfaction and organisational commitment as well as reduces the rate of turnover of employees in the workplace. This is because leadership contributes significantly in the success and failure of an organisation.

2.7.4 The impact of inadequate equipment /facilities on job satisfaction

Workplace facilities and the work environment is an important factor impacting efficiency and job satisfaction (Mullins 2007: 278). Bonenberger *et al.* (2014) report that lack of satisfaction with the work environment was mainly associated with availability of medical and technical equipment/facilities and the condition of workplaces. They explain that the lack of essential tools and equipment is a major workplace challenge that negatively influences job satisfaction among health workers in the public health sector.

A study by Saheeb and Mafeni (1999: 45) among Nigerian dentists reports that lack of facilities can be a source of irritation, stress and lack of job satisfaction for dentists. Singh (2014) in her study among dental therapists in South Africa concurs, stating that the lack of dental facilities is the main problem impacting job satisfaction, particularly for those in public health sector employment.

2.7.5 The impact of opportunities for career development on job satisfaction

Karia and Asaari (2006: 30) state that continuous training and education programmes have a positive effect on job performance, job satisfaction, organisational commitment and the rate of turnover of employees. They further state that empowerment and teamwork significantly improve work performance, job satisfaction and career satisfaction. According to Ezeja *et al.* (2010: 149), professional development improves commitment to service delivery and gives employee a sense of belonging. A study among health care workers in Iran by Rad and De Moraes (2009: 59) found that training for additional knowledge and skills is a great motivator for many employees, and improves employees' performance and productivity.

Bower *et al.* (2004: 147) are in favour of Continued Professional Development (CPD) programmes to improve job satisfaction amongst dental technology employees. They maintain that this can be achieved through partnerships with employers, manufacturers, professional bodies, dental hospitals, and higher education institutions. The creation of additional schools or colleges have been advocated as one way forward for developing education and training opportunities for dental technology professionals within the UK (Bower *et al.* 2004).

Ross and Ibbetson (2005: 101) also support CPD programmes but point out that attending such programmes is often dependent on the co-operation of the employer. Continuous training and retraining of employees play a major role in career advancement and job satisfaction of an employee in every organisation workplace (Seraj *et al.* 2014; Lambrou, Kontodimopoulos and Niakas 2010; Murawski, Payakachat and Koh-Knox 2008). In order to improve and address the problem of job satisfaction among dental technologists there is a need, therefore, for opportunities for continuous professional career development within the dental technology workplace.

2.7.6 The role of work-place socialisation/relationship (co-workers) on job satisfaction

The nature of the work of a group or team members will have an effect on job satisfaction as effective teamwork makes the job more enjoyable. Karia and Asaari (2006: 39-40) assert that work group, especially a tight team, serves as a source of support, comfort, advice, and assistance to the individual members. Karia and Asaari (2006) further indicate that a manager who is receptive to the needs of his/her co-workers can encourage an increased job satisfaction among employees. Similarly, Luthan (2010) affirms that the degree to which fellow workers are technically proficient and socially supportive seems to suggest employee work satisfaction. Luthans (2010: 130), suggests steps that can lead to successful organisational socialisation should include the following:

- Provide a challenging first task on the job;
- Provide relevant training;
- Provide timely and consistent feedback;
- Select a good first supervisor to be in charge of socialisation;
- Design a relaxed orientation program; and
- Place new recruits in work groups with high morale.

Deliberate socialisation strategies have a tremendous potential impact on socialisation. Luthans (2010: 130) argues that new employees who have attended a socialisation training program are indeed more socialised than those who do not and therefore have a better person-to-organisation fit.

2.7.7 The influence of work autonomy on job satisfaction

Naqvi *et al.* (2013: 68) and Skår (2010: 2226) define work autonomy as the extent to which the job of an individual offers considerable independence and freedom to the employee in their daily work schedules, as well as organising the procedures to be used. They further indicate that autonomy is the process of doing one's work independently with all the authority needed to do the job leading to a greater sense of efficacy. The increased efficacy of an individual motivates him/her to exert extra effort

in work which is likely to result in an increased individual and organisational performance (Naqvi *et al.* 2013: 68).

According to Hashimoto (2006: 126), “professional autonomy is autonomous in the sense that professions voluntarily create their own code of ethics on the basis of their active and positive freedom and comply with the code by themselves.” Rafferty, Ball and Aiken (2001: 32) point out that if health professionals perceive an erosion in their autonomy this undermines their satisfaction with their work and contributes to job turnover as well as an unstable, dissatisfied, workforce. In health systems, the lack of professional independence and mutual respect can have adverse effects and can result in the collapse of the system due to frustrations arising from one group seeking to dominate and control others (Rafferty, Ball and Aiken 2001: 32-33).

In dentistry, dental technology professionals want to attain some level of autonomy/independence from professional dominance by dentists, but this may lead to tension among professionals or professional dichotomies (Cortina *et al.* 2001: 64). A study in Canada by Adams (2004: 2243) reports that dental hygiene has long been a para-dental profession, subordinate to dentistry, but is currently striving to break away from dentists’ control and influence. Across the globe dentists have been regarded as the leaders of oral health professionals (Barrett and Murphy 1999: 85), but a lack of consultation and involvement in decision making can negatively affect job satisfaction among oral health workers and influence their decision to quit the profession (Bower *et al.* 2004). A study conducted among health professionals in Canada by Moreau and Mageau (2012: 268) revealed that autonomy and a supportive supervisory style predicts greater psychological health and lower psychological distress. Barrett and Murphy (1999: 86) reported that dental technology professionals in their UK study recognised the role of the dentist as leader of the dental team but they wanted some degree of autonomy.

Roopia (2012: 20) and Karia and Asaari (2006: 33) states that when power is decentralised, many employees can make decisions and freely participate in the decision-making process. Such situations tend to promote job satisfaction. The opposite is also true in that when power is concentrated, employees tend to believe

that they are relatively powerless and helpless. Such a situation reduces job satisfaction (Roopia 2012).

Research has shown that employee participation in performance appraisals is positively related to job satisfaction and that participation in the workplace had a small, but significant effect on job performance and a moderate link to job satisfaction (Kreitner, Kinicki and Beulens 2002). Naqvi *et al.* (2013) reveal that autonomy increases employees' productivity and organisational commitment as a result of empowerment of employees. George (2015: 104) indicates that autonomy is a retention factor for professional workers in organisations.

2.7.8 Importance of working conditions on job satisfaction

Conditions of service is an extrinsic aspect that has an impact on an employees' job satisfaction (Luthans 2010). Working conditions refer to such aspects as temperature, lighting, noise and ventilation. Robbins (1989 cited by Josias 2005: 58) states that employees are concerned with their work environment for both personal comfort and for facilitating good job performance. Studies have revealed that employees prefer physical surroundings that are safe, clean, comfortable and with a minimum degree of distraction (Josias 2005: 58). Mullins (2007: 278) proposes that an inspiring workplace results in a motivated employee thereby increasing job satisfaction and employee performance. According to Spector (1997), research has shown that employees who perceive high levels of constraints in terms of their work environment tend to be dissatisfied with their jobs.

da Silva (2019: 321) and Marinucci *et al.* (2013) found that working conditions (conditions of service) was rated high as a major factor impacting on job satisfaction amongst their research participants in the health industry. Roopai (2012: 19) suggests that organisations need to ensure that there is sufficient illumination in the physical environment, temperature is well maintained, and noise levels are kept to a minimum in order to prevent any discomfort that may cause workers to feel dissatisfied.

2.7.9 Characteristics determining job satisfaction

Roopia (2012) and Spector (1997) classified characteristics determining job satisfaction into two broad categories, personal characteristics and organisational (i.e. work-related) characteristics.

Mohase and Khumalo (2014: 96) support Roopia (2012: 13) and Spector (1997) in stating that personal and organisational factors predict both organisational commitment and job satisfaction. According to them, personal characteristics include disposition, position/status and dominance (i.e. seniority), general life satisfaction and the extent to which the job characteristics are comparable with personal characteristics. Organisational factors include pay and benefits, the work itself, the supervisor, the relationship with co-workers, and working conditions.

A study conducted among nurses in Taiwan by Chang *et al.* (2010) highlights the importance of considering personal characteristics in the process of evaluating job satisfaction. Chang *et al.* (2010) maintain that job satisfaction should not only be linked to organisational characteristics but also associated with individual differences of dispositional tendency. Seraj *et al.* (2014: 192-3) show that personal characteristics such as age, gender, educational level, tenure of employment and organisational characteristics such as nature of work, remuneration/pay, supervision, promotion opportunities, relationships with co-workers, job status and job level contribute to job satisfaction and organisation commitment.

2.7.9.1 Personal characteristics

Personal characteristics include factors such as age, race, gender, educational level, and tenure of employment. (Seraj *et al.* 2014).

2.7.9.2 Age

Mutale *et al.* (2013: p. 7 para. 5 line 1) found in their study that older health workers had higher motivation scores than younger ones. They declare that their finding is crucial when discussing health worker retention schemes. That is, the focus should be

on ensuring retention and reducing turnover. Turnover is associated with many newcomers and fewer staff staying longer, hence, missing out on the stability and motivation that is associated with a longer stay and age maturity. Blaauw *et al.* (2013) concur that job satisfaction was significantly higher in the age group over 50 years of age compared to those under 30 years.

Roopai (2012: 14) observes that older workers have lower expectations than younger workers, and they tend to be better adjusted to the work situation. Spector (1997: 26) proposes two reasons why job satisfaction might increase with age. Firstly, better benefits like pension, rewards and remuneration could increase satisfaction. Secondly, people adapt to the job by adjusting their expectations to be more realistic, so that they are happier with less as they get older.

Okpara (2004: 329) proposes the following reasons for a positive correlation between age and job satisfaction:

- i. Older employees have adjusted to their work over the years, which may lead to higher satisfaction.
- ii. Prestige and confidence are likely to increase with age and this could result in older employees being more satisfied.
- iii. Younger employees may consider themselves more mobile and seek greener pastures, which could lead to lower satisfaction levels.
- iv. Younger employees are more likely to hold high expectations of their jobs and if these expectations are not met, they may experience lower satisfaction levels.

2.7.9.3 Gender

More and more women are entering the workforce and it has become imperative to understand how men and women might differ in their job attitudes (Josias 2005). Studies have explored the relationship between gender and job satisfaction and they reveal that female workers are generally more satisfied than male workers (Mutale *et al.* 2013: p. 6 para. 4 line 1). Josias (2005) states that studies in this regard have been very inconsistent, as some literature reports that males are more satisfied than females, while others suggest that females are more satisfied and some have found no differences in satisfaction levels based on gender.

Seraj *et al.* (2014) conclude that gender had no significant impact on the overall job satisfaction. However, Blaauw *et al.* (2013) found that female health workers were less satisfied than their male counterparts. A study conducted by Okpara (2004) which involved 360 information technology managers in Nigeria, indicates that female employees are less satisfied than their male workers, particularly in relation to pay, promotion and supervision.

2.7.9.4 Education level

A review of literature regarding the relationship between job satisfaction and education suggests that the relationship could be either negative or positive (Roopai 2012). Quinn and Baldi de Mandilovitch (1980 cited in Roopai 2012: 16) reveal the positive role of education as a motivating tool for job satisfaction, from their analysis of data from 11 studies amongst American workers. Their study demonstrated a positive relationship between the workers' educational level and overall job satisfaction. The attainment of a college degree resulted in the largest increase in overall job satisfaction. A study conducted among medical laboratory scientists by Marinucci *et al.* (2013) asserts that opportunities for career development, as in training and retraining of staff are the main pre-determined factors to job satisfaction amongst employees, and this was also rated highest as the main predictors of job satisfaction by almost 90% of their research participants.

Tella, Ayeni and Popoola (2007) state that training opportunities for employees is an indispensable strategy for workers' motivation. They maintain that a good training programme offers workers opportunities for self-improvement and development to meet the challenges and requirements of modern facilities or equipment. Karia and Asaari (2006: 41) advocate that continuous training and education are essential for continuous improvement in employees' skills. The greater the extent of the ongoing training and education in an organisation, the greater the employees' "organisational commitment", "job satisfaction", and "job involvement".

2.7.9.5 Tenure

Tenure is generally defined as the length of employment for which an employee has worked for an organisation (Josias 2005). Mutale *et al.* (2013) state that the longer workers stay in a post, the more motivated they are. Zenger and Lawrence (1989) state that tenure benefits organisations because older employees can help in providing training opportunities for new employees as a result of their experience in the position. Zenger and Lawrence (1989) further argue that organisations benefit because important work-specific knowledge and skills are passed on from one generation of employees to another. Josias (2005: 32) indicates that employees who have been in employment for long periods, tend to express higher levels of job satisfaction and organisational commitment, resulting in lower rates of absenteeism and turnover.

2.7.10 Organisational (work-related) characteristics

Organisational characteristics such as nature of work, equitable reward, job status and job level, supervisory style, promotion opportunities and relationships with co-workers amongst other factors as discussed above have been found to promote job satisfaction and organisational commitment (Seraj *et al.* 2014). Organisational characteristics such as low autonomy, poor conditions of service, low remuneration, poor relationships with fellow workers, and authoritarian leadership style can adversely impact on the level of job (Roziyana 2012).

Mohase and Khumalo (2014: 95) found in their research that 62.9% of their respondents felt that the organisation was not doing enough to improve overall job satisfaction, and that the level of work performance was not encouraged due to the lack of commitment on part of the organisation.

Luthans (2010: 141) identifies five organisational characteristics relevant to job satisfaction, as presented below.

2.7.10.1 Nature of work

The extent to which the job provides the individual with interesting tasks, opportunities for learning, and the chance to accept responsibility, influences job satisfaction (Robbins, Odendaal and Roodt, 2003: 77). Roopai (2012) indicates that work itself correlates most highly with overall job satisfaction. Roopai (2012) further affirms that employees prefer jobs that allow them to use their abilities and skills effectively, as well as a job that offers freedom, varied tasks and performance feedback. This kind of job presents the employee with work that is mentally challenging.

2.7.10.2 Equitable reward

The amount of financial remuneration that is received and the degree to which this is viewed as equitable in relation to that of others in the organisation is referred to as equitable reward (Luthans 2010). Studies have indicated that an organisation's reward system is strongly correlated to job satisfaction. This correlates not only to how pay and promotions are distributed but also to how fairly they are distributed. Adams' equity theory of motivation predicts that people are motivated to maintain a balance between their cognitive beliefs and their behaviour in typical give and take situations (Luthans 2010: 171; Roopai 2012: 18). In the work place, employees will evaluate whether the rewards they receive for their input are equivalent to those received by others. Employees will tend to compare themselves to others who are similar in certain characteristics such as the work they do, gender and educational level (Luthans 2010). Field research has shown that perceptions of distributive and procedural justice are positively related to job satisfaction and negatively to attitudinal problems such as absenteeism, intentions to quit and turnover (Luthans 2010; Kreitner, Kinicki and Beulens 2002). The issue of equitable reward can be explained by Adams' equity

theory for fairness and equitable rewards when workers start comparing the reward they receive with other employees in the same organisation (Luthans 2010).

2.7.10.3 Job level

Oshagbemi (1997) highlights the fact that relatively few studies have attempted to investigate the relationship between employees' job level and corresponding levels of job satisfaction. Mowday, Porter and Steers (1982) and Saal and Knight (1988 cited in Josias 2005) argue that the few studies available suggest that people who hold higher level jobs are more satisfied than those who hold lower level positions. Saal and Knight (1988) are of the view that the more challenging/complex nature of higher-level jobs leads to higher job satisfaction. In addition, employees in professional and managerial jobs are normally paid more, have better promotion prospects, autonomy and responsibility which might also increase the levels of job satisfaction (Luthans 2010; Josias 2005). Josias (2005) indicates that job level is a reliable predictor of job satisfaction, more specifically that employees in higher level jobs have greater satisfaction than lower level employees. Bond and Galinsky (2006), in their study suggest that creation of a more effective workplace for all employees i.e. a workplace that empowers and supports workers has broad positive impacts on entry-level, hourly, low-wage and low-income employees that are similar to, and sometimes greater than, the impacts on more advantaged (i.e. higher level) employees. Other characteristics, which have been discussed in section 2.7.6 and 2.7.8 include nature of co-workers and working conditions (Luthans 2010).

2.8 The impact of job satisfaction in the workplace

Noh *et al.* (2018: 272) indicated that a higher level of job satisfaction increased organisational commitment, which also lowered the employee's behaviour of searching for other workplaces, and that lead to turnover intention, and reduced the turnover rate. Ezeja *et al.* (2010: 143) and Ugwa and Ugwa (2014: 29) declare that the implications of job satisfaction of health workers regarding patient care, patient satisfaction, improved patient outcome and overall health care delivery quality have been a driving force in this area of research.

Mutale *et al.* (2013) argue that low morale among the workforce can undermine the quality of service provision and drive workers away from the profession. They maintain that the presence of high-quality and motivated staff is a key aspect of health system performance, noting that this is also one of the most difficult factors to measure.

According to the World Health Report by the WHO (2006), the need to understand the effect of poor performance of health workers on patient health and there should be a focus on health workers' job satisfaction and motivation as well as on the management of the workforce. Mutale *et al.* (2013) further emphasise the need to develop capable, motivated and supported health workers.

Mohase and Khumalo (2014) assert that dissatisfaction culminates in a higher degree of absenteeism, turnover, labour problems, labour grievances, and attempts to organise labour unions, all of which negatively affect productivity. Lack of job satisfaction also has non-work-related impacts including emotional breakdown, lack of support for family and other problems.

2.8.1 Satisfaction and absenteeism

In general, employees that are not satisfied with their jobs are more likely to display absenteeism and are more likely to quit (Sari and Judge, 2004). Behavioural characteristics such as lateness, unionisation, grievances, drug abuse and decisions to retire early are also indicative of withdrawal behaviours due to dissatisfaction of employees in the job that they currently occupy (Sari and Judge, 2004). Studies have shown that workers that are the most dissatisfied typically have a higher rate of absenteeism because this offers a short-term escape from an otherwise unfriendly work situation (Sari and Judge 2004). Sari and Judge (2004) point out that dissatisfaction can contribute to alcoholism, drug addiction and poor health, which increases absenteeism.

Rhodes and Steers (1990 cited in Josias 2005) explain that people tend to have different perspectives or attach different meanings when viewing the issue of employee absenteeism. From the management or organisational perspective, absenteeism is often seen as a problem to be solved through organisational policies,

but to the employee it can take on a very different meaning (Josias 2005). When viewed from the employees' perspective, absenteeism can be representative of deeper feelings of resentment or perceptions of inequitable treatment in the job situation or a way to sabotage the organisation for the poor work environment or other attributes of the job (Josias 2005: 21). In other words, viewing absenteeism from the employees' perspective in relation to job satisfaction may lead to a focus on improving the work environment and a culture of attendance rather than absenteeism (Josias 2005: 21).

2.8.2 Satisfaction and employee turnover

Noh (2018: 272) reported that a lower level of job satisfaction increased the rate of employee turnover intention, According to Coomber and Barriball (2007), discuss the link between job satisfaction and turnover, noting that an increase in dissatisfaction amongst employee results in a higher chance of them considering other employment opportunities. They further assert in their study, which was conducted among nurses, that an increase in job satisfaction decreases the rate of turnover of employees.

Chang *et al.* (2010) state that job satisfaction is an important predictor regarding the retention of employees, that is, employees who indicate higher levels of job satisfaction show a greater likelihood of remaining employed in their present organisation. It is, therefore, important to identify factors related to job satisfaction in order to enhance retention of employees in the workplace and to develop appropriate management strategies to enhance the quality of employees' work life (Chang *et al.* 2010). Coomber and Barriball (2007) argue that turnover at an organisational level has been identified to be a major contributing factor to the shortages of health workers. They maintain that the loss of performance and efficiency on the part of the employees prior to departure is a major consequence of turnover, and high absence is seen as a critical problem in times of high turnover. In other words, the impact of high turnover is to increase pressure on the remaining employees and decrease the morale of the remaining staff which results in the possibility of further turnover of employees (Coomber and Barriball 2007). Seraj *et al.* (2014: 192) support the observation that job satisfaction can lead to a better organisational commitment of employees, which in

turn can enhance overall organisational success and its progress, as well as lower employees' intentions to leave the organisation.

2.9 Summary

Several studies have found that the factors influencing employees' job satisfaction include inadequate remuneration, poor working conditions, large workload, lack of facilities, limited workplace socialisation, lack of supportive supervision and policies, low autonomy and lack of opportunities for ongoing professional development. The implications of these findings suggest that factors negatively impacting job satisfaction contribute to employees' increased level of absenteeism from work, lack of organisational commitment, voluntary turnover and intention to leave. The implication of this is that health workers who feel satisfied with their jobs provide higher levels of patient care, patient satisfaction, improved patient management and overall quality of service delivery.

CHAPTER 3 : RESEARCH METHODOLOGY

3.1 Introduction

Methodology, as described by Terre Blanche, Durrheim and Painter (2006: 6), is how researchers go about practically studying whatever they believe can be known. In this chapter, the theoretical frameworks underlying this study are briefly explained. The study design, including location of the study, population, sample, data collection and method of analysis are presented. Ethical considerations are discussed.

3.2 Theoretical framework

This study adopted the theoretical frameworks by Herzberg's two-factor theory of job satisfaction and motivation, Maslow's hierarchy of needs theory and Adams' equity theory to evaluate and explain dental technologists' job satisfaction in the discussion in Chapter 5.

Herzberg's two-factor theory of job satisfaction and motivation suggests which factors of an employee's workplace cause satisfaction or dissatisfaction (Luthans 2010). Herzberg's theory proposes that intrinsic factors such as achievement, responsibilities and recognition are more strongly correlated with satisfaction than extrinsic factors such as policies, benefits and working conditions (Luthans 2010). The intrinsic aspects of job satisfaction mainly come from within the employee and are essentially longer lasting than the extrinsic aspects. Extrinsic aspects of job satisfaction are determined by the conditions that are beyond the control of the employee i.e. factors emanating from the organisation (Mullins and Christy 2013).

Maslow's hierarchy of needs maintains that employees will be motivated and satisfied with their jobs only if certain needs are met, namely: physiological needs, safety needs, love/social needs, esteem needs, self-actualisation needs (Aamodt 2004). This implies that lower-level needs must be satisfied first before an individual can meet the next level of needs (Luthans 2010). The next higher level of need has to be activated in order to motivate the individual.

Adams' equity theory (1963) proposes that job satisfaction is a function of what employees put into a job situation compared to what they get from it (Luthans 2010). This theory is based on the idea that employees are motivated by perceived fairness and if they identify inequalities in their input or output ratios among their colleagues they will seek to adjust their input to reach their perceived equity (Luthans 2010).

The following studies (Ross, Turner and Ibbetson 2012; Ezeja *et al.* 2010; Ross, Ibbetson and Turner 2007; Ross and Ibbetson 2005; Bower *et al.* 2004) also informed the researcher's design decisions and analyses. In developing the interview schedule (Addendum 6), the researcher adapted some questions asked by the above-mentioned studies and formulated new questions arising from the theoretical framework chosen for this study, as shown in Table 3-1. The questions were developed to ensure the dependability of the instrument. The interview schedule was also validated by an experienced statistician.

Table 3.1: Developing of interview guide

Variables	Items/Questions	Adapted Sources
Socio-economic status	<ol style="list-style-type: none"> 1. Educational qualification and career development 2. Funding opportunities 3. Geographic location 4. Place work 5. Work experience 6. Salary scale 7. Entry Level/point 	<p>Bower <i>et al.</i> (2004); Ross <i>et al.</i> (2012)</p> <p>Ross <i>et al.</i> (2005; 2007)</p> <p>Ross <i>et al.</i> (2005)</p> <p>Ross <i>et al.</i> (2007)</p> <p>Ross <i>et al.</i> (2005)</p> <p>Ezeja <i>et al.</i> (2010); Ross <i>et al.</i> (2010)</p> <p>Phase 1 Schemes of service (Nigerian Civil Service 2003)</p>
Job Facets	<ol style="list-style-type: none"> 1. Working conditions 2. Supervision, promotion 3. Work socialisation, pay, and other aspects 	<p>Ezeja <i>et al.</i> (2010)</p> <p>Ezeja <i>et al.</i> (2010); Bower <i>et al.</i> (2004)</p> <p>Ezeja <i>et al.</i> (2010)</p>

3.3 Study design

The study was carried out using a predominantly qualitative research approach in order to offer in-depth understanding (Creswell 2014: 14) of participating dental technologists' job satisfaction working in the public health sector in Lagos Nigeria. This was undertaken through an interpretive phenomenological research design by learning from the experiences of study participants. Phenomenology is one of many qualitative research traditions (Reiners 2012). Creswell (2014: 14) explains that phenomenological research design is an approach of inquiry in which the researcher identifies the essence of human experiences about a phenomenon as described by the participants. He maintains that understanding these experiences marks phenomenology as a philosophy as well as a method, and the procedure involves studying a small number of participants through extensive and prolonged engagement in a bid to develop patterns and relationships of meaning. Whereas, the "interpretive phenomenological research design is a method that is used to study contextual features of an experience in relation to other effects such as culture, gender, employment or well-being of people/groups experiencing the phenomenon" (Matua and Van Der Wal 2015: 23). This design allows the researcher to bracket or set aside his or her own experiences in order to understand those of the participants in the study. Semi-structured interviews with a section of demographic information regarding participants employment were utilised to gather data. In addition, the semi-structured interviews included some quantitative data that is, demographic information associated with the research participants job.

3.4 Location of the study

Nigeria is situated in the western part of the African continent and has a population of approximately 173.6 million people (Okpara and Wynn 2008). Nigeria is a Federal Republic of 36 states, with 774 local government areas (LGA) and a Federal Capital Territory (Okpara and Wynn 2008). A two-tier health system (public and private) exists in Nigeria, with about 80% of the population utilising public hospitals/centres which are provided at the federal (tertiary care), state (secondary care) and local (primary care) government levels. Over 80% of health professionals work in the government/public health sector (Nwakeze and Kandala 2011). Lagos state is Nigeria's most populous

city situated in the south-west part of Nigeria (Nigerian Bulletin 2015). Lagos state, Nigeria's economic capital, has a health care system that is similar to what is obtainable in other states in Nigeria. The state has an estimated population of more than 18 million people and is a melting pot for most of Nigeria's diverse ethnic and religious groups (Uneke *et al.* 2007).

3.5 Study population

This study was conducted among dental technologists registered with the DTRBN and working in government/public hospitals and dental centres within Lagos, Nigeria. In an email communication on 07 July 2015, the Registrar of the DTRBN, Dr Olaiya, indicated that the total population of dental technologists registered with the DTRBN at that time were 1462 (comprising 580 males and 882 females) (Addendum 5). Lagos state had the largest number of registered dental technologists with a population size of 244 as at the time of study. This sub-population was likely to possess characteristics similar to the entire population of dental technologists in Nigeria, and was large enough to obtain an appropriate sample size. Tables 3-2 and 3-3 show the number of dental technologists practicing in state and federal hospitals/dental centres respectively.

Table 3.2: Dental technologists practicing in Lagos state government hospitals/dental centres

S/No	Name of hospitals/dental centres	Number of dental technologists
1	General Hospital, Apapa	2
2	General Hospital, Ikeja	Does not exist (now LASUTH)
3	General Hospital, Ikorodu	1
4	General Hospital, Agege	2
5	General Hospital, Surulere [Randle General Hospital]	3
6	General Hospital, Gbagada	2
7	General Hospital, Badagry	No Technologist.
8	Lagos State Dental Centre, Broad Street	4
9	Lagos State University Teaching Hospital (LASUTH) Ikeja	5
10	Ajeromi General Hospital (Ajegule)	1
	Total	20

Table 3.3: Dental technologists practicing in federal government hospitals/dental centres in Lagos

S/N	Name of hospitals/dental centres	Number of dental technologists
1	Lagos University Teaching Hospital/College (LUTH)	11
2	Federal Medical Centre Ebute-Meta	2
3	Military Hospital Yaba	4
4	Military Hospital Bony Camp	4
5	Military Medical School Dental Clinic Ojo	8
6	1004 Federal Staff Clinic	2
7	Federal Dental Centre Broad Street	2
	Total	33

3.6 Sampling and sample size

The study was carried out using a predominantly qualitative research approach with a small quantitative data component. The quantitative data included demographic data (i.e. characteristics) of the research participants such as gender, age, qualification, level of work experience and salary grade level etc, and lists of “Yes” or “No” questions. This was to the aim of collecting data regarding the participants employment information.

Tuckett (2004) indicates that in a qualitative study there are no carefully defined rules for obtaining a sample size. Sampling in qualitative research, however, usually relies on small numbers with the aim of obtaining in-depth data. The main focus of qualitative research is obtaining rich data about a particular phenomenon and the sample is derived purposefully rather than randomly (Tuckett 2004). Cohen, Manion and Morrison (2007) assert that qualitative research with a small sample size becomes unrepresentative and if too large, ambiguous. Baker and Edwards (2012) indicate that a sample size of eight is reasonable to reach data saturation in a qualitative study. For the purpose of this study, a sample size of 18 was adopted. The researcher however, grouped samples into three categories based on years of work experience six (6) for each group, namely, between 1 to 10 years, 11 to 20 years and greater than (>) 20 years of work experience within the sector in order to allow an exploration of the varied work experiences of the phenomena being investigated. This sample size was

formerly approved by the faculty research committee (FRC) which was sample size of 30 as was initially proposed. The sample size was drawn from 10 different federal and state government hospitals and dental centres within Lagos state (as shown in Table: 3.2 and 3.3 respectively).

3.7 Sampling strategy

A purposive sampling strategy was adopted in selecting the sites and the study participants. Creswell (2014: 178) indicates that purposeful sampling allows the researcher to select study participants or sites that will enable him or her to understand the problem and research question. According to Robinson (2014: 32) “purposive sampling strategies are non-random ways of ensuring that particular categories of case within a sample universe are represented in the final sample of a project”. This clarifies that purposive sampling enables the researcher to specify certain categories of persons to be included in the sample size. The participants were grouped into three categories to allow for an exploration of the varied work experiences of the phenomena being investigated, as shown in Table 3-4. The use of several sample groups allowed for data triangulation (Shenton 2004).

The researcher, initially sampled six participants in each sub-group according to their years of work experience, that is, between 1 to 10 years, 11 to 20 years and greater than (>) 20 years of work experience as shown in Table 3-4. During the field work and the recruitment process, it was observed that there were more participants within the sub-group of 11 to 20 years of work experience, than the categories of 21 and above, as was initially planned. Hence participants within the range of 11 to 20 were further recruited, as shown in the Table 3-4.

Table 3.4: Sampling strategy

State	Population of Dental Tech. (n)	Years of Experience			No. of Interviews conducted
		1 to 10	11 to 20	21 and above	
Lagos	244	6	9	3	18

3.8 Recruitment of study participants

For the purpose of this study, only the dental technologists in state and federal government employment (i.e. public health sectors) were considered. The list of hospitals and dental centres where dental technologists were located was provided by the DTRBN, and this formed the sampling frame for the study. Additionally, information was obtained from dental technologists at the various dental centres visited in order to locate the dental centres not listed in the list, so as to include the dental technologists at those centres in the sampling and recruitment processes. There were nine state government hospitals/dental centres and seven federal government hospitals/dental centres (DTRBN 2015). The researcher observed that there are many other government hospitals in Lagos state without dental units or departments and a few with a dental clinic but no dental laboratories.

The researcher purposefully selected hospitals/dental centres including state and federal government with the following inclusion criteria:

- 1) Hospitals/dental centres with a large number of dental technologists from the DTRBN (see Tables 3-2 and 3-3).
- 2) Proximity of the hospitals and dental centres (for easy accessibility considering traffic congestion and the cost of transportation).

To mitigate the researcher's bias and improve the credibility of the research process, inductive reasoning was employed after informing participants regarding the content of the research and explaining the research procedure. The hospitals and dental centres were selected and the dental technologists were approached individually by the researcher with letters of information and offers of further explanation. Potential participants were provided with the opportunity to make an informed decision which indicated their willingness to participate in the research. The recruited participants were contacted telephonically to arrange interviews which were scheduled according to their availability. Table 3-5 shows the selected hospitals and dental centres as well as the number of participants that were recruited for this study.

Table 3.5: Sampled dental technologists practicing in State and Federal Government hospitals/dental centres

S/No	Name of hospitals/dental centres	No. of Dental Technologists
1	Federal Dental Centre Broad Street	2
2	General Hospital, Agege	1
3	General Hospital, Surulere [Randle General Hosp.]	1
4	General Hospital, Gbagada	1
5	Federal Medical Centre Ebute-Meta	1
7	Lagos State Dental Centre, Broad Street	3
8	Lagos State University Teaching Hospital (LASUTH)	5
9	Ajeromi General Hospital (Ajegule)	1
10	Lagos University Teaching Hospital (LUTH)	3
Total		18

3.8.1 Inclusion criteria

- 1) Dental technologists registered and currently practicing as dental technologists in Lagos State.
- 2) Dental technologists in a state and federal government employment (public sector).
- 3) Dental technologists with at least one-year work experience.

3.8.2 Exclusion criteria

- 1) Dental technologists in the private sector.
- 2) Dental technologists in military and para-military employment. The latter are excluded on the basis of advice from the President of the Association of Dental Technologists of Nigeria [ADTN], Mr Okeke (2015, pers. Comm. 18 July), who is an ex-military employee. He stated that this group of government employees are a regimented group and, as such, may not be able to divulge information regarding their feelings/experiences with regard to job satisfaction.
- 3) Dental technologists directly employed by colleges of dentistry.

3.9 Method and instrument of data collection

Interviewing is a primary method of data collection in qualitative research in which participants respond to specific research questions (Stuckey 2013: 56). The data collection tool used in this study was semi-structured interviews (Addendum 7). The interview schedule guide developed by the researcher was discussed with the research supervisor/s and was validated by an experienced statistician to ensure that researcher's bias was minimised. The interview schedule was subjected to a pre-test study, and interviews were audio-recorded with the permission of the participants. Mills and Birks (2014: 188) declare that the most common form of data collection in phenomenological research is audio-taped phenomenological interviews with the persons who have lived through the experience under investigation. The semi-structured interview consisted of specific questions with Yes/No answers with an opportunity to explain their answers, three opened questions, and one "any other comments?" question. The number of Yes answers and No answers formed the basis for assessing the level of satisfaction or agreement on a particular theme or item in the sample as a whole e.g. 16 out of 18 participants responded "No" to Question 5 (see Addendum 7) which indicated the level of dissatisfaction with this item or theme.

This process allows the researcher to focus on one-on-one interactions with the participants. Lewis and Nicholls (2014: 55) and Clark (2008) assert that interviews are an effective method of qualitative data collection to learn from participants about their experiences regarding the phenomenon under examination. Stuckey (2013: 57) indicates that semi-structured interviews provide a clear set of instructions for researchers and can provide reliable, comparable qualitative data by setting a common standard between interviews as well as allowing flexibility in probing individual responses. The maximum duration of any interview session was 48.54min/sec, the minimum time was 13.42min/sec, and the average time was 35.43mins/sec. The minimum recorded interview (13.42min/sec) may have been indicative of data saturation no more new insights emerging. Interviews were conducted in their natural settings i.e. in the participants' workplaces.

3.9.1 Pre-testing of the interview schedule

The instrument for data collection used in this study was pre-tested on a small sample size. A pilot study or pre-test is a trial-run of the main research or pre-test of a particular research instrument/procedure (Persaud 2010). Terre Blanche, Durrheim and Painter (2006: 490) state that pre-test or pilot studies are conducted with a small sample size of the population prior to the main study to ensure that potential problems with the proposed research instruments are avoided. This is necessary to ensure that the interview process answers the research questions, as well as to ensure clarity, the flow of the interview, and to validate the reliability of secondary factors such as the voice recording device and the time required for each interview.

A pre-test of the instrument of data collection was conducted in one of the hospitals in Lagos with a large staff of dental technologist. This was carried out in two phases: phase one comprised three dental technologists selected from each proposed sample subgroup, described above. After the feedback from participants, the interview schedule was restructured for clarity and flow. Phase two comprised five dental technologists, with two participants each selected from the proposed subgroups 1-10 years and 11-20 years, and one participant selected from the category 21 years and above. Participants of the pre-test study were excluded from the main study.

3.9.2 Transcription

The interviews were recorded using a digital voice recorder and supplemented by field notes. To ensure credibility and no research bias in the collection of data, therefore, the researcher employed the services of a professional transcriber to ensure conformity with the participants inputs before data analyses were undertaken. All audio-taped interviews were transcribed verbatim into text and the transcripts checked for accuracy whilst listening to the original recordings many times. On the receipt of transcripts from the transcriber, the researcher also applied same measure for accuracy checked while listening to the original recordings.

3.10 Analyses of data

The quantitative data (demographic information) collected from the qualitative study as well as the Yes/No questions (Addendum 7) which were manually entered into a Statistical Package for the Social Sciences database (IBM, SPSS version 24). Simple descriptive frequencies and percentiles were carried out in the analyses of data. In order to address the concerns of validity and reliability of the quantitative data, the following method was employed; the validity of the quantitative data, in this study content and face validity were established by a panel of experts within the field of dental technology profession in Nigeria, such as the registrar of the regulatory body, the former national president of the association of dental technologists of Nigeria (ADTN), as well as the research supervisors and experienced statistician who approved the constructs served (Rad and Yarmohammadian 2006: 15). Kimberlin and Winterstein (2008: 2277) defined validity as the extent to which the interpretations of the results of a test are warranted, depends on the particular use the test is intended to serve.

Although reliability is conducted on a large scale number, the sample was comprised of a highly specific group of respondents who should indicate a degree of consistent scoring (Kimberlin and Winterstein 2008: 2277). To determine the reliability estimates Cronbach's alpha coefficient has been preferred for estimating the reliability of multi-item scales. However, an alpha value of 0.70 or higher is considered as acceptable reliability for group (Rad and Yarmohammadian 2006: 15). In this study, one (1) item/theme was eliminated because there was no variation (indicating that the participants all scored the same). Other items or themes leading to negative covariances were also eliminated. To determine the reliability of the semi-structured interview schedule guides, were pre-tested in two-time intervals and an alpha coefficient was established from the perspective of participants 0.667. Hence, the Cronbach's alpha value 0.667 was acceptable for a newly developed construct as per this study as shown in the Table below (Kimberlin and Winterstein 2008: 2277).

Table 3-6: Reliability estimated

Reliability Statistics	
Cronbach's Alpha	No. of Items
.667	5

More so, factor analysis also uses a large scale sample, hence, the arguments above also hold or valid for this part of the analysis. The communalities indicate the degree to which statements correlate to the construct as demonstrated in the Table below.

Table 3-7: The communalities of satisfaction statements

Communalities		
	Initial	Extraction
1. Satisfaction with the employment entry-level placement	1.000	.963
3. Satisfaction with the remuneration from the employer	1.000	.963
5. Issues of lack of facilities/equipment	1.000	.637
8. Level of job satisfaction	1.000	.692
9. Satisfaction with the working conditions/policies of employer	1.000	.716
10. The role of improved academic qualification to career advancement	1.000	.747
12. Lack of organisational and work performance	1.000	.852
Extraction Method: Principal Component Analysis.		

The extraction values are high, indicating good loadings, while the rotated component matrix indicates the loading patterns of the items. The factors load across three sub-themes as indicated in the table below. Therefore, the reliability statistics show that the quantitative data obtained from the study were valid and reliable. Furthermore, the researcher ensures that the same pattern of questioning, as well as the same language (English), was conducted on all the research participants, hence, being an insider (dental technologist) the participants were more relaxed towards the researcher and they were able to divulge all the information regarding subject been explored.

Table 3-8 Rotated component matrix

Rotated Component Matrix^a			
	Component		
	1	2	3
1. Satisfaction with the employment entry-level placement	.977		
3. Satisfaction with the remuneration from the employer	.977		
5. Issues of lack of facilities/equipment			.742
8. Level of job satisfaction			.767
9. Satisfaction with the working conditions/policies of the employer	.586		
10. The role of improved academic qualification to career advancement		.860	
12. Lack of organisational and work performance		.920	

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalisation.

a. Rotation converged in 4 iterations.

Analysis of the qualitative data began by reading through the transcripts of the interviews repeatedly and identifying themes, sub-themes, and relationships between themes and sub-themes in the data, known as thematic content analysis (Terre Blanche, Durrheim and Painter 2006). Moreover, the themes were orientated around the theoretical framework and key research questions chosen for the study and categorised based on similarities with these conceptual frameworks as recommended by Bazeley and Jackson (2013). To ensure the credibility of the data analysis process and issues with minimising researcher's bias, the analysis of qualitative data was aided by the use of qualitative research software, Nvivo 11 (QSR International Pty Ltd, 2015) to further organise, code, and manage data (Creswell 2007; Spencer *et al.* 2014). The researcher coded, organised and managed the data and the identified themes and sub-themes were analysed, evaluated and verified by the research supervisor/s with reference to the conceptual framework that influenced the design of this study as previously highlighted in this Chapter (Table 3.1).

3.11 Trustworthiness of the qualitative data

Trustworthiness in research refers to the credibility or persuasiveness of an account (Collins and O'Brien 2003). Validity in qualitative research refers to the trustworthiness or credibility of data and has conventionally been part of assessments for quality in quantitative research methods (Collins and O'Brien 2003). Trustworthiness of qualitative research, however, is usually questioned by positivists, possibly because their concepts of validity and reliability cannot be tackled in the same way via a naturalistic inquiry (Shenton 2004). To develop trustworthiness for this study, the researcher adopted constructs described by Lincoln and Guba (1985 cited in Creswell 2007 and Shenton 2004) who suggest four criteria for developing trustworthiness of a

qualitative inquiry, namely, credibility, dependability, conformability and transferability, as discussed below.

3.11.1 Credibility

Shenton (2004: 64) suggests various ways credibility can be achieved in qualitative research as follows:

- Sampling of a diverse group of people in different organisations may be employed to provide diversity that strengthens the concept of “circling reality”, which is defined as “the necessity of obtaining a variety of perspectives in order to get a better, more stable view of ‘reality’ based on a wide variety of observations from a wide base of points in time-space” (Shenton 2004: 64).
- Site triangulation may be achieved by the participation of participants within different organisations so as to reduce the effect on the study of particular local factors peculiar to one institution.
- Triangulation via data sources involving the sampling of a diverse subgroup, or a range of documents may also be included as source materials/information (Shenton 2004: 65).

Following Shenton’s (2004) suggestions, credibility in this study was achieved through extensive discussion of the research process and the findings with a statistician who was qualified and competent and could guide the researcher to identify emerging themes and sub-themes. The researcher’s academic supervisor/s also provided input in this regard. The researcher utilised field notes and a digital voice recording device during data collection to ensure that all information was recorded and documented. The data were transcribed verbatim and the researcher ensured that the transcribed notes were true reflections of the recorded information as provided by the research participants. Triangulation via the use of different types of sample group (strata) and different organisational sites such as state and federal government hospitals/dental centres (public health sector) enabled the researcher to have a better understanding of the phenomenon being investigated and how it affects them.

The data collection process only involved those who were willing to participate in the study and were prepared to express their views freely, to ensure honest participation.

In this regard, the participants were allowed to make an informed decision to participate in the study (Shenton 2004). Shenton (2004) asserts that the examination of previous research findings to assess the degree to which the project's results are congruent with those of past studies may be invaluable sources of credibility. Silverman (cited in Shenton 2004) states that the ability of the researcher to communicate his or her findings within the context of an existing body of knowledge is a key standard for evaluating quality in qualitative research. In this study, therefore, in-depth descriptions of the phenomenon under study is provided in Chapter 4. The researcher also examined previous research to frame findings during the discussion in Chapter 5.

3.11.2 Dependability

Shenton (2004) advises that the methods adopted in carrying out a study should be described in detail, thereby enabling future researchers to repeat the work, if not necessarily to gain the same results. Shenton (2004) recommends that dependability in qualitative research should be address by means of the following:

- Exposition of research design and its implementation, describing what was planned and executed on a strategic level.
- Exposition of operational detail of data gathering, addressing the details of what was done in the field.
- Reflective appraisal of the project, evaluating the effectiveness of the process of inquiry undertaken.

In order to address the issue of dependability in this study, the procedures used to conduct the study have been described and documented in detail. Persaud (2010) asserts that a pilot study ensures the reliability and validity of the data in the task of effectively answering the research questions, and helps to determine the suitability of instruments, data procedures and sample population. To further ensure the dependability of the data collected, a pilot study was conducted in two phases prior to main study within each proposed sample group as aforementioned to assess the effectiveness of the data collection tool (semi-structured interview schedule) and the reliability of the voice-recording device. The interviews were recorded, field notes taken, and data transcriptions examined thoroughly to confirm that they were accurate

representations of the collected data in order to ensure that they were true reflections of the participants' perceptions and personal experiences.

3.11.3 Conformability

Shenton (2004) describes conformability as a detailed methodological explanation which enables the reader to determine how the data and ideas emerging from it have been established. The author maintains that critical to this process is the "audit trail", which allows any viewer to trace the sequence of the research process via the decisions made and procedures explained. Due to the subjective nature of the social sciences the researcher is required to replace objectivity with conformability, which entails that findings be supported by data (Bailey 2007: 184).

In this study an audit trail/track was maintained as described in this chapter, and safe raw data of each interview will be stored in safe-keeping for future reference.

3.11.4 Transferability

Shenton (2004: 69) explains the importance of providing detailed descriptions of the phenomenon being investigated, and of providing sufficient contextual information regarding the fieldwork sites so that readers can evaluate the extent to which the findings may be true of people in other settings, as well as providing guidelines to similar projects that may employ the same methods although conducted in different environments/settings.

To facilitate transferability, the researcher provided a detailed description of the phenomenon being investigated, the selection of study participants, the data collection and data analysis process, as documented in this chapter.

3.12 Ethical considerations, confidentiality, anonymity

The research received full ethical clearance from the Institutional Research Ethics Committee (IREC) at DUT with the reference number: REC-147/15 (Addendum 9). The researcher also gained permission from the DTRBN which is the gatekeeper of

the dental technologists in Nigeria (Addendum 4). Participants were informed of the purpose of the study and the information regarding the study was contained in the “Participants’ Information Letter” and further highlighted in the “Informed Consent Form” (Addendum 2). This was followed up with a telephone call to provide more clarity if need be, and to make an appointment for the interview, if the individual was willing to participate. In addition, the participants were advised that they were free to withdraw at any point during the interview without explanation or penalty. Each participant was assigned a code that only the researcher could decode and have access to. As such, the participants’ confidentiality and anonymity were maintained throughout the study including the final report/dissertation.

3.13 Data storage

All documents (electronic files and hard copies) were securely stored in a lockable cabinet and audio recordings were stored in a password-protected external hard drive. The data will be stored for a period of five years after which it will be destroyed, according to the DUT data protection policy.

3.14 Delimitations of the study

This study was conducted among dental technologists within Lagos state, Nigeria. The study was limited to dental technologists registered with the DTRBN working in the public health sector, excluding those in the military/para-military and private hospitals or those in private practice.

3.15 Summary

The study adopted a phenomenological research design to explore the personal experiences of dental technologists working in government hospitals/dental centres in Lagos, Nigeria. The research was conducted via the use of an interpretivist paradigm which enabled the generating of mainly qualitative data with some quantitative data. Data was gathered through semi-structured interviews. Only dental technologists in the public sector registered with the DTRBN were considered for the study.

CHAPTER 4 : RESULTS

4.1 Introduction

The results of this study including the demographics of research participants (Table 4.1) and factors influencing job satisfaction amongst dental technologists in the public health sector are presented in this chapter. The findings are presented and organised according to the themes and sub-themes that emerged based on the research aim and objectives of the study and the data analysis done. The data generated and outlined within this chapter provide answers to the three key research questions (Refer to Chapter 1: Section 1.6).

The results show a great deal of displeasure with the various facets of job satisfaction among participants' experiences in their workplace and responses to the questions with few divergent views.

4.2 Demographics of participants

The study participants consisted of 18 dental technologists in 10 different federal and state government hospitals/dental centres within Lagos, Nigeria. The demographics of participants who participated in this study are presented in Table 4-1. Demographics were an integral part of this study, as the research explored various factors that are associated with dental technologists' satisfaction with their employment conditions in the public sector, because demographic variables do have an influence on job satisfaction (Seraj *et al.* (2014: 192-3).

Table 4.1: Demographics of participants

Age (groups in years)	21 – 30	1
	31 – 40	8
	41 – 50	7
	51 – 60	2
	Over 61	Nil
Gender	Male	10
	Female	8
Qualification(s) held	CDT	9
	C&G	1
	HND	8
	HND&CDT	4
	B-Tech	Nil
Work experience (in years)	1 – 10	6
	11 – 20	9
	Over 21	3
Salary Grade Level	8 – 11	12
	12 – 14	6
	15 – 17	Nil
Type of Employer	Federal	6
	State	12
No. of Place(s) worked	One	6
	Two	10
	Three	1
	Four	1

4.3 Emerging themes and sub-themes identified from data collected

From the data collected from the interviews, the following themes and sub-themes were identified, as outlined in Table 4-2.

Table 4.2: Themes and sub-themes

Themes	Sub-themes
1. Low employment salary grade entry level	
2. Low remuneration	-Disparity in salary of technologists within public health institution
3. Promotion opportunities	-Career limiting bar for non-degree holders in the public sector
4. Limited educational advancement	
5. Dearth of opportunities for specialty training	-Limited funding and opportunities for CPD
6. Strained working relationships between dentists and technologists	-Low professional status -Low professional/work autonomy
7. Poor working conditions	-Lack of equipment and laboratory consumables -Restrictive government employment policies
8. Limited professional/academic qualification	-Non-transformative dental technology curriculum
9. Consequences/implications of the findings on job satisfaction	-Intent to quit job or change profession [turnover] -Inadequate public awareness of dental technology profession
10. Expression of job satisfaction among dental technologists	
11. Suggestions for improvement of job satisfaction within dental technology industry	-Amendment of restrictive government employment policies for dental technology cadre

4.3.1 Factors influencing job satisfaction among participants

This section highlights the themes and sub-themes associated with factors influencing job satisfaction amongst dental technologists in the public health sector (research objective 1).

4.3.2 Theme 1: Low employment salary grade entry-level

The theme entry-level employment cadre (i.e. employment category) specifies the salary grade level (SGL) or consolidated health salary structure (CONHESS) on which new employees are placed at the commencement of their career in the civil service. This theme suggests the foremost factor that negatively influenced job satisfaction

amongst dental technologist participants in the public health sector. The general feeling of many of the participants was dissatisfaction with regard to their employment entry grade level position. Only a few of the participants expressed satisfaction with the entry-level cadre for dental technologists.

Some views of participants who expressed dissatisfaction with their employment entry grade level indicated that the major reason they were dissatisfied was the fact that they were the lowest placed entry-level employees in the public health sector in relation to the duration of their education and training in comparison with other health care professionals, for example, medical laboratory scientists etc.:

Compared to every other health professional cadre I guess dental technologist are the lowest professionals that is SGL 08, or CONHESS 07. So in respect to that I am still the lowest. [DT 7]

The entry-level where we are placed is lower than other health professionals whom we are at similar level in terms of training and practice. At least professionals who have spent 5 or above years in training as in qualification and additional experience before getting into employment, should start from the SGL 10 or CONHESS 09. But here we are being placed on CONHESS 07, which is equivalent to grade level 08; so we are losing two grade levels. So there is no satisfaction that someone can derive from that. [DT 16]

Because, some other health professionals' staff are placed on SGL 10. Myself I am on SGL 08 and our 'schemes of service' has it so, and that's one reason why I'm not happy with the entry level placement. [DT 1]

Some of the participants felt that the reason they were placed on SGL 08 was due to the type of professional qualification they had, determining their employment entry-level cadre. This view is reflected in the following excerpts:

The reason might be the type qualification I have. I'm not okay with it. The Certificate is what they used to judge me and place me on the entry-level that I am. [DT 11]

The HND holders are being pegged on SGL 08 while the BSc holders are now on SGL10. The marginalisation is too much. [DT 12]

Consequently, the participants were generally not happy with their entry-level placement, considering the duration of their education and training in comparison with other allied health contemporaries such as pharmacists, medical laboratory scientists and physiotherapists. The participants perceived that they were the lowest placed entry-level employees amongst other health professionals' cadres in public health sector. This clearly indicates that the low employment salary grade entry-level is a major factor influencing job satisfaction among the participants. Further, the participants felt that they were not adequately valued and were marginalised within the allied health professional cadres. Other allied health professionals such as pharmacists, medical laboratory scientists and physiotherapists, spent a maximum of five years in their training programmes, with an additional one year of mandatory internship programme. Afterwards, they have to serve a compulsory one year of national service before being eligible for employment in the public sector context.

Dental technology professionals also follow the same pathway of education and training, the only notable difference being the disparity in qualifications awarded depending on the institution a dental technologist attended, and the participants felt that this was a major challenge with the employment salary grade entry-level cadre. While other allied health professionals as mentioned above are employed on salary grade entry-level 10, the dental technologists are employed on salary grade entry-level 08 which is two grade levels lower. This, however, is against the stipulated policy as stated in the employment policy document (i.e schemes of service), where some professions are given elevated positions and rated one higher above the others in the civil service. For example, a registered nurse (RN) who studied at certificate or national diploma (ND) level enters the public health sector on the same salary entry grade level as a dental technologists who possesses either a higher national diploma (HND) or Bachelor of Technology (B-Tech) degree holder (anecdotally) and are placed on SGL

08 or CONHESS 07 respectively. This clearly indicates inequalities in employment policy regarding entry level positions among health professionals within the public health sector. Some participants interpreted these inequalities as being due to political reasons as expressed by the following participant:

This is the kind of policy that should have been changed over the years and it is politically motivated. Because, the people that are a bit below you on grade level, if they have someone in power politically, they will go push for change of their own people policies on entry-level. [DT13]

Thus, some of the participants perceived that their profession was not adequately valued in the public health sector, because their profession was not placed on a par with their allied contemporaries.

4.3.3 Theme 2: Low remuneration

The results demonstrated that low remuneration affects job satisfaction. Some of the reasons for the perceived low remuneration among the participants were non-payment or denial of some allowances such as call duty and teaching allowances by their various employers. The majority of participants (n=16) expressed dissatisfaction with their remuneration, with a few participants being satisfied with their remuneration.

These are perceptions of some participants who were dissatisfied with their remuneration:

Judging by the kind of job I do, and judging by my output let's say in a month, definitely what I am earning is not commensurate with my inputs [remuneration]. [DT 9]

According to Nigerian policy, medical officers are placed above other health professionals. I'm not saying my salary should be at the same level with a medical doctor but I feel the discrepancy in the salary is too much. The gap is too much - it becomes too wide. [DT 5]

Some of the allowances that were due to us are not being paid to us, they deprived us of the allowance. For example, call-duty allowance, teaching allowance, etc. [DT 11]

As previously expressed by the participants, the low employment entry salary grade level to a large extent contributed to their poor remuneration, because employment entry-level placement determines the level of remuneration package as well as the allowances an employee will receive monthly:

Because the entry level is very low and as such entry-level determines the amount of salary I receive monthly. Also, some of the allowances are not been paid to dental technologists in my establishment like call duty allowances etc. So, the impact of poor remuneration can intricately be linked to low entry-level, because low entry level is the resultant effect of low remuneration [they go hand in hand]. [DT 17]

Sequel to answer given in Low entry level and SGL determines the amount of emolument (remuneration) you will receive. [DT 16]

One of the participants provided insight into the impact of low entry-level in respect to low remuneration, indicating that the SGL determines the level of remuneration a dental technologist will receive as a monthly salary:

Being on the SGL 08 instead of SGL 10 means that I am losing salary for two grade levels that is the promotional salary for two grade level which are not being paid, and it takes about six years or more for a dental technologist to get to that SGL 10. [DT 16]

A minority of the participants noted that the issue of remuneration was not their concern to review as they were satisfied with their current remuneration (this indicates higher SGL cadre). However, this claim by the minority can be regarded as them being resigning to fate [that is helplessness] since only one of the participants was truly satisfied with their remuneration:

I cannot help it. So, the issue of poor remuneration is a situation that is not within my control which is what my qualification has earned me I can't change that, unless it is reviewed I guess I have to work with it. [DT 12]

Because that's what I am supposed to be earning at this level at my level I don't think any of my counterparts on same level is earning higher than me. So they are paying me, according to the Federal Government salary structure based on my salary grade level. [DT 14]

Nearly all the participants were dissatisfied with the level of remuneration they earned from their employers. Some of the participants indicated that they were not being paid allowances such as call duty and teaching allowances, as stated in the health workers emolument document (National Salaries, Incomes and Wages Commission [NSIWC] 2009). Dental technologists are entitled to call duty and teaching allowances, however, teaching allowance can only be earned by both medical or health professionals on the SGL 10 or CONHESS 09 and above, therefore participants who were below this threshold did not earn a teaching allowance and did not receive a call duty allowance which greatly influenced their job satisfaction. Some participants specified that the gap between their salary and doctors are too wide. Some participants perceived that low employment salary grade entry-level of SGL 08 or CONHESS 07 was the main reason for their poor remuneration, because starting two salary grades lower than they perceived they should be has a long-term effect on earning capacity throughout the course of their career.

Some participants believed that the amount of remuneration they earned was not proportionate to their input in the job, that the gap between them and other health professionals (including doctors) was too high. In general, the participants felt marginalised and not adequately valued as health professionals, reiterating their views that they were the lowest paid employees in the public health sector, possibly related to their educational training programme. Some of the participants believed the low level of remuneration was due to the type of professional qualification held (see Table 4.1).

4.3.3.1 Sub-theme: Disparity in salary of technologists within public health institution

This sub-theme indicates that one of the factors contributing to low remuneration amongst the participants within public health sector. The data demonstrated that the disparities in the level of remuneration between the participants within the federal and state government establishment affects job satisfaction.

Some participants commented on the discrepancies within the public health sector saying that dental technologists in the federal establishments earned higher salaries than those at state institutions.

Participants view on remuneration disparity:

Well! I expected that our salaries, if not the same at least there shouldn't be a wide gap between my colleagues in the Federal establishments. Even the basic salaries given, when it is compared, you will discover that dental technologists at the federal earn higher than the dental technologists at the state government employment.

[DT 10]

I always compare mine with the other allied health professionals or even other of my professional colleagues that are working with other organisations in other states. They earn better than I do. Earn far, far better than I do. For example, comparing with one of my mates working in other states' hospitals, their salary is like 50,000 higher than mine. I'm not being paid call duty but being paid shift allowance and even the basic salary is equally low. ... The monthly remuneration, the fact that we are not being paid call duty allowance, the basic salary is low, even makes it very poor.

[DT 7]

In summary, participants could see that federal government employed colleagues tend to earn higher than the those in state government institutions. This is so because the federal government institutions are the only one that implements the full payment of the CONHESS and other salary structure. Some states are more well-resourced than others and as such can offer wages as officially gazetted health workers emoluments.

Therefore, state establishments who are not well-resourced are unable to implement such emoluments thereby creating unequal and varying remuneration levels between dental technologists employed by the state and federal establishments. The next section presents issues regarding promotion opportunities within the sector.

4.3.4 Theme 3: Promotion opportunities

Promotion provides employees with an opportunity for advancement in an organisation, which also promotes career growth (Robbins, Odendaal and Roodt 2003: 77). The participants were asked to express their satisfaction with issues regarding promotion opportunities in their organisations. The data showed that many of the participants were positive about promotion opportunities, that they were promoted as and when due, with a few participants indicating they had not yet reached their promotion year. Only a single participant was dissatisfied regarding promotion opportunities.

Some perceptions of participants who were satisfied with promotion opportunities in their organisations stated that the policy of their employers specified that after three years on each cadre or SGL, they advanced to the next SGL, subject to passing of the stipulated promotion examination:

The promotion opportunity according government policy that after three years spent on each cadre and subject to successful promotion exam. [DT 6]

After three years you go for the prescribed promotion exam and when you pass the exams you are promoted. [DT 12]

I got my promotions as and when due, in my establishment. And I've always been promoted because you go through exams. [DT 14]

Those who indicated that they have not reached their promotion year concurred with those who were satisfied with the promotion opportunities. Their views:

I haven't qualified for a promotion yet, but from what I have heard from the people ahead of me, that after three years you are qualified to take the prescribed promotion exam and once you passed, you are promoted. [DT 11]

The idea is that after three years you are qualified for promotion when you have passed the stipulated exams you will be promoted. So promotions comes as and when due. [DT 1]

Well, I have not qualified for promotion yet, because of the number of years for promotion. But it's usually after three years. [DT 16]

One participant was particularly dissatisfied with the time delays during the process of promotion and the lack of appropriate remuneration:

Because the promotion does not come at the exact year of promotion, sometimes it comes one year later or more but when it comes, it has usually been backdated on paper with denial of the remuneration arrears that has been missed. [DT 17]

Therefore, there was a general satisfaction amongst the participants with the promotion opportunities by their various employers. The following section discusses the sub-theme emerging from this theme.

4.3.4.1 Sub-theme: Career limiting bar for non-degree holders in the public sector

Previous studies have shown that those with higher levels of promotion opportunities are largely satisfied (Luthans 2010; Tella, Ayeni and Popoola 2007; Robbins, Odendaal and Roodt 2003 and Spector 1998). The results reveal that participants were very dissatisfied by the public sector policy that limits them to an ultimate job level in their career of not more than the SGL 14 (Chief cadre). This sub-theme, therefore, suggested another challenging factor that adversely influenced job satisfaction amongst participants. Limitations to highest level possible was interconnected to the type(s) of professional qualification held by the participants as

presented in Table 4.1. Participants in the sample sub-group with over 21 years of work experience were mostly dissatisfied with the career limiting bar for non-degree holders as they indicated that they were stagnated on SGL 14 for too long without further promotions for more than nine years due to their entry level qualification.

Some perceptions of participants generally indicated that they had limited promotion opportunities within the public health sector, maintaining that dental technologists are not promoted further than SGL 14 (i.e. Chief Cadre) in comparison with other health professionals:

This is a problem, a very big problem, a big problem, because you get to a point in your career, you can't grow again, you are stuck in there, you know, when every other health professions are being upgraded and yours remain stagnant so to speak, it has a way of affecting the psyche of the average dental technologist. [DT 14]

Technologists end their career at level 14, once you reach SGL 14 you will remain there until your retirement especially those with the HND, but the BSc will rise beyond that bar or SGL 14, up to SGL 17. [DT 12]

Well, under normal circumstances you're supposed to rise to the level of Director Cadre like other healthcare professionals. This policy that says dental technologists terminate/retire at Chief Dental Technologist Cadre. Even if you have ten years more to retirement, that's the level you will remain. It makes someone feel very frustrated, when you don't have choices since you love your profession whilst you make yourself happy and manage to do your work as it is and remain stagnant. [DT 3]

Some of the participants further explained that dental technologists were being limited in career progression in the public health sector was due to the type of professional qualifications being awarded by the training institutions they attended:

There is a career limitation to how far a dental technologist can rise, no matter what you know, no matter your professional ability, no matter how

knowledgeable you are, you will not exceed the SGL 14 if you have a CDT, or City and Guild London or HND, as a professional qualification. But if you are a dental technologist with a B-Tech. You will progress to SGL 17. [DT 18]

If we talk about the limited career progression, you will find that mostly that is a serious challenge, just as I have mentioned that advancing educationally is a problem. It's also difficult to advance career wise, because if you have HND only, you will not advance beyond a certain level which is a level which is SGL 14. [DT 16]

This sub-theme articulates grave concerns regarding the issue of limited career progression within the public health sector as a result of the entry-level qualification (as shown in Table 4.1). Generally, most of the participants felt that the career bar limitations for the HND holders in the public sector was peculiar to the dental technology professionals only, however, this has been a general problem within the public sector as such, not limited to dental technologists cadre alone because it is across-the-board. For example nurses and other health professionals within the public health sector irrespective of their profession without a degree (BSc or B-Tech) cannot exceed the promotion opportunity of the career bar of SGL 14, therefore only BSc or B-Tech holders are promoted to SGL 17 (i.e. Director Cadre). This was highlighted in particular by participants within SGL 12 to 14, particularly by the sub-group with 21 years and above work experience (as depicted in Table 4.1) who indicated that they had been on the level of Chief Dental Technologist cadre i.e. SGL 14, for many years as they awaited their retirement age/year. The majority of participants felt that their professional qualification was the main factor for career bar experienced by the participants. The next section disuses issues bothering on participants limited educational advancement.

4.3.5 Theme 4: Limited educational advancements

This theme raised several concerns regarding the structure of education and training of dental technologists in Nigeria, a crucial factor affecting job satisfaction. The theme also illuminates challenges concerning participants' professional qualifications, limited

educational advancement and limited career development within the field of dental technology in Lagos, Nigeria.

As depicted in Table 4.1, the participants were mainly Higher National Diploma (HND) holders, with some participants holding a Certificate of Dental Technology (CDT), while some of the participants held both HND and CDT and only one of the participants held City and Guild (C & G) of London. None of the participants interviewed had a Bachelor of Technology (B-Tech) degree in dental technology. There seems to be a very strong correlation with issues regarding participants' education and limited promotion opportunities or limited career bar. This clearly indicates that limited educational advancement is a major factor influencing job satisfaction amongst participants working in the public health sector.

The excerpts below reveal the various points of view of participants on this theme.

Some participants felt that the structure and type of professional qualifications awarded within the profession are the main source of limitation and challenge dental technologists working in the public health sector are confronted with, and that there were not enough schools offering degrees to enable them to upgrade their qualification for career progression:

Lack of educational structure that is one of the factors that reduces one's professional esteem. It reduces it to the core, because you're not bold enough to say I am an HND holder, you can't say it anywhere. The educational level doesn't give me the impetus to express my mind. So it demoralises you, it makes you feel inferior and it gives the little out of me as a professional.

[DT 7]

Lack of educational structure which we have in this country, have really limited our career progression. Because even a lot of us want to improve or upgrade their qualifications but there's only one school within the country that offers a degree programme. The only school in this country that offers a B-Tech, say you must study for three years.

[DT 18]

There are no dental technology schools within country to offer opportunity to undertake a top-up programme for a Bachelor degree to enable us advance career wise. And it is very rare that one sees an opportunity to travel abroad, is so challenging. It is really a very big problem that really needed to be addressed.

[DT 14]

Some participants had a different view on limited educational advancement, maintaining that educational advancement through training and retraining programmes for dental technologists in practice was essential for continuous professional developments for rather than improving paper qualifications for career progression:

The issue of educational structure as far as you are being employed as a dental technologist, there should be a structure for improvement, advancement in different field or specialties. Like we have the crown and bridge technology etc. Dental technology is not a profession that one can remain stagnated without advancements, because there has been lots of technological advancements, new innovations in this field etc. This days many developed countries are no longer processing plastic dentures using the old conventional method, they have adopted new technological procedures in processing denture, such as flexite (flexible) dentures and CAD/CAM and so on.

[DT 2]

There are several new innovations in this profession, you know, new ideas, inventions about dental technology profession for instance, dental implantology etc. are some of the latest technologies etc., but we lagging behind the universal benchmark.

[DT 15]

Like in the other part of the world dental technology has advanced. In other words, more than what we are practicing here is nowhere compare to them. I think we should emulate the trend of what is happening in other parts of the world by ensuring that modern practice and equipment are made available in our dental lab, such that the dental technologists also can be up to date.

[DT 10]

Some of the participants indicated that dental technologists spend their whole career with just a basic qualification in dental technology because there are no opportunities for educational advancement academically (postgraduate) available in Nigeria for dental technologists specifically:

In the area of educational advancement, currently in Nigeria there is no such thing as postgraduate programmes like, Master's and Doctorate degree in dental technology. [DT 1]

A dental technology professional should be able to earn further qualifications like Master's Degree in Dental Technology, even a Doctoral Degree in Dental Technology. It is obtainable in other countries but we don't have that here. Due to lack of educational structure, it's difficult for someone to advance further than the basic first qualification that we have mentioned earlier. So for someone to do by Master programme, a person has to travel abroad. Perhaps South Africa, UK, Australia etc. [DT 16]

The fact is there are limited opportunities for educational advancement within the dental technology profession in Lagos, Nigeria. The participants pointed out that there is only one degree awarding institution in the country for them to upgrade their qualifications for advancement in their career in the public sector, and the duration of such training being too long for them to study while maintaining their jobs. Participants interviewed had mainly HND in Dental Technology, other than those with its equivalent professional qualification e.g. the CDT, C & G London. The Nigerian public service seems to attach much importance to the kind of paper certification held by employees rather than their skills and abilities (the issue around government policies will be discussed later in this chapter). The participants were dissatisfied with the limitations experienced in the public health sector due to their career limiting qualifications and the fact that there were still inadequate degree awarding schools for educational advancement. The next section highlights the issues regarding lack of specialisation skills acquisition within the dental technology profession in Nigeria.

4.3.6 Theme 5: Dearth of opportunities for specialty training

This theme confirms that there is a dearth of opportunities for specialist skills acquisition within the dental technology training in Nigeria, both at undergraduate training level and as employees in the public health sectors. particularly regarding advanced fixed dental prostheses such as ceramics technology. This is another major factor negatively influencing job satisfaction.

The participants agreed that there is lack of opportunity for specialised skills training programmes in the profession particularly at undergraduate level as it is constituted in the developed countries and in South Africa. This data implies that limited specialised skilled professionals exist within the industry including dental technology lecturers in the training institutions and those employed in the public health sector and the only available specialised skills acquisition started in 2011 organised by the DTRBN:

Aside the little opportunity from the DTRBN on specialty training from time to time, there is no other opportunity for modern dental technology practice. The DTRBN can improve more on the little they were able to offer. More so, the lack of opportunity for specialty training also can be linked to limited career advancement, because if there were good educational structure, one would be able to further specialise in one area of dental technology profession. For instance, ceramics, orthodontics, maxillofacial technology etc. [DT 14]

There no opportunities for specialty training within the country except traveling abroad. The only opportunity now is the yearly continuous professional development (CPD) on ceramics, orthodontics, and maxillofacial courses that is been organised by the DTRBN which started in 2011. [DT 12]

There is lack of opportunity for specialty training in our training, especially at the undergraduate level. [DT 18]

The participants indicated that certain advanced restorative prosthetics procedures were not incorporated in their training programme at undergraduate level as is the case in the developed countries as well as South Africa. Some of the participants

believed that the scope of specialties were somewhat above dental technologists, and as such should be referred to as advanced training programmes such as ceramics/porcelain technology. These packages, however, were not part of the dental technology undergraduate trainings and therefore, could only be acquired as postgraduate courses and the only available opportunity to acquire these skills were either traveling overseas or enrolling in the training courses locally organised by the DTRBN in any of the specialised areas in dental technology. Most of the participants reported that they were financially constrained from enrolling in the specialist skill courses on their own without sponsorship from their employers as the fees are expensive.

4.3.6.1 Sub-theme: Limited funding and opportunities for CPD

Emerging from the main theme, issues with regard to funding opportunities and CPD in the public health sectors were explored. It was found that sponsorship opportunities to attend courses or conferences had been available to only a few of the participants, while two-third of the participants had never had a funding opportunity for CPD from their employer. The limited funding opportunities to attend CPD was found to adversely influence job satisfaction among participants, particularly those who never had funding opportunities for CPD from their employers. The few participants who did have the opportunity to attend CPD expressed great satisfaction with the sponsorship opportunities from their employer to acquire new skills.

The following are some perceptions of participants who have had funding opportunities from their employers to attend CPD events such as conferences and courses in advanced dental prostheses procedure organised by the DTRBN:

That's one credit I need to give to my employer here. Almost all the training I have attended that I've applied for sponsorship, I've been fully sponsored. I think they are doing well in the area of staff development in this organisation.

[DT 14]

I was sponsored to attend the DTRBN training on ceramics technology.

[DT 8]

I have been sponsored for local training. You can get the Government sponsoring for local training, like we have some courses we do ceramics training from the DTRBN, an official training at the Board, these are the kind of things you can get from my employer.

[DT 18]

Some of the participants responded that they have never had funding opportunities from their employer to attend CPD:

In the 70s and early 80s some technologists had funding opportunities to travel overseas to specialise in crown and bridge technology, others maxillofacial technology etc. Nowadays there are no such opportunities from the government. Even the CPD organised by the DTRBN, you don't get sponsorship to attend.

[DT 3]

Definitely not, because when joined this organisation, Um, I was here in 1988, 1989. I have never been sent on training programmes.

[DT 13]

As a dental technologist, I am supposed to be going for course update, but there are no such opportunities by the employer. They keep seeing you at the same level you are, and you are being promoted, without any new knowledge or skills added to yourself.

[DT 2]

Some of the participants stated that the opportunities they had were through self-sponsorship to attend the courses organised by the DTRBN:

The only reason or the answer you get is, there is no fund available for training. So I have not been sent for any training, the trainings I have had were from my own pocket.

[DT 2]

I sponsor myself for any training e.g. CPD. The reason they give is that there's no funds but policy provided for these things, meanwhile, other medical officers

are being sponsored for trainings. So I think it is more like marginalisation of health professionals, which include the dental technologists. [DT 5]

The one's I have gained I have been paying myself, I have been sponsoring myself. [DT 4]

Hence, this sub-theme found that a large number of the participants never had funding opportunities for CPD from their employer. Some of the participants who have had the opportunity to attend CPD indicated that there was no financial commitment from their employer, therefore they had to resort to self-sponsorship. Funding opportunities to attend CPD were only available to a few of the participants. The second sub-theme non-transformative dental technology teaching curriculum emerging from the main theme dearth of opportunities for specialist training was discussed under the second objective (2).

4.3.7 Theme 6: Strained working relationships between dentists and technologists

Teamwork has a positive effect on job satisfaction, as effective teamwork makes the job more enjoyable (Spector 1997). This current study reveals that there is a strained working relationship between some dentists and dental technologists and a perceived lack of supportive supervision by their immediate supervisors (dentists). Most of the participants felt dissatisfied with their working relationships with the dentists, although some participants were somewhat satisfied with this inter-professional relationship, and some of the participants were very satisfied with their work-relationship with the dentists.

Some participants expressed dissatisfaction in their working relationships with the dentists and felt that a strained work relationship existed between the technologists and dentists as inter-professional colleagues' (i.e. dental team) and immediate supervisors:

My observation is that there is this master-servant relationship from the dentists. They see other inter-professionals as servants, however, it is now left to me as

a dental technologist to let them know that I am not their servant, I am also working here as a professional like them. [DT 5]

The only way I can explain this, is that the way and manner the dentists takes the affairs of dental technologists is nothing to write home about. And I really don't know why it should be that way. At least if we are working as a team, then there should be a mutual relationship, but when it comes to certain level the dentists think they are Lord over other oral health workers. [DT 4]

This depends on individual differences, because some colleagues like fellow technologists relates well. But for dentists-technologists working relationship some are easy going in terms of valuing of the dental technologist's inputs for a better treatment option in the management of dental patients requiring dental prosthetics. While others feel that they are right in terms of employment cadre they are your senior and therefore, do not need the dental technologists inputs. [DT 17]

Some of the technologists expressed divergent view on this sub-theme, that they were satisfied with their working relationship with dentists and felt that a good rapport existed between the technologist and dentist:

There is mutual relationship with professional colleagues including the dentists. [DT 15]

Because my immediate colleagues are my junior we rapport very well and my relationship with the dentists is cordial and satisfying. [DT 12]

Oh definitely, because you see like the fact that I specialised in Crown and Bridge [ceramist] makes it very easy for me, because the consultant who is a restorative dentist, we have good working relationship. [DT 13]

Some of the technologists were dissatisfied in their working relationship with intra-professional colleagues (i.e. technologists) and seemed to indicate a lack of teamwork:

Like some of my immediate colleagues here, some of them are just self-centred, they don't do something that would benefit others. All they are fighting for is themselves alone, which is not supposed to be. [DT 11]

The relationship with me and immediate professional colleagues of mine is not too smooth. I'm not satisfied. Because we are not working as a team.

[DT 7]

Thus, some of the participants were dissatisfied in their work relationship with dentists and technologists, while some of the participants were satisfied with their work relationship with the dentists. This theme found that poor supervisory and inter-professional (co-worker) relationships exist between dentists and dental technologists. This was due to the structuring of the public health system in Nigeria and the practice of the dentistry profession in the public health sector where the dentists is the leader of dental team. This professional dominance by dentists can lead to tension among co-workers or a dichotomy within the dental team. However, dentistry requires teamwork and no one can function independently of the other. The following discussion will focus on the sub-theme emerging from the main theme, i.e. professional status and professional autonomy.

4.3.7.1 Sub-theme: Low professional status

This sub-theme affirms that the participants' perceived professional status negatively affected their job satisfaction. Participants also raised a concern with regard to issues affecting job satisfaction among the participants working in the public health sector. Some of the participants were very dissatisfied with their professional status among oral health workers, indicating that they did not feel valued as members of the dental team. This was also due to the structuring of public health system in Nigeria.

Some perceptions of participants who expressed dissatisfaction with their professional status among the dental team felt that they were not adequately valued members of the oral health worker (i.e. dental team):

I know we're not valued members of the dental team and when it comes to health issues, every other professional has their own role to play. We all have a role to play, and the role the dentist-technologist play are towards attaining a common goal which is patients' satisfaction, that's all that matters. [DT 7]

All this attitude of the dentists towards the affairs of dental technologists, makes it difficult and more difficult to cope with work. For instance, in the procurement procedures technologists are not given the opportunity to test run the machines/equipment to certify them, we are not involved, so when you want to use it, you will start finding faults here and there and eventually some of these things will not perform. Like there are so many equipment they supplied about two or three years ago like the porcelain furnace, the casting machine and some other machines etc. And some of them are just close to being good in terms of performance, then we are not giving what is expected. So our inputs are not valued because they feel that they are all knowing. [DT 16]

In brief, some of the participants believed that they were not adequately valued members of the dental team. Some of the experiences of the participants within the dental team suggest that their professional status/value is not appreciated.

4.3.7.2 Sub-theme: Low professional/work autonomy

This sub-theme articulates the yearning of the participants to have some level of professional and work autonomy in relation to the professional dominance by the dentists. This sub-theme found that dental technology, despite being recognised as a profession in Nigeria, has never enjoyed the level of autonomy it deserves as a standalone profession within dentistry. Previously medical lab scientists did not work directly under the headship of a medical doctor/s, which was also the case with other healthcare professions in the public health sector. However, this was changed with current reform that medical/health departments are under the headship of medical consultant. The participants strongly expressed their displeasure with the way and manner the dentistry profession was structured and practiced in Nigerian public health settings as well as the perversities they have been through at the hands of dentists both as inter-professional colleagues and as immediate supervisors.

Some of the participants perceived that they had limited administrative control and work autonomy in the public health sector, and indicated that they needed some level of administrative control or autonomy in their workplace without the dentists interference:

The technologists on their own cannot press on the management directly to get the necessary things that are needed to run the dental lab smoothly, it must be through the Head of Department [dentist] and at the end you are told to stop work, till material is available which is another way of bringing the work done in the lab to a halt. Which is another way of telling or proving to the management that the clinic can function without the dental technologists. For example, when an unsatisfactory impression is sent to the technologist in the laboratory and is rejected by requesting for a retake and they question you, 'how dare you reject an impression taken by a Consultant' (i.e. a specialist dentist). Sometimes the dentist alters the appliance during the fitting of the appliance (prosthetic), before calling on the attention of the technologist, claiming that the appliance is ill fitting etc. It so frustrating though. [DT 17]

The issue with this profession that I don't like is the fact the dentists are believed to be the head of dental team i.e. lack of professional autonomy, as such dental technologist should be able to work independently. Dental technology should be standalone profession we should not be receiving direct instructions from the dentists administratively. It should be independent to an extent. [DT 1]

Because of the limited autonomy and improper bureaucracy involved in the procurement process of acquiring materials and equipment as well as in the recruitment of new dental technologists. The dental technologists are not involved administratively in the process, and every requisition has to be channelled through the HoD [dentist], who doesn't care about the affairs of dental technologists nor understand the frustration you go through in the dental lab. [DT 17]

Some of the participants felt that dental technology units in the public health sector should be headed by a dental technologist who would be solely responsible for affairs

of the dental laboratory and the personnel:

We are supposed to be a big department on our own, being headed by a dental technologist. But we still find that no matter how high you rise, you know, in the profession, you are still under the dentist, and we know that these are the politics of the profession. [DT 14]

I also want the establishment of dental technology as separate department/unit in various organisations with the head as a director who should be able to attend management meetings to negotiate for the well-being of dental technologists and the things we need to do our work proper not totally on the dentists to determine the fate of the dental technologists. [DT 8]

Dental technology need to stand on its own; Dental Technology Department [professional autonomy], Department of Dental Technology. In our various schools, there are Department of Dental Technology, so why can't we have department of dental technology in the hospitals? So you see these are just politics of the profession you know. [DT 16]

Thus, participants were very dissatisfied with limited administrative control professionally in their workplace, and some advocated that dental technology should be a standalone (independent) profession without the interference or professional dominance by dentists. Some of the participants perceived that the technologists should not be receiving direct instructions from dentists administratively, aside from the structure and practice of the dentistry profession in the public health sectors. Some participants believed that the professional dominance by dentists was politically driven; no matter how high dental technologists rise in their career they will still be headed by the dentists. However, in the complexity of the health care sector one profession cannot be independent of the other particularly where teamwork is required. The finding here is that low professional/work autonomy had a negative influence on job satisfaction among the dental technologists interviewed.

4.3.8 Theme 7: Poor working conditions

This theme refers to such aspects as the settings of the participants' workplaces such as conducive environment, temperature, lighting, ventilation and other facilities/amenities as well as dental supplies and the basic equipment/machines. Most of the participants interviewed were not satisfied with the working conditions at their workplace, with some participants being satisfied with their working conditions.

The views of the participants who indicated dissatisfaction with the working conditions in their workplace noted that issues with regard to poor working conditions included lack of air-conditioning, poor lighting, erratic power supply, and so on:

The environment I am working is not conducive and imagine working in very heated atmosphere, sweating profusely. Even the bench I sit on, if I am not resting my back is a big problem to me. So, the management always say that there are no funds available, there is nothing you can do, it's a kind of a working condition I do not like. For instance, in the dental lab there's no air conditioner, I've been working in very hot weather considering the use of Bunsen burner in the Lab.

[DT 14]

..... when some essential amenities such as, air conditioner's electrical fittings are not functioning or materials are urgently needed to deliver patients' jobs and the body language is like there is nothing they can do about it. Therefore, it is very frustrating and if you do not have interest in the practice you may be forced by the circumstances to give up on the job.

[DT 17]

Sometimes we find ourselves delivering one job that you are to finish in two or three days, sometimes you finish it in three weeks. What about the issues with electricity and other? The erratic power supply is really, really bad, so with this I am not satisfied as a dental technologist because there are more things that can be done in order to bring in that real joy when you do your work. You know! Sometimes when you come to work, two to three days or even weeks you haven't done anything. Of course that's like child's play, just coming to a workplace and doing nothing.

[DT 16]

Many of the participants were dissatisfied with the work conditions of their employers in terms of both personal comfort and facilitation of good job performance. As the researcher also observed during the interviews, some of the participants did not have a separate office for relaxation as the dental laboratory was both their workspace as well as their offices except for a few senior technologists in some establishments.

4.3.8.1 Sub-theme: Lack of equipment and laboratory consumables

Another central factor impacting productivity and job satisfaction among participants was the issue of limited or lack of equipment and laboratory consumable materials to carry out daily routines in their workplace. The majority of the participants were disgruntled with the lack of basic machines/equipment and laboratory consumables to do their jobs in their laboratory. Some of the participants felt that they had limited equipment, and that this equipment was obsolete, and only a few participants were satisfied with the level of equipment and materials in their organisation.

Some views of the technologists who expressed dissatisfaction with the issue of lack/limited equipment and materials in their organisation indicated that they were hampered by the lack of basic machines and materials in the dental laboratory to be able to function optimally:

Absolutely, imagine you have a patient that requires a denture, and there are no materials available. Actually, we have constraints getting materials or machines to do the job, it is definitely affecting my job happiness, and you can't be happy with that, so it really affects job satisfaction. [DT 2]

We really lacking in equipment and materials supply. Like now we don't have a trimming machine, the only one we had has failed for a long time now. We've been using our personal machine for the government work, you can imagine. So, it's the issue of equipment and the materials, that's the major challenging factor or problem affecting job satisfaction. [DT 4]

Most of our dental lab, precisely where I work, there are some vital equipment or machines that are needed which are not available. And knowing fully well

that if some of these equipment are available, it will increase your productivity as a technologist. For instance, there is no curing bath for the processing of ordinary plastic denture, which is one the key machines and other necessary equipment. [DT 10]

Some of the participants, however, felt that their employers were doing their best in terms of procurements of equipment and consumables to carry out their work in the laboratory, although they also indicated that this was inadequate. Their views:

Not adequate as should be but I can say that my employer are trying, though sometimes if we ran out of material, it takes like months before we get another supplies. [DT 6]

Well at this Institution, I would like to commend them because they've made an effort to bring in some equipment that can help us to do some work. There are equipment, but they are not adequate in a sense that some of them are old, some of them are outdated and some of them are not functional. [DT 16]

A few of the participants, however, reported that they were satisfied with the issue of facilities and equipment in their laboratories:

Most of what we use here: when we compare the practice between what is obtainable here and elsewhere, as in abroad, what we are using is turning obsolete, though what we have we use to produce to our own standard but most of them are getting obsolete. [DT 5]

As a teaching hospital it's well equipped, the environment is okay, the only thing is that most times we run out of material, of which will be supplied within the space of about three to four months. [DT 18]

Many of the participants were dissatisfied with the level of dental supplies in their workplace e.g. equipment/machines and materials. Some participants indicated that sometimes they purchased materials/consumables out of their own pocket and used their personal machines/tools to carry out their jobs to maintain patient satisfaction as

well as to keep up with the work flow in the dental laboratory rather than suspending activities due to lack of machines and materials. Some participants reported improvising in some instances, so as to ensure that patients did not go away without receiving the services they required. This data clearly suggests that the problems associated with lack of essential equipment and material was one of the major workplace challenges that negatively influenced participants' job satisfaction among. The next section highlights the issues regarding government policies as noted earlier in this chapter.

4.3.8.2 Sub-theme: Restrictive government employment policies

The impact of the government's employment policies as they affect the job satisfaction of participants was explored, policies such as employment entry-level salary grade cadre and career progression (i.e. retirement cadre). The results show that there were issues with restrictive government employment policies that negatively impacted the job satisfaction the participants. Most of the participants were dissatisfied with the government employment policies, whereas some of the participants were somewhat satisfied with the employment policy.

Some perceptions of participants who were dissatisfied indicated that they were most affected by restrictive government employment policies such as limited career progression and employment entry level as well as that the policies are implemented by dentists who are deciding on behalf of dental technologists:

Policy issues has a very strong connection with that of entry level and retirement cadre [career progression] on like my counterparts in other health professions, I keep saying it, they start on salary entry grade level 10 (CONHESS 9) they will rise up to salary grade level 17. There again, it's a policy issue. But somebody will stagnate me on salary grade level 14, from salary entry grade level 8.

[DT 9]

Most of the policies we have in the public sector affects dental technologists, e.g. the issue of not reaching a director cadre which is SGL 17 due to the kind of professional qualification and majority of dental technologists in Nigeria about

90% of dental technologists in Nigeria have a Higher National Diploma (HND). More so, the issue of low entry level cadre, dental technologists are placed on SGL 8 instead of SGL 10, so you can see that almost all the policies do impact on job satisfaction.

[DT 6]

Some of the policies affects the technologists, generally in dental department policies are implemented by the dentists. Our opinions don't count and does not come up to something, they tend to decide for dental technologists.

[DT 1]

Thus, the participants were disgruntled with the government policies within the public health sector. These include issues such as low employment entry-level cadre and limited career progression. The participants expressed frustration that government policy seemingly gave the dentists great authority which resulted in them being excluded from decision making at their workplace by the dentists, and feeling diminished in their autonomy. The participants further indicated that the challenges they faced regarding their limited career progression were beyond them, due to poor academic qualification structure within the profession. They were permanently limited due to the type of professional qualification being offered at the various dental technology training institutions.

Finally, as stated in the Schemes of Service (Nigerian Civil Service 2003: 74-79), both the HND, CDT and C & G holders in dental technology profession retire at the SGL 14 (i.e. Chief Dental Technologist cadre). Those with a bachelor degree have the opportunity to rise above Chief cadre to the SGL 17 (i.e. Director Dental Technologist cadre). This policy appears to be the central frustration experienced by the sampled sub-category of 11 to 20 years and those with 21 years and above work experience as shown in Table 4.1. The latter sub-category had spent between nine to twelve years on the same cadre without further promotion opportunities and were the most dissatisfied among the participants interviewed. These matters will be addressed again section 4.3.8.2.

4.3.9 Synopsis of the results based on findings as per research objective 1

Recap of data analyses on factors influencing job satisfaction among dental technologist participants in the public health sector in Lagos, Nigeria, and the inter-relationship of themes.

The study found that some of the factors influencing job satisfaction among participants were issues around low employment entry-level, low remuneration, career limiting bar (limited career progression), limited educational advancement. Other factors included: dearth of specialty training, limited funding and opportunity for CPD, strained working relationship between dentists and technologists, low professional status, inadequate professional/work autonomy, as well as the poor working conditions which includes lack of equipment and laboratory supplies and restrictive government employment policies.

The most challenging factors that negatively influenced job satisfaction among the study participants were: low employment entry-level, low remuneration, career limiting bar (limited promotion opportunities), limited educational advancement, dearth of specialty training, limited funding and opportunity for CPD and strained working relationship between dentists and technologists.

The low employment entry-level had a great impact on participants' career progression. It takes dental technologists six years to attain the level that is the entry level of other allied health professionals within the sector. Therefore, before the dental technologists progress, other health contemporaries are already advanced ahead of them. Despite, the fact that many of the participants interviewed had spent more than a decade in their job, most of the participants were still on the SGL 08 to 11 which indicates that they had not progressed beyond the SGL 11 (as shown in Table 4.1). If the participants had started at a higher level (SGL 10 or CONHESS 09), after a decade they would have been on SGL 12 or more. Another interesting issue regarding this finding was the observation (from anecdotal evidence) dental technology professionals holding a in the public health sector also enter on the same entry level as non-degree holders, of SGL 08. This seems to suggest that the profession is not adequately valued in the public health sector

The low remuneration as a consequences of low employment entry level affects the level of monthly emolument as well as non-payment of call duty and teaching allowances.

Participants mentioned that the career limiting bar for non-degree holders (limited promotion opportunities) had a very significant impact on their career progression, with their promotion opportunities limited at the top end of their career (see Table 4.1). A further limitation facing participants was that there is only one degree awarding school within the country where they can upgrade their qualification to a degree. Even then, the duration of the course according to the participants was too long for them to study while maintaining their jobs.

However, there seem to be a strong inter-relationship between the participants' low employment entry level and the career limiting bar for non-degree participants. As the participants enter the public service at a low bar (SGL 08) it takes more years to progress to a higher level of SGL 14 and once they reached the SGL 14, with the restricted career bar for non-degree holders they are they are stuck at that level of seniority, and that level of remuneration. Participants with more than 21 years work experience (Table 4.1), were most dissatisfied on these matters, and this influenced their intention to quite their job (see section 4.3.11.1).

Limited educational advancement also had a great impact on their job, and this is a central factor in the findings. Most of the participants were faced with limited promotion opportunities due to the nature of their educational qualification. There seems to be interconnection between the participants' low entry entry level, career limiting bar and limited educational advancement; participants blamed the low entry level and limited promotion opportunities (limited career progression) on their professional qualification. Unfortunately, without the pre-requisite qualification, the issue of limited career progression for non-degree holders may still be a challenging factor as this is a policy issue and the only way to change career progression is to change the government's policy.

With the dearth of opportunities for specialised skills training, the participants expressed that they limited to the routine of plastic denture fabrication for so many

years without new insights on the latest or more recent advancements within the field of dental technology due to lack of specialised skills training acquisition, so they were without new challenges. The participants with more than 21 years and above work experience (Table 4.1), were most dissatisfied. This was also interconnected with limited educational advancement, as there seems to be a lack of solid educational structure or foundation to provide or inculcate these skills in the training programme in Nigeria.

The issue of limited funding and opportunity for CPD further impacted on participants' satisfaction as their experience was that there was limited funding in the public health sector for them to attend CPD events.. The only CPD opportunity was those organised by the professional regulatory body which needed to be paid for, and which is the only available channel for acquiring the specialised skill. This therefore has an inter-relational association with dearth of opportunities for specialty training. this however.

Analysis of data on poor working conditions' influence on job satisfaction among participants showed that these are not as influential as the other factors. The issue poor working conditions has been a general problem within the public health industry both in Nigeria and globally, so is not peculiar to dental technology professionals alone. In addition, other factors that have been enumerated and discussed such as low employment entry level, limited career progression and so on are more significant and had more impact on job satisfaction than the poor working conditions which is include lack of equipment and laboratory consumables supplies and restrictive government employment policies. During the interviews, concerns regarding the lack of educational development were common and therefore data analysis now focuses on discussion of the perceived role of educational structure/advancement and professional qualification as factor for job satisfaction (research objective two).

4.3.10 The effect of professional qualification and career progression on participants' job satisfaction

This section sought to explore participants' perceptions of the role of professional qualification and career progression as a motivating tool for job satisfaction amongst dental technology professionals in the public health sector.

4.3.10.1 Theme 8: Limited professional [academic] qualification

The researcher explored the perceptions of participants regarding the role of professional qualification and career progression as a motivating factor on their level of job satisfaction. Most of the participants interviewed strongly agreed that improved professional qualifications would be a strong motivation to gain career progression/advancement in the public health sector, with only one participant disagreeing.

Some of the participants advocated that establishment of additional degree awarding institutions (universities) in the dental technology profession for enhanced professional qualification would facilitate career progression in the public sector:

There should be establishment of more degree awarding institutions (universities), for BSc and recall this HND which would be the end of the problem of limited career advancement [progression]. So, I really believe that improved professional qualification through a bachelor degree can help me advance career wise and be happy with my job as a dental technologist, since that is the Nigerian factor. We really need degree in this our profession to enable us advance to Director Cadre i.e. SGL 17 which is the prerequisite in the public service. But this shouldn't be a factor to limiting or stagnating professionals like us from attaining our potentials in the public hospitals sector.

[DT 4]

Improve qualification will give me a better Certificate than the one I am having currently, and there would not be the challenges of HND or BSc dichotomy on entry level of issues. Improved qualification will reduce low self-esteem i.e. one will see himself measuring up amongst his contemporaries in other health professions. And this educational structure. If our professional regulatory body can help us to re-structure or establish this profession, in different universities, to enable us obtain a degree like BSc or even higher qualifications that is not only HND or BSc, it will help the profession to grow.

[DT 11]

I concur that improved professional qualification with its present situation in our

profession in Nigeria, can be a means of achieving career advancement and job satisfaction through improved academic qualification acquisition is necessary. Such as BSc in dental technology since it is the minimum requirement for career progression to Director Level in the civil service. So, what I am trying to say here is that in Nigeria at present, academic qualification is necessary probably to meet up with other professions in terms of what the Nigerian society crave for.

[DT 5]

Some of the participants were of the view that an improved educational curriculum through specialty skills acquisition would be a greater motivating factor to career advancement and job satisfaction, not only improving the basic professional qualification in dental technology. Most participants agreed that there was a need for enhanced professional qualification:

Moreover, acquiring further advanced skills which is also a practical skill, like crown and bridge technology and maxillofacial technology etc. can enhance a better satisfaction as a dental technologist.

[DT 6]

I really believe that if you are sufficiently empowered practically it can go a long way to help you to discover some of the advanced skills that will make you more efficient in the profession and you are happy with yourself. You produce or fabricate prosthetics that are highly improved in aesthetics and function, then there is job happiness. Although improved academic qualification, is also very good and it can take you to the peak of salary grade level, but more skill acquisitions are the characteristic of satisfying patients' which is more fascinating.

[DT 1]

As a dental technologist it's all about using the latest innovations, and improved materials for the improvement on dental prosthetics production and patients are satisfied with it. That is what I see as career advancement, not just the type of academic qualification like, B-Tech or HND challenges as it is currently.

[DT 5]

Some of the participants located the problem of basic professional qualification within the industry to the structural issues enumerated and discussed earlier in this chapter:

The lack of improved basic professional qualification is still pointing to the same problems of low employment entry-level and limited career progression in the public sector. Because, the way our qualification was structured in this country was mainly HNDs i.e. the qualification and it wasn't long ago the DTRBN managed to establish one in a university for a B-Tech qualification. Even at that, the entry level is not satisfactory still same for B-Tech holders. So because of this, it's affecting me and my work. [DT 11]

It's so bad that our educational problem here was not structured, the way it is supposed to be structured. For instance, the qualification into the entry level in public service limits me as a dental technologist. [DT 4]

The participants concurred that there was a need for an improved basic professional qualification in the dental technology industry such as BSc/B-Tech, to enable them to attain a universal dental technology benchmark as well as being able to enter at the same entry-level as other health professionals and be able to achieve career progression to Director Cadre in the public health sector in Nigeria. Some of the participants asserted that the challenges with limited professional qualification can be linked to some of the fundamental problems that are negatively influencing job satisfaction amongst dental technology professionals because the basic professional qualification has a knock-on effect on other factors such as low employment entry-level salary grade, low remuneration and limited career progression. Some of the participants argued that the challenges associated with limited basic professional qualification can be addressed through improving opportunities for specialty skills acquisition. The following section highlights the impact of the findings from this study on job commitment and performance.

4.3.10.2 Sub-theme: Non-transformative dental technology teaching curriculum

This sub-theme emerging from the discussion on the dearth of opportunities for specialty training, and elicited the perception that there were notable gaps in the Nigerian dental technology core curriculum, suggesting that the teaching framework is no longer in line with current global trends. Data also suggested that the participants were of the view that there was a depreciation in the quality of the undergraduate training of dental technologists. There have been several technological advancements and innovations in the dental technology profession globally, but dental technologists in Nigeria are still limited to the very old method of dental technology training and practice, indicating that the curriculum and facilities lack transformation. This was derived from the findings in this study on the dearth of opportunities for specialty skills within the profession and the strong inter-relationship between the limited funding opportunities for CPD and non-transformative dental technology teaching curriculum.

This clearly points to the fact that lack of specialised skills among the participants within industry are a reflection of an outdated teaching curriculum. Considering the current technological trends in dental technology practice globally, the training of the dental technologists in Nigeria remains underdeveloped as revealed by the dearth of specialty skills, lack of funding and opportunities for CPD, all of which impace negatively on job satisfaction. Some of the participants expressed worries over the challenges asociated with the outdated dental technology teaching curriculum and the issue of a decline in quality of training at various institutions.

Some participants expressed great concern over the quality of training and lack of transformation in the dental technology teaching curriculum, indicating that it requires rapid improvement in order to match universal benchmarks:

Actually, I don't subscribe to producing dental technologists in numbers. It's not an issue of numbers, it's an issue of quality. For instance, we were like 20 during my graduation but now they are graduating almost like 100. And in the UK, we're told that the maximum number of students admitted for dental technology is 15 per year and to date the standard is being maintained whereas, in Nigeria

reverse is the case. Another thing is that the dental technology curriculum needs to be improved to meet with the standards in advanced countries. We are still lagging behind in terms of training, curriculum, syllabus etc. We need to improve it to meet up with the universal trend in advanced countries.

[DT 5]

Currently, there are lots of innovations in this profession some certain procedures such as ceramics/porcelain prosthetics etc., are something we should be able to do as our day to day work. These are the things they need to restructure in order to encourage advancement in this field, there should be room for personal advancement in professionalism, for more career progression and satisfaction.

[DT 1]

Another thing to increase our employability in the field of dental technology profession, is probably to improve on the level of the curriculum for the training programme at the various dental technology schools.

[DT 13]

Thus, virtually all the participants interviewed expressed their dissatisfaction with the lack of transformation in the Nigerian dental technology educational curriculum. Some of the participants also expressed great concern that they were not adequately acquainted with modern day technological competencies at undergraduate level involving specialised skills thereby attaining a universal bench-mark in the dental technology industry in Nigeria. Other participants felt that there was a drastic reduction in quality of training of dental technologists at the various dental technology institutions, and they yearned for a paradigm shift in the training of dental technology graduates in Nigeria. Lack of exposure to the basic specialty skills of modern day technological advancements as is the case in developed countries such as UK, USA, as well as in South Africa, clearly indicates that the DTRBN are not facing up to the challenges in a collective bid to improve the services to consumers of dental prostheses (i.e. the patients).

The DTRBN are not playing a supportive role in improving the quality of education and training of the dental technologists in Nigeria, which has remained unchanged for so long, by adopting a core curriculum geared towards skills acquisition-based dental

technology education and training as it is constituted in the developed countries. The lack of specialised skills at the undergraduate level and lack of funding opportunities from the government to acquire these specialised skills, either through overseas training programmes or courses organised by the DTRBN, has been linked to discrepancies in the Nigerian dental technology educational curriculum. Those participants with these skills may have acquired the skills by having had the opportunity of working either in a private dental clinic with a ceramics dental laboratory, overseas training, or recently acquired through courses such as those run by the DTRBN. However, this finding is subject to independent interrogation of the undergraduate curriculum.

4.3.11 Theme 9: Consequences/implications of the findings on job satisfaction as per research objectives

This theme depicts the findings on job performance and organisational commitment amongst the participants, and the effects/implications thereof. The participants were asked to express their perceptions regarding whether the factors identified as influencing job satisfaction within their workplace had affected their job performance and organisational commitment. Most of the participants interviewed specified that the factors identified had negatively influenced their level of work performance and commitment, with only a few participants reporting that these factors did not affect their job commitment and performance. Participants were specific about the factors that negatively influenced their job commitment and performance. The following excerpts express the impact of unsatisfactory work factors on participants' commitment and performance:

- **Low employment entry level**

The effects of low employment entry level on job satisfaction. Low perceived entry level reduces ones' professional and self-esteem, its also affected the psyche of some participants as well as the feeling of being regarded as inferior by other health professionals within the public health sector:

The issue about low employment entry-level as a professional reduces one's self-esteem. You won't be able to compete with other health professionals

freely. Whilst they were placed on SGL 10 and the dental technologists are placed on SGL 08. So, the entry grade level is not encouraging. So all these demoralises, and gives me little as a professional. [DT 7]

Impact of low entry level/point I mentioned earlier has both financial and psychological implications where you are cannot boost of your GL amongst your contemporaries. [DT 12]

- **Low remuneration:**

The financial implication low entry level is enormous, considering the fact that we all go to the same market, pay same bills, renting apartment, and transportation to work footing all my bill etc. So, if one is not earning as expected, it has a way of weighing you down. You don't really do things as expected. And the whole issue rubs off on the job makes one not willing to work and end up looking for a way of augmenting the low pay/remuneration. [DT 17]

- **Limited career bar (progression):**

The problem of limited career bar was one of the most dissatisfying factors influencing job satisfaction participants in the public health sector, especially among the participants with more than 21 years of work experience (Table 4.1), who had already reached that bar. Because they could not progress career-wise due to limited educational achievement they were disenchanted with work.

Ones you reach GL 14 you will remain there until your retirement especially those with HND holders but the BSc will grow beyond that bar up to GL17. For the HND holders the DTRBN are exploring ways to assist holders to upgrade the qualification to be able to cross the bar [DT 12]

- **Limited educational advancement:**

The issue of limited educational advancement greatly affected their morale of most participants.

Low morale due to limited career advancement as a result of type of qualification held i.e. HND. It is so dissatisfying [DT 12]

- **Poor working conditions:**

You do not have the desire or feel like coming to work due to the poor working conditions such as air conditioner and electrical fittings not working properly the whole environment is not been conducive for work. I stay away from work if I am not in the right mood.

The only one that has mostly affected me is the lack of facilities/equipment to carry my duty and limited material supply. Also, the impact of low entry level; there and then the morale is already low, you are being demoralised from the beginning, and fact that you are not even happy; it might not really bring out the best in you. [DT 4]

- **Restrictive government government employment policy:**

The issue of government policies greatly demoralised some of the participants, policies such as employment entry level, career bar limitations.

The policy issues has greatly affected me negative morale very low [DT 12]

- **Low professional status impacted on their job satisfaction:**

There were general feelings of perceived low professional value amongst the participants in the context of teamwork, with some of the participants feeling that they were being bossed-around. The participants perceived that they were not being adequately valued as professionals.

- **Inadequate professional/work autonomy:**

This finding was that most of the participants were frustrated by the fact that dental technology professionals, no matter how high they achieve, still are headed by a dentist. More so, the fact that dentists still refer to dental technologists as auxillary staff or supporting staff implying that they are not professionals was very dissatisfying.

But we still find that no matter how high you rise, you know, in the profession, you are still under the dentist, and we know that these are the politics of the profession. [DT 14]

There is limited professional autonomy for the dental technologists amongst the dental team. [DT 17]

However, some participants, stated that they were not affected by the issue of professional/work autonomy, indicating that they recognised these challenges existed and therefore, believed that these factor would not go away anytime soon so just got on with their jobs anyway:

Because personally I am the kind of person that seemingly the government is not ready to sponsor to make the environment enabling. I try to improve myself and I put in the best that I can, so I don't allow that to affect my output, as a person. [DT 5]

It does not affect me in any form since I have made up my mind that I know that things are like that, so it has not affected me. [DT 9]

It is evident, therefore, that the participants were greatly influenced by the issues related to restrictive government employment policies, with this being a major negative factor impacting on their jobs. The impact includes low employment entry-level, limited career progression/advancement, and low professional autonomy (i.e. the dentist factor). Some participants were influenced by poor working conditions at the workplace as well as lack of materials and equipment to carry out their daily routines. Some participants indicated that they had been grossly affected by the issue of low remuneration as a result of non-payments of their professional allowances that were due to them such as call duty and teaching allowances. Others, while aware of the negative factors associated with working in the public sector, chose not to let those factors affect their work attitude.

The overall implications of these findings on job performance and organisational commitment include low professional and self-esteem, low perceived valued as a consequence of poor job low motivation and contentment, low work-output leading to organisational behavioural attitude as such absenteeism, lateness to work etc. The researcher, therefore, explored issues with respect to intent to quit their jobs or leave/change the profession (i.e. turnover), which will be highlighted in the following sub-theme.

4.3.11.1 Sub-theme: Intent to quit job/change profession (turnover)

In a bid to ascertain the issue of turnover within the profession or the jobs in the public health sector, participants were asked if they had thought of quitting their jobs or changing their profession at any stage in the last five years. Only a few participants had such thoughts and were still nursing the intention to leave. A great number of the participants had had no thought of leaving their jobs in the last five years and did not intend to leave the profession or their jobs in the future.

Some perceptions of the participants who had the intention of quitting their jobs indicated that they were greatly affected by the issues connected to poor working conditions, the dentist factor, lack of educational advancement within the country, and limited career progression:

I have contemplated leaving the practice because I do not have job satisfaction and working conditions does not seem to end anytime soon as well as professional politics around the work place by the dentists. [DT 17]

I have had the thought about leaving this profession in the last five years. Even right now I'm still thinking about leaving the profession. And one reason why I feel like leaving the profession has nothing or less to do than with the fact that there is no educational advancement in the profession within the country.

[DT 7]

Because of all these factors has affected my work. A situation where you are not happy, where you are supposed to be happy. Then I look for an alternative, even someone in business can do better than you, as a professional in government work. So, I had the thought of leaving till I find an alternative or hoping that the conditions would improve in future. [DT 11]

Some views of participants who had no intention of quitting jobs nor the profession were as follows:

Well dental technology is a very good profession, it's actually a happy one if everything is put in the right perspective. Of course, because we are working for the Federal Government it does not mean that we cannot be on our own. Dental technologist is the only profession in dentistry that can be on its own.

[DT 16]

Because since the time I have been in dental school, I have always had in mind of improving, advancing myself and also having my own private dental laboratory or my own private practice. So anywhere I find myself, whether the environment is conducive or not, I see it, just as a step to my own vision and passion. So I don't see the reason leaving dental technology profession.

[DT 5]

When we are talking of job satisfaction we are talking of interest. So because of the interest I have in dental technology profession that is why I've not even dreamt of leaving the profession for now. [DT 10]

Thus, the finding from this sub-theme strongly indicates that most of the participants were very aware of the problems that negatively influenced their job satisfaction in the dental technology workplace, but had chosen to remain in their jobs due to the passion they have for the profession and a sense of career satisfaction. Some participants were still in public sector employment and finding various ways of improving on their skills and engaging in private practice as well to augment their income. Some of the participants indicated that they were planning to move into full time private practice or leave the profession if the situation did not improve in the near future. Some were not too happy with the challenge of being in the hands of the dentists as well as the lack of educational structure and were considering leaving the profession or their jobs for other professions.

Interestingly, despite the many challenges the participants are faced with, in the public sector, most of the participants chose to remain in their jobs. This could be because the private sector is not necessarily an attractive option for the dental technologists because in the private sector employment there is neither job security nor a well structured career pathway. Furthermore, remuneration is not necessarily better, and private dental clinics and private hospitals are generally limited to the urban areas of the big cities. Another obstacle to leaving is the public sector is more capital requirements for purchase of expensive equipment and machinery. Another sub-theme arising from the theme was the issue of limited public awareness of the profession of dental technology.

4.3.11.2 Sub-theme: Inadequate public awareness of the profession of dental technology

Some of the participants interviewed raised a concern regarding the public perception of the profession of dental technology, indicating that the profession had been dominated by dentists and that there was only a small market for dental prostheses.

Some participants strongly advocated for public education regarding the profession of dental technology:

I think the first thing we have to do is to create an awareness there should be general awareness in every part of the country, because up to now if you are walking on the street we see some people that do not even know, they do not know that there are people that replaces a missing tooth, they are so ignorant that they never know that it is possible for a missing tooth to be replaced. So the awareness should be created. [DT 10]

We have to create awareness. Many people do not know that once they lost their tooth/teeth, their natural teeth, that it can be replaced, so many people do not know. So we need to create more awareness. [DT 11]

There is need to create much needed awareness about the profession or programme, there should be public awareness towards what the dental technology profession is all about. I tell you some people don't know what we do as professionals. The dentist tends to over shadow everyone because they are the ones that the patients consult, so we should be able to ring our own bell, should be able to say or tell the public this is who we are. [DT 14]

A lack of awareness among the public suggests there is only a small market for dental prostheses within the region resulting in a lack of employment opportunities within the dental technology industry. Some of the participants, therefore, advocated for more public awareness concerning the profession so as to increase public awareness about the profession and to increase employment opportunities for dental technology graduates. A small market increases the likelihood of practitioners leaving the profession to study other health professions that seem more attractive and popular. Lastly, the next section will highlight the expression of job satisfaction amongst participants.

4.3.12 Theme 10: Expression of job satisfaction amongst participants

For the purpose of this study, therefore, it was necessary to ask the explicit question: “Are you satisfied with your job as a dental technologist? Yes { } No { } Please explain”. Most of the participants expressed satisfaction and fulfilment with their job as oral health care practitioners, with only a few participants being dissatisfied with their jobs.

Some perceptions of participants who expressed satisfaction with their job indicated that they were highly satisfied with their career as oral health workers:

As a dental technologist and as a healthcare professional, taking this line of professionalism. I am satisfied to be a dental technologist. Putting aside every other factor affecting job satisfaction, I'm satisfied to be, I'm happy to be a dental technologist. [DT 7]

I am satisfied because first of all my patients leave the clinic smiling, the dentists are satisfied with my job, and they do not have any problem with the job I produce. [DT 14]

I am satisfied as a dental technologist, and if I come back to this life again I would like to be a dental technologist. I am happy to even support any of my child that wants to become a dental technologist. [DT 5]

Some views of participants who were dissatisfied with their job responded as follows:

Actually the answer here for me is NO. I just mention from the first question down to this question, and all the factors enumerated so far affects my job in this organisation. [DT 16]

Because of the factors already enumerated/discussed earlier. Improper bureaucratic process etc. [DT 17]

I am not at all, because we are still using old method of dental technology practice and I think that's too archaic. [DT 1]

In summary, the majority of participants interviewed were highly satisfied with their jobs as oral health care professionals, and were experiencing career satisfaction, irrespective of the negative issues that were identified as influencing job satisfaction. This clearly indicates that the participants were overall satisfied with their job as well as their career choice. A few participants reported overall dissatisfaction with their job due to factors such as limited career advancement, low entry level, inadequate compensation and most especially the dentists' personality. The next sub-section discusses participants' responses regarding how to address the problems influencing job satisfaction within the dental technology industry.

4.3.13 Participants' suggestions for making dental technology more attractive as a field of employment (research objective 3)

The views of the participants were sought during the interview regarding suggestions for making dental technology more attractive as a field of employment. The findings of this study regarding participants' perceptions of the frustrations regarding employment policies point toward the need for an amendment of government employment policies in respect of dental technology professionals in the public health sector. These are discussed below.

4.3.13.1 Amendment of restrictive government employment policies for dental technologists' cadre

This sub-theme emerged from the theme restrictive government employment policies. The finding here was that most of the participants interviewed strongly indicated that the sections of the government employment policies that negatively influences job satisfaction among dental technologists in the public health sector should be revised and adjusted.

Some of the participants advocated that the sections of the government employment policies negatively affecting dental technologists in the public health sector should be improved, for example:

I think the policy needs to change. To give room for people to develop and give room for people to give or bring out the best in them, it will also make the country a productive nation. Because check, other nations, like China, they don't crave for certificates, but what you can give out, it's what you can deliver and they appreciate and reward that. They don't reward certificates when you cannot produce.

[DT 5]

One of the participants maintained that the employment policies affecting the dental technologists were politically motivated:

Yeah, you see policies like I just said earlier, where they have a policy that a dental technologist cannot cross just the bar at grade level 14. I mean for over the years, and even the dental surgery assistants do have the same bar. I mean this is the kind of policy that should have been changed over the years and I believe it is politically motivated. Because, the people that are a bit under you, if they have someone in power politically, they will go push for change of their own people's policies. They will increase/improve their level and they will come up to your own level and they will even bypass your level. Meanwhile if you don't have anybody politically to help you, the policy on your own case, remains the same. Because there is no political associate up there to help you.

[DT 13]

Another participant responded that the challenges the dental technologists are faced with in the public sector is a form of marginalisation based on professional qualification:

If the policy can be restructured to make it more meaningful and more interesting. For instance, you see a nurse, a Registered Nurse (RN). After their nursing training experience they go further for maybe midwifery, or orthopaedic nursing etc. but that one doesn't add to their degree it is just area of specialisation and because of these they able to get to Chief Cadre. And they are not even HND holders, but they spend three years in their schools for ND or Certificate course. If those kind of things can be given to them why can't it be

done for dental technologists' who spent between four to five years in training, thereafter a one-year internship programme then another one national service?

[DT 15]

Thus, some of the participants perceived that the dental technology profession in Nigeria does not have strong enough political connections to champion their cause on the issues influencing job satisfaction within the public health sector, compared to other health professions such as medical laboratory scientists, pharmacists and nurses. Participants advocated for a review of the employment policy document (Schemes of Service 2003), particularly the section that limits them from attaining their career potential in the public health sector.

The sections below capture various suggestions offered by the participants in addressing factors to make dental technology more attractive as a field of employment, which would improve job satisfaction among current dental technologists in the public health sector as well. The participants had diverse views with respect to providing solutions to the challenges facing the profession. These are unpacked and presented here as sub-themes. The accompanying excerpts reveal the various points of view of participants.

4.3.13.2 Enhancement of employment entry grade level and promotion opportunities

Some of the participants suggested that employment at entry grade level and managerial level promotion opportunities for dental technologists in the public health sector should be enhanced so as to enable dental technologists to earn respect from other health professionals:

First of all, the policy issues should be reviewed, one to increase the bar i.e. retirement cadre on which a dental technologist will end his career. The government salaries GL, they should move it from that level 14 to level 15 or 16. So, policy wise I think it should be enhanced or improved a bit. [DT 13]

Speaking on the employment entry grade level and retirement cadre should be enhanced for dental technologists. [DT 9]

Equitable reward GL for all HND and BSc holders is advocated for dental technologists and their contemporaries. Because of the discrimination/dichotomy between HND and BSc that one is on GL 08 and the other is on GL10 because is not everyone that has the opportunity to attend the university education. The Dental Technology Lab should be well equipped because some of them are nothing to write home about. [DT 12]

4.3.13.3 Improved remuneration

Most of the participants advocated that an improved remuneration level for dental technologists would provide higher levels of satisfaction with their job:

Over and above all, professional autonomy for the dental technology profession from the dentists, and improved remuneration packages considering economical factor that we all go to the same market and there should be a reasonable equitable reward for the dental technology field of employment. [DT 17]

Some remunerations which dental technologists are denied should be given to us as it is in the other health professions such as call duty allowances etc. It should be uniformly incorporated as part of the remuneration packages for the dental technologists. [DT 12]

The Government should elevate dental technology professionals in terms of improved remuneration. For instance, when you go to internet you see how much the dental technology is earning abroad in Canada, United States and United Kingdom, compare with what we are earning it is very, very poor. [DT 15]

4.3.13.4 Promoting professional/job autonomy

Some of the participants strongly advocated for professional/job autonomy vis-a-vis dentists in the public health sector, indicating that each profession complementary to dentistry should be headed by one of its own members:

Dental technology should be standalone profession [profession autonomy] we should not be receiving direct instructions from dentists. It should be independent to an extent. [DT 1]

I think each dental team should have a Director that would be in charge of each unit. So that when you make a requisition you follow up on your own. Not that there would be the only one Head that decides the fate of others. [DT 3]

Another aspect, for instance, during the procurement of materials and equipment for the dental technology unit, the dental technologists do not get involved in the procurement process irrespective of the fact that the materials and equipment are being used in the dental lab by technologists. And decisions are virtually made by the dentists for issues pertaining to the dental technology unit regarding procurement and recruitment processes. Dental technologists were not allowed to get involved in the decision making process especially issues concerning the unit. [DT 17]

4.3.13.5 Improving dental technology teaching curriculum

Some participants suggested that the DTRBN should improve the standard of dental technology education and training:

We have to go back to the drawing board. When we were in school, we used to be not more than 20 in a class, but these days they admit more than 200 students i.e. mass production with less quality. The training of dental technologists now in our schools is very rough, no facilities etc. Seemingly the DTRBN are no longer doing their work [quality control] as a regulatory body.

The training institutions and the DTRBN should join hands together to increase the quality of training provided to dental technology professionals, not just loading them into lecture room and teaching them theories. Our work is practical oriented all through. [DT 2]

It is the foundation that matters, once the foundation is solid every other thing will follow. It is just so shameful that after many years since the inception of dental technology profession in Nigeria, that they doing mass graduation in the same old infrastructure instead of quality. [DT 4]

I actually believe that, improved qualifications and curriculum, um will motivate people in the profession career wise, to enhance job satisfaction within the profession. [DT 13]

4.3.13.6 Review of government employment policies

Most participants strongly supported a change in government employment policies for dental technologists in the public health sector, indicating that policies such as low entry grade level and restricted promotion opportunities negatively influenced dental technologists' level of job satisfaction:

But for me I think the policy needs to change. To give room for people to develop and give room for people to give or bring out the best in them, it will also make the country a productive nation. Because, when check other nations, like China, they do not crave for paper certification, but what you can give offer, it is all about what you can deliver, and they appreciate and they reward that. They do not reward certificates when you cannot produce. [DT 5]

One of the major thing I think that can be done to make dental technology more attractive as a viable field: is when the policies being made by the fathers from federalism need to be reformed or changed. When there is something they call unification of educational qualification, when they do not bring in the factor or start discriminating, that this one is a diploma, or that one is a degree holder. It will all help to bring out the best skills in people. [DT 7]

First of all, the policy issues should be reviewed, one to increase the bar i.e. retirement cadre on which a dental technologist will end his career. The government salaries grade level, they should move it from the grade level 14 to level 15 or 16. So, policy wise I think dental technologists should move up a bit.

[DT 13]

4.3.13.7 Improving educational advancement and professional qualification

Some participants believed that in order to address the challenges of professional qualification within the industry, more degree awarding institutions should be established to enable dental technologists to attain career progression in the public health sector:

The educational structure of the dental technology profession should be improved to attract more young dental technology professionals.

[DT 12]

Establishing more degree awarding schools for dental technology, or even if dental technology can attain up to PhD level it will attract a lot of people to the profession. For instance, if people knew that there would be limitations in achieving their goals in profession, a lot of people would not join the profession. Like some people want to be a lecturer, while some want to be a specialist maxillofacial prosthodontist, a specialist in orthodontics etc.

[DT 18]

dental technologists are really being limited in terms of career advancement, very much limited because due to this problem. It makes you feel very dissatisfied, as though it was my fault, that the type qualification we getting even to date is mostly HND. So I think is not really my fault because there are no schools that were offering for us top up to a bachelor degree except in UK. Other universities can take up the programme as much as possible, to enable people advance in their career.

[DT 14]

It is evident that some of the participants advocated for professional/job autonomy, improved remuneration, review of government employment policies for equitable employment entry-level and retirement cadres with other health professions, and restructuring of dental technology curriculum as well as funding opportunities for CPD. Most of the participants were very aware of the challenges in the public sector and how these can be ameliorated in relation to job satisfaction. Some participants felt that addressing the problems influencing job satisfaction would provide opportunities for higher levels of organisational commitment and job performance resulting in better service delivery. Lastly, the participants were requested to make further comments in their views regarding what they thought was not well explored or covered by the questions in the interview. Some participants' responses are presented below.

4.3.14 General comments

The following excerpts were perceptions on different aspects of dental technology offered by participants when they were asked if they wished to make any additional comments:

I want to implore the government to create or allow the practice of denturism in Nigeria as in other developed countries and to invest in the area of dental material production locally. [DT 15]

I wish dental technology professionals were represented at NAFDAC) [National Agency for Food and Drug Administration and Control], as with other health professions, and the medical professions, which are represented there. So, dental technology should be represented in the NAFDAC to ensure that genuine materials used in the dental laboratory being imported, like the pharmacist, takes care of drugs imported and which is also another way of job creation. [DT 15]

I would suggest that the research should evaluate or include students' training experiences also. Because, some of them imagine when they come for internship programme they will claim that they have seen real-life metals etc., particularly those graduating with B-Tech. [DT 2]

We should look at how dental technology in Nigeria can synergise with the advanced countries. We all know that Nigeria still a developing country and in terms of academics we are still behind. Also we know the cost of traveling abroad is expensive. Then we can make arrangements or have a forum or conferences and deliberating on the development of dental technology in Nigeria. Whereby we can invite those dental technologists from developed countries with a higher qualification and vast experience in the dental technology industry.

[DT 5]

The government should create more employment opportunities for the dental technologists, even the private sectors are not employing and the government are not creating jobs, so what do you expect from the dental technologists because they are not pleased with the situation.

[DT 2]

As can be seen in the comments above, some participants perceived that there was a lack of employment opportunities for dental technology graduates, that there should be more international exchange of ideas regarding development of dental technology in Nigeria, that students' perceptions regarding their training experiences should be explored, and that clinical dental technology (denturism) should be introduced i.e. as an aspect of autonomy.

4.4 Summary

Generally, dental technology professionals working within the public health sector in Lagos, Nigeria who participated in this survey, are faced with many challenges with respect to job satisfaction, and it is likely that the broader community of dental technologists in the public health sector face the same challenges. Despite this, there was great deal of high level of satisfaction and fulfilment in their career as oral health workers. It is clear that there are many areas that can be improved which would improve job satisfaction.

From the findings it is evident that the top factors influencing job satisfaction among participants were the following: low employment entry salary grade level, low

remuneration, limited career progression, and lack of equipment and laboratory consumables. Other factors included poor working conditions, strained working relationships, restricted government employment policies (conditions of service), low work/professional autonomy, limited funding and opportunities for CPD, dearth of opportunities for specialty training, low professional status, and limited educational advancements. These factors were the most pertinent aspects that negatively impacted on satisfaction and the participants felt that primarily these areas of great concern needed improvement in order to limit dissatisfaction of dental technologists working in the public health sector employment in Nigeria.

CHAPTER 5 : DISCUSSION AND CONCLUSION

5.1 Introduction

The study found that dental technology professionals working within the public health sector in Lagos, Nigeria, are faced with many challenges with respect to job satisfaction. The findings of this study regarding the most significant factors influencing job satisfaction among dental technologists are discussed in this chapter in relation to current documented literature and the research questions, study purpose and objectives.

5.1.1 Factors influencing job satisfaction among dental technologist participants in the public health sector in Lagos state, Nigeria

This section identifies the factors that participants perceived as being influential regarding job satisfaction.

5.1.1.1 Low employment entry grade level

The study revealed that there was a great deal of dissatisfaction with the employment entry grade level position amongst the participants, and that only a few of the participants were satisfied. The main reasons for dissatisfaction were that other allied health care professionals, such as pharmacists, physiotherapists and medical laboratory scientists (MLS), who study for a relatively similar amount of time, earn far more. This is due to the fact that dental technologists start at the lowest entry-level as employees in the public health sector because of their education and training. According to different editions of Schemes of Service (Nigerian Civil Service 2000 and 2003), the entry grade level of dental technologists into the civil service (public health sector) is set at SGL 08 (this includes dental technologists with a degree, i.e. B-Tech). As reported in the Nigerian Civil Service circular of 2015 (Nigerian Civil Service 2015), the current entry level for MLS is CONHESS 09 or SGL 10. Anecdotally, pharmacists and physiotherapists are also placed on CONHESS 09 or SGL 10, in the public health sector.

Some participants indicated that the discrepancies in entry-level positions amongst the allied health care professions cadre could possibly be explained as follows: certain allied health care professionals with strong political connections had managed to negotiate their way through to higher or enhanced entry level positions for their colleagues. Health care professions whose staff lacked political connections were left out of this process, and thus entry remained at lower levels.

The findings of this study seem to support the observation by Josias (2005) that 'job level' is a reliable predictor of job satisfaction, and that employees at lower levels are more likely to have less job satisfaction relative to employees at higher levels. Furthermore, the findings seem to support the statement by Bond and Galinsky (2006) that a workplace that empowers and supports workers has a positive impact on entry-level, hourly, low-wage and low-income employees, an impact which is sometimes greater than the impact on more advantaged or higher level employees.

It is evident from the results that the employment entry grade level position was perceived by participants as unjust treatment, and that such treatment implied that dental technologists were not regarded as valued members of the allied health care professions' cadre, despite their significant role in the health care industry. This finding is consistent with Adams' equity theory (1963) which proposes that a major input into job performance and satisfaction is the degree of equity or inequity that employees perceive in their work situation. Similarly, previous studies have shown that perceptions of distributive and procedural justice are positively related to job satisfaction and negatively to attitudinal problems such as absenteeism, intentions to quit and turnover (Luthans 2010; Kreitner, Kinicki and Beulens 2002).

The implications of the above findings are twofold: firstly, dental technologists can be demotivated and have a lack of organisational commitment and so poor job performance; secondly, the Scheme of Service needs to be reviewed to correct this state of affairs (see 5.3 below).

5.1.1.2 Low remuneration

The results revealed that participants were disgruntled with the level of remuneration they earned from their employers. The low employment entry grade level positions in the civil service and non-payment or denial of certain allowances by their employer, such as call duty and teaching allowances, were indicated as the major reasons for low remuneration of dental technologists in the public health sector. Some participants in this study were concerned about non-payment of call duty allowances to dental technologists which they felt contributed to their experience of low remuneration. Non-payment of teaching allowances derive from the impact of low employment entry into the civil service, because teaching allowances were paid to personnel within the CONHESS 9 or SGL 10 to SGL 17, which automatically disqualifies dental technologists below CONHESS 9 or SGL 10 from benefiting from this allowance (CONHESS 2009). This was perceived to be unfair, which means that, once again, Adams' (1963) equity theory is relevant here. Adams' equity theory stipulates that job satisfaction is a function of what employees put into a job situation compared to what they obtain from it. This means that the more employees receive, relative to what they put into a job, the higher their job satisfaction will be. Equity theory explains the conditions under which decision outcomes such as pay levels, pay raises and promotions are perceived as being fair or unfair (Luthans 2010). The findings on low employment entry-level into the public health sector have strong inter-relational connotations with participants' low remuneration, considering that the amount of the remuneration is determined by the SGL of an employee, as they progress in their career.

The findings in this study were similar to those of Ross and Ibbetson (2005), who found that remuneration rates amongst dental technology professionals were inadequate. They warned that low remuneration rates are not likely to encourage people to choose dental technology as a profession. Ross, Turner and Ibbetson (2012) found that low remuneration was one of the main reasons respondents provided in their study as to why they intended to quit their jobs. Ezeja *et al.* (2010) report that the issue of poor remuneration among health workers in Nigeria has long been documented, and has been a cause of migration of health care workers to other countries for greener pastures. This finding of dissatisfaction with low remuneration also aligns with the

findings of studies by Al Jaziray *et al.* (2014), Seraj *et al.* (2014), Loretto, Caldas and Coelho Junior (2013), Goetz *et al.* (2012), and Turner, Ross and Ibbetson (2011), who found that low remuneration among dental practitioners negatively influenced their job satisfaction.

The implications of this finding include lack of job/organisational commitment and poor job performance and this may increased their intent to quit, they may tend to make up for the short-fall in their remuneration by engaging in apparently illegitimate practices within the organisation. This may pose a serious challenge to the recruitment and retention of future dental technology professionals.

5.1.1.3 Promotion opportunities

Participants perceived that promotion of dental technology professionals in the public health sector in Lagos, Nigeria was prompt and did not make a serious impact on their job satisfaction. The results showed that most participants expressed satisfaction with their promotion opportunities, indicating that they had been promoted as and when due. The main reason provided was that the policy of their employers specified that after spending three years on each cadre (i.e. salary grade level), they advanced to the next SGL, subject to the passing of the stipulated promotion examination. This finding was in contrast with the findings of Ezeja *et al.* (2010), who recorded that promotion amongst their respondents in the same sector was not instantaneous. However, the results indicated that promotion opportunities for dental technologists in this sector is limited at the top end.

Dissatisfaction with this state of affairs was particularly articulated by participants on SGL 14 with over 21 years' work experience within the industry who could not be promoted any further because of the low professional qualification with which they started. The finding in this study was consistent with the findings by Luthans (2010), Tella, Ayeni and Popoola (2007), and Robbins, Odendaal and Roodt (2003), who all found that promotion opportunities produce a positive work attitude as they offer employees opportunities to grow or progress career-wise.

5.1.1.4 Career limiting bar for non-degree holders on the public health

Studies have indicated that employees with an executive level of promotion are more satisfied with their promotion than those at a lower level are with theirs (Luthans 2010; Tella, Ayeni and Popoola 2007; Robbins, Odendaal and Roodt 2003). Similarly, Josias (2005) found that employees in higher-level jobs have greater job satisfaction than employees on lower levels. None of the participants in this study had attained a higher level position of SGL 15-17 i.e. 'Directorate Cadre' (management) position, despite their years of work experience within the sector (see Table 4.1). The results revealed that the participants were very dissatisfied with the fact that the dental technologists end their career at age 60 (or after 35 years of service) at a maximum salary grade level (SGL) of only 14 (i.e. Chief Cadre). The explanation for the career limiting bar for dental technologists in the public health sector was the issue of professional qualifications and the fact that higher grades required relatively higher qualifications. The study revealed that most of the dental technologists in Nigeria have the HND qualification and other equivalent qualifications. None of the participants in this study had a bachelor degree in dental technology. The results indicated that the most of participants interviewed were between SGL 08-11, with a few participants on SGL 12-14 (as shown in Table 4.1). A great deal of dissatisfaction with the limited career progression was expressed amongst participants within the SGL 12-14, specifically in the sub-group with 21 years or more of work experience in the industry. This finding corroborates the findings of Luthans (2010), Tella, Ayeni and Popoola (2007), and Robbins, Odendaal and Roodt (2003) and Josias (2005), as indicated in section 5.1.1.3.

Many employees stagnate at the top of their grade for many years, which they find frustrating. One of the implications of this ceiling is that dental technologists look for ways of gaining a BSc degree so that they can gain higher promotion. However, because of the limited dental technology degree opportunities in Nigeria, this is usually in unrelated fields such as business administration, education and management sciences. In general, career limiting bar progression prospects can lead to a lack of organisational commitment, decreased job performance and increased intention to leave. This may possibly undermine the quality of patient care and treatment.

5.1.1.5 Limited educational advancements

The results indicated that there are limited opportunities in the higher educational system for further advanced training and education for career development for dental technologists in Nigeria. Currently there is only one B-Tech awarding institution in Nigeria, and there are no opportunities for Masters and PhD degree level qualifications. The issue of educational structure is at the root of poor basic professional qualification, lack of improvement in curriculum, and lack of career development. The results show that none of the participants in this study held a Bachelor of Technology (B-Tech) degree in dental technology (Table 4.1). The data also suggested that one of the few ways forward for educational advancement is through gaining degrees in other fields such as public administration and education, which means that some of those professionals are then lost to dental technology profession. Hence, a degree in dental technology is necessary in order to be able them progress career wise (i.e. to SGL 17). This aligns with the findings of Ross and Ibbetson (2005) in the context of the Scottish system, that the “education and training system for these professionals in Scotland lacked both resource and structure”.

5.1.1.6 Dearth of opportunities for specialty training

The results in this study established that there is a lack of specialised skills training particularly in ceramic technology and other advanced specialised restorative procedures. For this reason, there is a lack of technological advancement within the dental technology profession in Lagos State, Nigeria. Participants indicated that modern techniques, such as ceramics/porcelain technology, Computer-Aided Design (CAD) and Computer-Aided Manufacturing (CAM) technologies, were not part of the dental technologists’ undergraduate programme, as they are in developed countries as well as in South Africa. Such skills, therefore, can be acquired only at an advanced (i.e. postgraduate), level. The only way to acquire these specialised skills is to travel overseas or enroll in courses organised by the DTRBN as part of their Continued Professional Development (CPD) opportunities for dental technologists, if one can afford it. Inadequate exposure to advanced fixed dental prostheses, such as ceramics technology, and to CAD/CAM technologies, was the main reason for frustration among participants.

One of the consequences of the lack of opportunities for specialty training within the dental technology profession in Nigeria, as suggested by the results, is that the majority of dental restorations fabrication by dental technologists within the public health sector are plastic restorations. These include removable partial dentures, complete dentures, maxillofacial prosthetics and removable orthodontics appliances, rather than ceramics, veneer chrome (metallic base) fabrication. This lack of advancement, coupled with inadequate infrastructure for the practice of the profession, has led to low morale amongst practitioners in the public health sector. In developed countries such as the UK, New Zealand, USA and Canada etc, the following are commonly used: chrome, all-metal restoration, implant supported fixed restorations, flexible dentures, implant overdentures, porcelain veneer and all-ceramic restorations (Muhamad, Abdulgani and Abdulgani 2017; Alameri *et al.* 2014). Christensen and Yancey (2005b) report that 30% of dental technology industry activities in the USA consisted of veneers and crown fabrications.

This clearly indicates that the profession in Nigeria is under-resourced in terms of skilled educators, coupled with the poor infrastructure both at the training institutions and government hospitals and dental centres. Advanced restorative procedures are integral components of undergraduate training of dental technology professionals in the developed countries, as well as in South Africa. However, in Nigeria only a few centres in the public health sector have suitable basic facilities for advanced restoration and can fabricate all-metal, and porcelain-fused-to-metal (PFM), restoration. Despite the trend of globalisation due to the steadily expanding world market of modern dental laboratory technological advancement (Alameri *et al.* 2014), dental technologists in Nigeria are still limited to the old fashioned methods of dental technology practice and training. This clearly suggests that dental technology educational training in Nigeria is not on a par with international dental technology training best practice. This finding is in line with the findings by Marinucci *et al.* (2013) and Tella, Ayeni and Popoola (2007), who assert that good training programmes offer workers opportunities for development and self-improvement to meet the requirements and challenges of modern facilities or technologies.

One of the consequences of a dearth of opportunities for specialised training is reliance on government jobs; dental technologists do not have sufficient capacity to

enter private practice because they lack the skills (and capital) required for employment in that sector.

5.1.1.7 Limited funding and opportunities for continuous professional development

Several studies within the dental technology industry have identified the importance of CPD amongst dental technology professionals in order to maintain high professional standards, ensure patient safety, and keep members up-to-date with current best practice and technological advancement. Continuous professional development can also foster professional status and recognition, as well as promote job satisfaction for better service delivery (Anderson, Pang and Aarts 2012; Ross, Turner and Ibbetson 2012; Reeson and Jepson 2007; Ross, Ibbetson and Turner 2007; Ross and Ibbetson 2005; Bower *et al.* 2004). In this study, participants indicated that there were insufficient CPD events available for dental technologists within the country and limited funding opportunities for CPD in the public health sector. The results show that only the minority of participants enjoyed financial assistance from their employer to attend CPD-accredited courses or conferences. A few participants had attended such courses at their own expense. A further factor related to CPD is that the only available courses on ceramics technology are those arranged by the DTRBN, which explains why dental technologists within the public health sector are limited in their capacity to fabricate removable dentures. This impacts on their service to the general public, and their levels of interest and motivation for the work.

In the Nigerian context public sector employees generally depend on government sponsorship and funding opportunities to attend professional career development opportunities since this is catered for in the health care budgetary allocation. However, Ezeja *et al.* (2010) reported that funding of the health sector is low, which reveals the nonchalant attitude of politicians to improved health care service delivery. This perceived reduction in allocation of budgeted funds for professional career development means that this is now only available to privileged employees within the industry. The barriers faced by the majority of participants who took part in this study regarding CPD events were affordability and accessibility. Considering their level of remuneration, they require financial support from their employers to attend CPD

events. In some developed countries, such as New Zealand, for instance, annual practice certificates can be only renewed if the mandatory CPD requirements for dental technology professionals are met (Anderson, Pang and Aarts 2012). Due to substantial dependence on government funding opportunities for CPD, the majority of dental technologists in this study did not find it possible to attend CPD events, although many perceived value in the CPD courses.

This finding is consistent with UK studies by Ross, Turner and Ibbetson (2012), Ross, Ibbetson and Turner (2007), Ross and Ibbetson (2005), and Bower *et al.* (2004). These studies also found evidence of low levels of CPD and limited funding opportunities from employees to attend CPD-accredited courses. Karia and Asaari (2006) point out that continuous training and education are essential for the continuous skills improvement of employees. Tella, Ayeni and Popoola (2007) and Marinucci *et al.* (2013) state that a good training programme offers workers opportunities for self-improvement and development to meet the challenges and requirements of modern facilities or equipment. There is evidence in this study which suggests that there were limited funding opportunities and access to CPD among participant dental technologists working in the public health sector.

5.1.1.8 Strained working relationships between dentists and technologists

Evans, Henderson and Johnson (2010) note that teamwork and inter-professional relationships have been identified as being one of major the attributes contributing to professionalism. The results of this study indicate that many participants experienced a strained working relationship between dentists and dental technologists, both as inter-professional colleagues and as co-workers. Just over half of the participants were dissatisfied with the work-relationship between dentists and dental technologists. They noted that there was a lack of supportive supervision by dentists. Their main issue was that they did not feel that they were perceived by dentists as being 'team players' in the dental team. Some of the participants went so far as to say that they were frequently blamed when there was an error with patients' management in relation to dental restoration. This finding, therefore, is another area of serious concern with regard to factors influencing participants' job satisfaction. This finding concurs with the results of studies by Tulbah *et al.* (2017), Napier (2011) and Christensen (2009) who all comment on the need for improving dentists-technologists work-relationships in

order to strengthen the communication cycle between them as inter-professional colleagues for better patient care and satisfaction. Napier (2011: 571) found that the quality of communication between dentists and dental technology professionals in Riyadh was inadequate, with government laboratory staff having a lower level of communication compared to staff of private laboratories, as is the case in this study. These findings are consistent with those of Luthans (2010), Karia and Asaari (2006) and Spector (1997). Luthans (2010) affirms that one of the major reasons employees give for quitting their job in a company is the fact that their supervisor do not care about them. The findings in this study differ from those of Ezeja *et al.* (2010) who found that 83.3% of their research participants in Nigeria perceived themselves as being team players in the dental team, although that study did not investigate what their perception was of how dentists and other team members treated them, and whether there was a strained work relationship.

Christensen (2009: 475-478) offers some suggestions on how professional relationships and communication gaps among staff in organisations can be improved. These suggestions include: sharing and developing common professional interests as a team by attending continuous professional development or education events together, holding private meetings, and increasing the quality and scope of communication with regard to laboratory orders, although the latter is a rare concept in Nigeria. Other similar studies have suggested that inter-professional communication skills should be integrated into the original educational syllabus (Evans, Henderson and Johnson 2010; Barrett and Murphy 1999).

The implication of this finding is that strained working relationships can reduce motivation and commitment to customer service.

5.1.1.9 Low professional status

The results showed that participants were very disgruntled with their professional status among oral health workers. Participants perceived themselves as not adequately valued amongst the dental team. Dental technology, despite being recognised as a profession in Nigeria, still struggles to find professional identity within the dental team in the public health sector. The role of the dental technologists is

perceived as outside the dental team as manifested by restriction on patient interaction and relative isolation of dental technologists compared with other members of the dental team, and other health professionals within the sector. This finding is consistent with the findings of Ross, Turner and Ibbetson (2012) and Bower *et al.* (2004) regarding the professional status of dental technology professionals. These researchers found that most dental technologists in the UK perceived that they were not adequately valued within the dental team, and this influenced their intent to quit their jobs or change profession. Ezeja *et al.* (2010) found, on the other hand, that their research subjects perceived that they were adequately valued, recognised and appreciated by their co-workers (i.e. inter-professional colleagues).

5.1.1.10 Low professional/work autonomy

George (2015) found that autonomy offers professional workers a sense that their professional knowledge and skills are valued and that they are able to make decisions about issues which they perceive are within their professional domain, all of which encourages retention of professional workers. In this study, results showed that a great number of participants were dissatisfied with the way in which they were treated by dentists, as well as with how the dentistry profession was structured and practised in the Nigerian public health sector. Some participants felt that there was a lack of consultation and involvement in decision making and procurement of materials, as well as in recruitment processes. Some participants perceived that the job/professional autonomy of dental technologists was limited compared to other allied health care professionals working in the public health sector, who (they perceived) experienced a higher degree of autonomy than dental technologists. The structure and practice of the dentistry profession in the public health sector in Nigeria makes it impossible for dental technologists to attain a reasonable degree of autonomy separated from dentists' control and influence, leading to a dichotomy within the dental team or tension among inter-professional colleagues. No matter how high dental technologists rise in their career they will still be under the authority of dentists. Comments from some participants suggested that the professional dominance by dentists was politically motivated, as most policies in the public health sector were made and implemented by the doctors (i.e. dentists) as the leader of dental teams. The results suggested that there was great deal of frustrations among the participants with regard to the limits of

professional control and the need for some degree of autonomy for dental technologists in the public health sector in Nigeria.

This finding is similar to that of Barrett and Murphy (1999), who found that their participants recognised the role of the dentist as leader of the dental team but that they also wanted some degree of autonomy for themselves. This factor also swayed their intent to quit their jobs or change profession. These findings are consistent with those of Naqvi *et al.* (2013), Moreau and Mageau (2012), Skår (2010), and Rafferty, Ball and Aiken (2001). Rafferty, Ball and Aiken (2001) found that a perceived erosion in workers' job autonomy could undermine their satisfaction with their work and contribute to job turnover, as well as an unstable and dissatisfied workforce. Lack of professional independence and mutual respect can have adverse effects and can result in the collapse of the health system due to frustrations arising from one group seeking to dominate and control others. Naqvi *et al.* (2013), Moreau and Mageau (2012), and Skår (2010) found that autonomy increases employees' productivity and organisational commitment as a result of the perceived empowerment of employees.

The implication of the findings from this study are that the lack of professional/job autonomy generates frustration, which in turn may drive people away from choosing the profession or ultimately to leave the profession.

5.1.1.11 Poor working conditions

The results revealed that most participants were not satisfied with the working conditions in their organisation. The reasons provided were lack of an environment conducive to work, poor electricity supply, and problems with temperature, lighting, ventilation and other necessary facilities/amenities. Ezeja *et al.* (2010) report that a healthy and safe work environment results in more satisfied personnel with consequent improved effectiveness and productivity. They further indicate that job satisfaction can be influenced by the quality of the physical environment in which employees work and the level of fulfillment achieved in their work. In this study, job satisfaction of participants was influenced by poor working conditions in their experience. The findings also align with the findings of Marinucci *et al.* (2013), Mullins (2007) and Spector (1997) who found that poor working conditions have a negative impact on job

satisfaction. The findings in this study are that 61.11% of participants were not satisfied with their working conditions, which is similar to the findings reported by Ezeja *et al.* (2010), who found that 53.5% of their research subjects felt that their work area was not comfortable enough for them to do their work successfully.

The implications of poor working conditions are the same as for the previous items: a negative influence on participants' job satisfaction and possible resulting lack of organisational commitment.

5.1.1.12 Lack of equipment and laboratory consumables

Bonenberger *et al.* (2014), Singh (2014), Blaauw *et al.* (2013), Marinucci *et al.* (2013) and Saheeb and Mafeni (1999) argue that lack of essential tools and equipment negatively impact the level of job satisfaction among health workers in the public sector. In this study there was a great deal of dissatisfaction with the lack of equipment and dental facilities in participants' workplaces. Equipment mentioned included dental laboratory consumables necessary for daily routines, as well as some basic machines for specialised jobs.

The limited level of dental supplies in their laboratory was one of the major frustrations expressed by some participants, who reported that sometimes they purchased laboratory consumables out of their own pocket and used personal machines to carry out their jobs to ensure that dental patients did not leave the clinic without receiving the required services. Some of these arrangements were made in order to keep up with the workflow in the dental laboratory rather than suspending activities owing to lack of machines and materials in the unit. This shows that when employees are motivated in their work, there is tendency for them to 'go the extra mile' to achieving results at the work place (Ezeja *et al.* 2010). The results in this study revealed that participants often needed to improvise in their work environment, owing to inadequate facilities in this sector. This study found that the problems related to lack of equipment and material was one of the key workplace factors that adversely impacted job satisfaction among participants. This is similar to the findings of Ezeja *et al.* (2010), who report that only 32% of their respondents had the necessary facilities and equipment to perform their work successfully. The findings of this study are also

consistent with the findings of Bonenberger *et al.* (2014), Singh (2014), Blaauw *et al.* (2013), Marinucci *et al.* (2013), Mullins (2007), and Saheeb and Mafeni (1999).

The main impact of this finding is that the quality of patient care is compromised. Allied to this is the fact that dental technologists who have acquired new skills cannot practise them because the equipment is not available. Finally, this situation can have a negative impact on the level of employees' organisational commitment and job performance.

5.1.1.13 Restrictive government employment policies

Kwenin, Muathe and Nzulwa (2013) found that appropriate and proficient organisational policies and human resource practices geared towards employee retention encourage worker satisfaction and increase job performance. The results of this study show that there are issues with restrictive government employment policies that negatively influenced participants' job satisfaction. Eleven out of 18 participants were dissatisfied with government employment policies and perceived this to be the most disturbing factor influencing their jobs. The results also indicated that the main restrictive government policies affecting job satisfaction among participants were the employment entry grade level position CONHESS 07 OR SGL 08, low professional/job autonomy (i.e. dental technologists being in a subordinate position to dentists) and limited promotion opportunities due to participants' basic professional qualification. These policies limited participants from attaining their full career potential in the public health sector, leading to career stagnation, particularly in the most senior position attainable, SGL14 (Chief Cadre) (Nigerian Civil Service 2003). This finding aligns with Herzberg's (1957) two-factor theory, which classifies company policy as being one of the top six factors causing dissatisfaction.

The findings of this study indicate that organisational policies and human resource practices faced by participants are not appropriate and efficient; therefore, there is more of a likelihood that the participants, and other dental technologists in this situation, may be dissatisfied and leave their jobs. Indeed, some of the participants indicated that they knew of some dental technologists who left the profession to study

dentistry and those that had taken voluntary retirement to go into personal practice such as opening their own dental laboratory, for these reasons.

5.1.2 The role of professional qualification and career progression as a motivating factor to career advancement and job satisfaction amongst participants

This section sought to explore participants' views on the education and training of dental technology professionals as a motivating factor for career development and job satisfaction.

5.1.2.1 Limitation of the academic/professional qualification

The most challenging factor facing the dental technology profession in Nigeria is that the educational training of dental technologists is mostly at Higher National Diploma (HND) level rather than the higher level of a degree which is career limiting in the public sector. The data strongly suggest that an improved professional qualification would be a strong motivation to career progression and job satisfaction within the public health sector. This result is largely supported by Christensen and Yancey (2005b), who advocate that the value of original certification of dental technology professionals should be increased and postgraduate level studies should be introduced. This finding is consistent with the findings of Roopai (2012), that is, that level of education serves as a positive motivating tool for job satisfaction. Ross, Ibbetson and Turner (2007) found that appropriate training and education for dental technology professionals made a positive contribution to patient care.

5.1.2.2 Non-transformative dental technology curriculum

This study highlighted a number of real and potential problems in the field of education and training in dental technology profession in Nigeria. The results suggest that the current dental technology curriculum requires a drastic transformation so as to include modern technologies and innovations in the dental technology industry, as per global developments. The results from the dearth of opportunities for specialty training suggests inter-relational connotations between the findings from the limited funding

opportunities for CPD and non-transformative dental technology curriculum. Thus, the dearth of specialised skills prevailing among the participants within industry is a reflection of the lack of modernisation of the teaching curriculum not including advanced restorative procedures in the education programme in the first place. Despite numerous technological trends in the field of dental technology profession globally, the training of the dental technologists to date remain underdeveloped with respect to the dearth of advanced restorative training which negatively influenced their job satisfaction.

Although, this finding needs independent interrogation of the undergraduate curriculum to explore further on this, it is apparent that change within the structure of the training and educational programme will be difficult due to the lack of necessary infrastructure and resources. Participants expressed concern regarding the impact of this short-fall in their employability as dental technology professionals (especially in private sector hospitals and commercial dental laboratories), as well as in their ability to compete with their contemporaries globally. This suggests that the educational and training programmes of dental technology professionals in Nigeria do not provide all the necessary entrepreneurial advanced skills that would provide dental technology professional graduates with the appropriate skills and high-level dexterity required for the life-long career of a dental technologist. This finding correlates with the reported dearth of advanced specialised skills within the industry (as indicated in section 5.1.1.6). Participants in this study, however, criticised recent graduate technologists in the dental technology industry as having a great deal of theoretical knowledge and inadequate practical skills. There seems to be a decline in the quality of training of dental technologists in Nigeria due to the lack of resources. The number of graduates in recent times has increased tremendously but has not come with improved resources and infrastructure, as identified by some participants in this study.

Evans, Henderson and Johnson (2010) argue that the teaching framework of dental technology professionals should sufficiently empower a dental technologist to deliver services effectively and efficiently in the dental technology industry: this is vital to the success of today's highly sophisticated treatments offered by dentists. In this study, participants agreed that this line of reasoning should be adopted in Nigeria, as it is evident in the other countries such as South Africa from the African perspective. This

finding on the educational training of dental technologists is largely supported by the findings of Barrett and Murphy (1999). Christensen and Yancey (2005b) recommended that a task force should be established to determine the best curriculum for dental technology in general and in what sequence the education should be provided to technology students.

The impact of curriculum transformation within the dental technology industry will empower dental technology graduates in Nigeria to becoming employers of labour rather than only employees.

5.1.3 Concluding discussion based on findings as per research objectives

This study identified eleven key factors that influence job satisfaction among participants working in the public health sector in Lagos state, Nigeria. The age-related sub-groups within the sample had different emphases with regard to job satisfaction. Firstly, the sub-group with between 1 to 10 years of work experience (6 out of 18) were mostly dissatisfied with the issue of low employment entry-level in the public sector (SGL 08) or (CONHESS 07) and the concomitant poor remuneration. It takes two successive promotions (six years) to rise to the desired entry-level of SGL 10. Other allied health professionals such as medical laboratory scientists, physiotherapists, and pharmacists usually start on SGL 10 or CONHESS 09. Secondly, the main concern of the sub-group with between 11 to 20 years of work experience (9 out of 18), was career limiting bar for non-degree holders (limited promotion opportunities) in the public sector for dental technologists, as they were approaching the level of stagnation in their career positions. This group also expressed dissatisfaction with low remuneration level as it was not commensurate with their input on the job. Thirdly, the group with more than 21 years and more of work experience (3 out of 18) were mostly frustrated with limited career progression related to the limited educational qualification/level of HND, CDT and C & G. This group experienced the reality of the career limiting effect of this qualification because they were now stagnating on a particular level without further promotion opportunities, awaiting their retirement age/year. This category of participant was also dissatisfied with low job/professional autonomy in that no matter how high a dental technologist advances in their career he/she is still under the supervision of a dentist.

Lastly, the key finding is that the non-degree type of basic professional qualification determines the entry level placement in the public health sector, gives rise to low remuneration, and restricts career development and promotion opportunities for dental technologists. Of great concern is anecdotal evidence that even those currently graduating with a degree in dental technology are being employed on the same entry grade level (SGL 8) as are HND holders. This implies a possible blanket discrimination against dental technology professionals in the public health sector.

Thus, the type of professional qualification determines the level dental technologists can progress in their career in the public health sector in Nigeria. Hence, it can be inductively deduced that a degree qualification (i.e. BSc/B-Tech) in dental technology profession can be a motivating factor towards achieving an equitable entry grade level, higher grade level promotion opportunities (career progression) and thereby improving the level of job satisfaction in dental technology profession as a viable field of employment in the public health sector in Lagos, Nigeria. More so, discussions based on findings as per research objective 3, participants' responses regarding how to address the factors influencing job satisfaction within the dental technology industry, are presented in section 5.3 (recommendations).

5.1.3.1 The consequences/implications of the findings

During the interviews participants were asked to indicate if, and how, any of the factors identified had affected their work performance. This approach was followed in order to further assess the impact of the findings from this research on organisational commitment and job performance. The results show that most of the participants reported that some of the factors identified had influenced their job performance, the main factor being restrictive government employment policies. The impact of government policies included the following: low entry-level jobs, limited professional (academic) qualification, career limiting bar (limited promotion opportunity), and low professional/work autonomy (including disrespect from dentists).

Overall, the implications of the findings from the study are that these factors reduce organisational commitment and job performance and increase the likelihood of dental

technologists leaving their employment either actually or just mentally. This possibility is reflected in the warning by Lok and Crawford (2004: 322) that “when employees are dissatisfied at work, they are less committed and will look for other opportunities to quit, and if opportunities are impossible, they may emotionally or mentally ‘withdraw’ from the organisation”. These sentiments were echoed by certain participants, for example DT 7, DT 17, and DT 4 (see section 4.3.11 in Chapter 4).

5.1.3.2 Intention to quit or change profession

Intention to quit or change profession (i.e. issues of turnover) were explored. The results indicate that very few participants, only four, had considered quitting their jobs or changing their profession in the last five years. The reasons provided for this were issues related to dentists’ personality and lack of educational advancement in the profession. This aligns with the findings of Ross and Ibbetson (2007) and Caldas and Coelho Junior (2013), that the intention to quit or change profession amongst the dental technology professionals was mainly due to the dentists’ personalities, remuneration and educational challenges. The reasons provided by participants for their intention to remain in the job were related to their passion for their profession (i.e. career satisfaction).

The participants indication of willingness to stay in their work, despite several factors that negatively influenced their job such as limited career progression (limited promotion opportunities), can possibly be explained by fact that most Nigerian health workers have a preference to stay in government jobs than in the private practice, because they are often exploited in such private settings. Moreover, starting up an individual practice could be capital intensive as the dental facilities and extension services required for dental technology are very expensive and dental trecnologists may not have such capital to set up their own practices. However, they tend to make up for the short-fall in their remuneration by engaging in possibly illegitimate or unethical practices from the point of view of the the professional body. This study also revealed that there were no issues of high attrition rate amongst the study participants working in the public health sector within Lagos, Nigeria.

5.1.3.3 Expression of job satisfaction amongst dental technologist

The findings in this study revealed many individual elements of dissatisfaction in the working life of participants. However, the vast majority of the participants (15 out of 18) expressed overall satisfaction with their job as oral health workers (career satisfaction). Only three participants were overall dissatisfied with their jobs, their reasons being career limiting bar for non-degree holders (or restricted promotion opportunities), low job entry-level cadre, inadequate compensation and the disrespectful manner with which dentists treat dental technologists. This finding regarding the high degree of satisfaction was similar to those of Ezeja *et al.* (2010) and Bower *et al.* (2004). Ezeja *et al.* (2010) found that 'other' oral health professionals in Nigeria were the most satisfied amongst oral health professionals (which included the dental technologists), and the reasons for that claim are similar to those advanced in this study. Bower *et al.* (2004) found that the level of job satisfaction among dental technology professionals in the UK was satisfactory. This finding regarding the high degree of satisfaction amongst participants interviewed was very interesting, considering the great deal of dissatisfaction with many aspects of their jobs in the sector that negatively influence their job satisfaction.

The theoretical frameworks underlying this study are Herzberg's two-factor theory of job satisfaction and motivation, Maslow's hierarchy of needs theory and Adams' equity theory. What follows is a discussion of the findings in relation to these frameworks.

Herzberg's (1957) two-factor theory of job satisfaction and motivation states that the main factors causing dissatisfaction are generally not part of the work itself, but rather are external factors (extrinsic factors), also referred to as hygiene factors or maintenance factors. Further, the main factors responsible for satisfaction are generally internal (intrinsic) to the job itself, also referred to as motivators. True motivation comes from within a person and not from external (hygiene) factors (Luthans 2010).

In terms of Herzberg's theoretical framework, the findings show that participants expressed dissatisfaction with many intrinsic and extrinsic factors as shown in Table 5-1. What is interesting about the participants' responses and the findings of this study

is that despite this, their job satisfaction was high. This can possibly be credited to the strength of the intrinsic motivating factor of the work itself, and the extrinsic hygiene factor of job security.

Table 5.1: Factors influencing job satisfaction among participants

Intrinsic factors (job content)	Extrinsic factors (job context)
<ul style="list-style-type: none"> • Limited career advancement (growth/progression) • Limited educational advancement • Limited professional qualification • Professional status • Lack of funding opportunities for CPD • Dearth of specialty training • Low work/professional autonomy 	<ul style="list-style-type: none"> • Low employment entry grade level • Low remuneration • Restrictive government employment policies • Lack of equipment and lab supplies • Poor working conditions • Strained working relationship with dentists

According to Maslow’s hierarchy of needs theory, employees will be motivated and satisfied with their jobs only if certain needs are met. Maslow articulated five major types of needs that are hierarchical. This suggests that lower-level needs must be satisfied first before an employee will experience the next level of needs satisfaction (Luthans 2010). The next higher level of need has to be activated in order to motivate the individual. In this study, the findings from this study agree with Maslow’s theoretical framework. The participants expressed dissatisfaction with their material conditions including remuneration and working conditions (supplies, equipment) which are associated with the lowest level, but their main dissatisfactions were associated with the higher levels including relationships, autonomy and recognition, and self-actualisation. Self-actualisation is the fifth level of Maslow’s hierarchy of needs, and includes opportunities for personal growth, and achieving one’s potential. An employee striving for self-actualisation wants to reach their full potential in every task (Luthans 2010). The structure of dental technology in the civil (public) service currently militates against self-actualisation of dental technologists because of their low starting and ending point in the system due to their inadequate basic professional qualification.

The distributive justice element of Adams’ (1963) equity theory concerns an individual’s cognitive assessment regarding whether or not the extent and distributions of rewards in a particular setting are fair (see section 2.8.6). The findings of this study indicate that the participants perceived that the distribution of rewards in their work setting was unfair, compared to other allied health professionals within the same

sector, which is consistent with Adams' theoretical framework. Hence, improving the intrinsic elements of these findings will encourage higher levels of job satisfaction, organisational commitment and job performance; extrinsic factors also need to be attended to, in order to strike a balance between these facets of job satisfaction.

5.2 Limitations of the study

A limitation of this study is that, as in any qualitative study, the subjectivity of the participants, their perceptions, attitudes and perspectives may have contributed to a degree of bias.

Some limitations of this study should be considered. The main one is that this is a qualitative study, and the sample size may be too small to allow for transferability (over generalisability) of the findings, as the study was limited to Lagos State, Nigeria.

This was a small-scale study from which broad generalisations cannot be drawn. It provides a snapshot of the perspectives of participants at a particular time and may not be generalised to all dental technologists in Nigeria or elsewhere.

The structuring of the interview schedule for this study was a limitation, as it limits the research participants' responses to the questions raised during the interview. However, being a novice researcher there are several gray areas that could be explored by the researcher that were left out which can be addressed in future studies. Moreover, the researcher was not able to explore more indepth and inter-relational associations between themes and sub-themes in the analysis of data.

Identifying and contacting potential participants was a possible limitation. Lagos state had fewer dental technologists in the public health sector than initially estimated, given the record supplied by the DTRBN. In addition, the hospitals and dental centres where interviewees were located were dispersed and appointments often had to be rescheduled/cancelled due to the tight work schedules of participants.

5.3 Recommendations

Having highlighted the main problem influencing job satisfaction as being career progression within the public health sector in Lagos Nigeria, the research participants made the following recommendations as per the research objectives of the study:

- The entry-level position for the new dental technologists into the public health sector in Lagos should be on SGL 10 or CONHESS 09 to be at par with medical laboratory scientists (MLS) and pharmacists entry-levels.
- Dental technologists within the state and federal government hospitals/dental centres in Lagos, Nigeria should be paid call duty and teaching allowances as is the case with the MLS and pharmacists. . . This will improve their overall level of remuneration.
- The government should consider permitting current dental technologists in Lagos, with HND (or similar) qualifications to progress beyond the presently fixed SGL 14 for up to the SGL 16. This will encourage career progression and improve job satisfaction.
- There is an urgent need for structural transformation of educational programmes to offer a unified degree-based academic qualification (BSc/B-Tech) and provide opportunities for postgraduate studies. The dental technologists' regulatory body should consider establishing more degree-awarding institutions. They should also develop pathways for those currently with HND to study on a part-time basis to obtain a degree in dental technology. In addition, the training of dental technologist in Lagos, Nigeriashould inspire a life-long learning approach to enable career development.

To curb the existing dearth of opportunities for specialty training within the dental technology industry in Lagos Nigeria, there needs to be a paradigm shift in the training of dental technologists in Lagos to align it with global trends. The DTRBN should adopt international standards to reform the current teaching framework document to include some basic advanced dental restorative procedures as it is currently constituted globally.

- The public health sector employers in Lagos Nigeria, should adopt an organisational culture of funding the training and retraining of dental technologists, especially in areas of specialty skills acquisition, whether locally (via CPD) or overseas. This will ensure the efficiency and effectiveness of improved service delivery and job satisfaction among dental technologists.
- Dentists in the public health sector in Lagos should involve dental technologists in some decision-making and procurement processes, especially those vital to the dental laboratory. This should improve the strained work relationships between inter-professional colleagues and lack of team spirit, which appears to be largely echoed.
- There is an urgent need for the dental technologists in the public health sector in Lagos to adhere to the scope of practice clearly defined by the schemes of services to prevent inter-professional rivalry. and. Furthermore, there should be a study of the dentists to ascertain their perspectives on dental technologists in the public health sector in Lagos.
- The government should also look at ways of improving the working conditions in dental technologists' workplace, which may include providing modern equipment, dental laboratory consumable materials, and facilities that ensure a working environment conducive to job satisfaction. This will enhance the efficiency of the dental technology workforce in the public health sector in Lagos.

Dental technologists regulatory body should consider embarking on reinvigorating the current dental technology curriculum to develop a new teaching framework so as to equip dental technology graduates with life-sustaining skills and employability which matches universal best practice benchmarks in Lagos.

5.4 Suggestions for future research

- There is a need for wider-level research (public and private sector) into dental technologists perspectives and experiences in job satisfaction within the workplace in Lagos.
- There should be an assessment of the current dental technology teaching framework (curriculum) on graduates' characteristics (in terms of knowledge and skills) for employment in Lagos, Nigeria
- Research should be carried out into the best curriculum for dental technologist, considering modern international developments in the field, and in what sequence the education should be provided in Lagos, Nigeria.

5.5 Conclusion

It is apparent that changes to improve the structure of the education and the professional qualification and improvement in the context in which employees work will encourage dental technologists to stay in their jobs, and will attract more people into the profession. Such changes will also improve productivity and job satisfaction and reduce the likelihood of turnover. This will contribute towards the development of the dental technology profession as a viable field of employment in Nigeria.

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ADDENDA

Addendum 1: Scheme of Service for dental technologist cadre	147
Addendum 2: Letter of information for participants and consent form	149
Addendum 3: Letter of permission to the registrar of the DTRBN	153
Addendum 4: Gatekeeper permission letter	155
Addendum 5: Statistical data of dental technologists in Nigeria	156
Addendum 6: List of Government hospitals/dental centres in Lagos State	157
Addendum 7: Interview schedule	159
Addendum 8: Application for approval of amendment.....	160
Addendum 9: Ethical clearance certificate	163
Addendum 10: Editing certificate.....	164

Addendum 1: Scheme of Service for dental technologist cadre

HEALTH DENTAL TECHNOLOGIST CADRE

1. POSTS AND SALARIES
 - 1.1 Dental Technologist Grade Level 08
 - 1.2 Senior Dental Technologist Grade Level 09
 - 1.3 Principal Dental Technologist Grade II Grade Level 10
 - 1.4 Principal Dental Technologist Grade I Grade Level 12
 - 1.5 Assistant Chief Dental Technologist Grade Level 13
 - 1.6 Chief Dental Technologist Grade Level 14
2. DUTIES
 - 2.1 Dental technologist, Grade Level 08
 - 2.1.1 Performing routine laboratory duties.
 - 2.1.2 Assisting in undertaking duties in all branches of dental prosthetics including advanced inlay, bridged and orthogonal techniques.
 - 2.1.3 Constructing oral maxilla facial appliances.
 - 2.2 Senior Dental Technologist, Grade Level 09
 - 2.2.1 Supervising Dental Technicians.
 - 2.2.2 Performing routine laboratory duties.
 - 2.2.3 Undertaking duties in all branches of Dental prosthetics including advanced inlay, bridged and orthodontic techniques.
 - 2.2.4 Constructing oral maxilla facial appliances.
 - 2.2.5 Assisting in fabricating intricate dental appliances.
 - 2.3 Principal Dental Technologist Grade II, Grade Level 10
 - 2.3.1 Performing intricate Laboratory duties
 - 2.3.2 Training Dental Technician staff on the job.
 - 2.3.3 Repairing and servicing Dental instruments and equipment.
 - 2.3.4 Fabricating intricate dental appliances such as oral splints, complicated orthodontic appliances.
 - 2.4 Principal Dental Technologist Grade I, Grade Level 12
 - 2.4.1 Performing intricate Laboratory duties.
 - 2.4.2 Training junior officers on the job.
 - 2.4.3 Coordinating the activities of a number of junior staff.
 - 2.4.4 Fabricating and repairing appliances.
 - 2.5 Assistant Chief Dental Technologist, Grade Level 13
 - 2.5.1 Ensuring safe-keeping of materials and equipment in various Dental Centres.
 - 2.5.2 Advising on the ordering of new equipment.
 - 2.5.3 Preparing indents for Dental Laboratories.
 - 2.5.4 Assisting in the administration of a Section.
 - 2.6 Chief Dental Technologist, Grade Level 14
 - 2.6.1 Advising on development of dental technologist service
 - 2.6.2 Assisting Dental Surgeons
 - 2.6.3 Taking charge of the administration of all the Dental Technical/Technologist Section.
3. METHODS OF ENTRY AND ADVANCEMENT WITHIN THE CADRE

Note: All promotions/transfers are subject to vacancy and satisfactory service record.

- 3.1 Dental Technologist, Grade Level 08
 - 3.1.1 By direct appointment of a candidate possessing any of the following qualifications:
 - 3.1.1.1 Higher National Diploma in Dental Technology from a recognized Institution.
 - 3.1.1.2 Associate of the British Institute of Surgical Technologist (Dental).
 - 3.1.1.3 Full Technological Certificate (Technician) of the City and Guilds at London Institute of Dental Technology.
 - 3.1.2 By direct appointment of a candidate possessing Ordinary National Diploma of the British Institute of Surgical Technologist - (Dental) plus at least five years post-qualification cognate experience.
 - 3.1.3 By promotion of a confirmed and suitable Junior Dental Officer who has successfully completed a four-year course of training in an approved school of Dental Technology.
 - 3.2 Senior Dental Technologist, Grade Level 09
 - 3.2.1 By promotion of a confirmed and suitable Dental Technologist who has spent at least three years on the grade.
 - 3.2.2 By direct appointment of a candidate possessing any of the qualifications specified in sub-paragraph 3.1.1 above plus at least three years post-qualification cognate experience.
 - 3.3 Principal Dental Technologist Grade II, Grade Level 10
 - 3.3.1 By promotion of a confirmed and suitable Senior Dental Technologist who has spent at least three years on the grade.
 - 3.3.2 By direct appointment of a candidate possessing any of the qualifications specified in sub-paragraph 3.1.1 above plus at least six years post-qualification cognate experience.
 - 3.4 Principal Dental Technologist Grade I, Grade Level 12
 - 3.4.1 By promotion of a confirmed and suitable Principal Dental Technologist Grade II who has spent at least three years on the grade.
 - 3.5 Assistant Chief Dental Technologist, Grade Level 13
 - 3.5.1 By promotion of a suitable Principal Dental Technologist Grade I who has spent at least three years on the grade.
 - 3.6 Chief Dental Technologist, Grade Level 14
 - 3.6.1 By promotion of a suitable Assistant Chief Dental Technologist who has spent at least three years on the grade.
4. **ADVANCEMENT BEYOND THE CADRE:**
Officers in the Dental Technologist Cadre who acquire any of the qualifications specified for appointment to any higher grade are eligible for promotion/transfer to the grade.

Addendum 2: Letter of information for participants and consent form



LETTER OF INFORMATION

Title of the Research Study: An exploration into the factors influencing job satisfaction among dental technologists' in Lagos, Nigeria.

Principal Investigator/s/researcher: MC Ndubuisi,

Co-Investigator/s/supervisor/s: JD Pillay, PhD and DA Skea, MTech.

Brief Introduction and Purpose of the Study:

I am **Michael Chijioke Ndubuisi**, I am currently completing my Master's degree in Dental Technology at Durban University of Technology in South Africa. The achievement of Master's requires me to complete a research dissertation. I am doing a research with a sample of dental technologists to explore job satisfaction within the dental technology profession.

The purpose of study is to explore job satisfaction among Nigerian dental technologists. Through gaining knowledge of the job satisfaction of dental technologists it is hoped to provides valuable insight into what factors that contribute to perceived job satisfaction of dental technology professionals, in a bid of assisting policy makers and employers with formulating policies that will help create job satisfaction for the recruitment and retention of dental technologists within Nigeria.

Outline of the Procedures:

Potential participants will be assured that participation is voluntary and they are free to withdraw at any point during the study without any consequences or implication. The number of participants to be recruited and interviewed for this study will consists of 18 dental technologists working in government hospitals in Lagos state, and meets the criteria for inclusion.

Only participants registered with the Dental Technologists Registration Board of Nigeria [DTRBN] and must be employed in a government sector with at least minimum

of one (1) year work experience in the industry are eligible to be recruited for participation.

I would appreciate it if you would kindly permit me to interview you as part of the research process. I will need to interview you once for approximately 50 minutes. I may subsequently contact you briefly to clarify anything you might have said that needs clarification.

Risks or Discomforts to the Participant: No risks or discomfort are envisaged. Participants who are not willing to be part of the study are free to be exempt from participating or withdraw at any time during the study.

Benefits: The willingness to express or present one's lived experienced regarding his/her job satisfaction as a dental technologist will bring to light factors that contribute to job dissatisfaction within the dental technology profession. The outcomes of the study will be written for publication and availability to the public and such information can inform policy makers and employers in this regard which will contribute to the development of dental technology as a viable field of employment. More so, the results will be made available to participants upon request.

Reason/s why the Participant May Be Withdrawn from the Study: Non-compliance, non-willingness to participate. If you wish or choose to withdraw from the research at any time, you are free to do so and should you decide to withdraw the information which may have been gathered through your participation will then be discarded.

Remuneration: No remuneration will be provided.

Costs of the Study: No cost to participants.

Confidentiality: In order to maintain participants' confidentiality and anonymity throughout the study, including the analysis, participant names will not be mentioned at any point. The data collected will be securely stored by the researcher (Mr MC Ndubuisi) to ensure anonymity and confidentiality for a period of five years. The interviews will be voice-taped and the recordings will be used for the purpose of data transcription. The information collected will be used exclusively for the purpose of this study and will not be used or transferred to any other person for any reason. At the

end of the study recordings will be disposed of. Participants will remain anonymous at all times unless you wished to be named.

Research-related Injury: Not applicable.

If you are willing to be interviewed and participate in my study, please kindly complete and sign the attached informed consent provided below. Please note that my research has been approved by the research committees of Dental Sciences and Faculty Health Sciences.

Persons to Contact in the Event of Any Problems or Queries:

Please contact the researcher (Mr MC Ndubuisi: +27640119529/email: mikeseaco@yahoo.com.) or my supervisor (Prof JD Pillay, Tel +27313732398/email: pillayjd@dut.ac.za) or the Institutional Research Ethics administrator (+2731 373 2900). Complaints can be reported to the DVC: TIP, Prof F. Otieno on +2731 373 2382 or dvctip@dut.ac.za.



CONSENT

Statement of Agreement to Participate in the Research Study:

- I hereby confirm that I have been informed by the researcher, **Mr Ndubuisi**, about the nature, conduct, benefits and risks of this study - Research Ethics Clearance Number: REC-147/15,
- I have also received, read and understood the above written information (Participant Letter of Information) regarding the study.
- I am aware that the results of the study, including personal details regarding my gender, age, marital status and all demographic data will be anonymously processed into a study report.
- In view of the requirements of research, I agree that the data collected during this study can be processed in a computerised system by the researcher.
- I may, at any stage, without prejudice, withdraw my consent and participation in the study.
- I have had sufficient opportunity to ask questions and (of my own free will) declare myself prepared to participate in the study.
- I understand that significant new findings developed during the course of this research which may relate to my participation will be made available to me.

Full Name of Participant
Thumbprint

Date

Time

Signature / Right

I, **Mr Michael Ndubuisi** herewith confirm that the above participant has been fully informed about the nature, conduct and risks of the above study.

Full Name of Researcher

Date

Signature

Addendum 3: Letter of permission to the registrar of the DTRBN



Department of Dental
Sciences,
Faculty of Health Sciences,
Durban University of
Technology
Mansfield Road Gate 8 Ritson
Campus
P.O. Box 1334 Durban
4000.
1st December, 2015.

The Registrar,
Dental Technologists Registration Board of Nigeria
Plot 1102 Cadastral Zone, Karu District
FCT-Abuja
Nigeria.
Dear Sir,

PERMISSION FOR ACCESS TO THE LIST OF REGISTERED DENTAL TECHNOLOGISTS IN NIGERIA

I humbly request your permission for an access to the list of registered Dental Technologists in Nigeria, particularly those practicing in Lagos state. I am currently studying in South Africa at the Durban University of Technology towards a Master's Degree in Dental Technology. The title of my dissertation is: "**An exploration into the factors influencing job satisfaction among dental technologists in Lagos, Nigeria**".

The purpose of study is to explore job satisfaction among Nigerian dental technologists. Through gaining knowledge of the job satisfaction of dental technologists it is hoped to provides valuable insight into what factors that contribute to perceived job satisfaction of dental technology professionals, which will assist policy makers and employers with formulating policies that will help create job satisfaction for the recruitment and retention of dental technologists within Nigeria.

This is a qualitative research with a phenomenological research design and data will be gathered via in-depth interviews based on semi-structured interview schedules. The sample will consist of 18 registered dental technologists in government hospitals/dental centres in Lagos state, Nigeria, selected by means of random sampling. The data will be analysed and processed in a manner that will ensure participants confidentiality and anonymity throughout the study.

The registered list of dental technologists would enable me to select the sample size for the study and facilitate the recruitment processes accordingly.

The following are my supervisors for this study **Dr. JD Pillay** and **Ms DA Skea**. Should you require any further information concerning the research, please free to contact them at the Durban University of Technology on the following number: **0313732398** and **0313732030** and their email: pillayjd@dut.ac.za and denises@dut.ac.za respectively.

Thank you for your consideration of my request and your cooperation with this study.

Yours faithfully

.....

Michael C. Ndubuisi

Email: mikeseaco@yahoo.com

Cellphone: +27603065092/+2348036378133.

Addendum 4: Gatekeeper permission letter



DENTAL TECHNOLOGISTS REGISTRATION BOARD OF NIGERIA

Established By Decree 43 of 1987, Now Act Cap D6 of 2004

HEAD OFFICE: Plot 1102 Cadastral Zone B2, Off Oladipo Diya Road Behind Prince & Princess Estate, Kaura District, FCT Abuja.
Tel: 01-7362626, 7362748, 08065934439, 08170847980
E-mail: dentaltechBoard@yahoo.com
Website: www.dentaltechboard.com

Our Ref:

Your Ref:

Date:

DTB / ME / 156 / Vol 1 / 002

15th December, 2015

MICHAEL C. NDUBUISI

Department of Dental Sciences,
Faculty of Health Sciences,
Durban University of Technology
Mansfield Road Gate 8 Ritson Campus
P.O. Box 1334 Durban
4000.

Sir,

RE: PERMISSION FOR ACCESS TO THE REGISTER OF DENTAL TECHNOLOGISTS IN NIGERIA
With references to your letter dated 19th October, 2015, I write to inform you that due to ongoing update of the Dental Technologists Register and federal Government Policy not to allow individuals' access the Professional Register of Regulatory Bodies.

2. As a result of these developments, you will not be able to access the Dental Technologists register.


3. You are therefore referred to our earlier letter reference: DTB/DTS/136 Vol.1/26, dated 7th July, 2015 which contains the statistical data of Dental Technologists practicing in Federal and State Government Hospitals/Dental Centers in Lagos State. It is hoped that this will assist in your sample size selection for the research which you are engaged in.

4. Please note the information been referred to in paragraph (3) is strictly for research purposes and must be treated as such.

Please accept the assurances of the Registrar/ CEO

Casmir Onwudiwe (Mr)
Head, Monitoring & Enforcement
For: Registrar/ CEO

Addendum 5: Statistical data of dental technologists in Nigeria



DENTAL TECHNOLOGISTS REGISTRATION BOARD OF NIGERIA

Established By Decree 43 of 1987, Now Act Cap D6 of 2004

HEAD OFFICE: Plot 1102 Industrial Zone B2, Off Glover Drive, Rasheed Toluwalase Fajana Park, Ikeja District, FCT Abuja.
 Tel: 01 7062625, 7062748, 011028934430, 08170547160
 E-mail: dentsTechBoard@yahoo.com
 Website: www.dentatechboard.com

DTB/DTS/136/VOL.1/26 7th July, 2015.

Our Ref: _____ Your Ref: _____ Date: _____

Michael C. Nwabuisi,
 Dental Sciences Department,
 Mansfield Road Gate 8,
 Reason Campus,
 Durban University of Technology,
 P.O. BOX 1334 Durban 4000 S.A.

Sir,

RE: REQUEST FOR THE RELEASE OF STATICAL DATA OF DENTAL TECHNOLOGISTS IN NIGERIA

The under listed is as requested we hope it will be very adequate for to your research

1. Total population of Dental technologists in Nigeria = 1452 (comprised of 580 Male and 872 Female)
2. The government hospitals with Dental Units in Lagos, Abuja, Enugu and Port Harcourt are as follows

2.1. LAGOS

2.1.1. STATE HOSPITALS

S/NO.	NAME OF THE HOSPITAL	NUMBER OF DENTAL TECHNOLOGISTS
i	General Hospital, Apapa	3
ii	General Hospital Ikeja	4
iii	General Hospital Ikurudu	2
iv	General Hospital, Agege	3
v	General Hospital Surulere	4
vi	General Hospital, Shomolu	2
vii	General Hospital, Badagry	4
viii	Lagos State Dental Centre, Beard Street, Lagos	2
ix	Lagos State University Teaching Hospital, Ikolu	6
Total =		30

Addendum 6: List of Government hospitals/dental centres in Lagos State

List of State Government Hospitals/Dental Centres

S/No	Name of hospitals/dental centres	Number of dental technologists
1	General Hospital, Apapa	2
2	General Hospital, Ikeja	Does not exist (now LASUTH)
3	General Hospital, Ikorodu	1
4	General Hospital, Agege	2
5	General Hospital, Surulere (now Randle General Hospital)	3
6	General Hospital, Gbagada	2
7	General Hospital, Badagry	No Dental Tech.
8	Lagos State Dental Centre, Broad Street	4
9	Lagos University Teaching Hospital (LUTH) Ikeja	5
10	Ajeromi General Hospital (Ajegule)	1
	Total	20

List of Federal Hospitals/Dental Centres

S/N	Name of hospitals/dental centres	Number of dental technologists
1	Lagos University Teaching Hospital/College	11
2	Federal Medical Centre Ebute-Meta	2
3	Military Hospital Yaba	4
4	Military Hospital Bony Camp	4
5	Military Medical School Dental Clinic Ojo	8
6	1004 Federal Staff Clinic	2
7	Federal Dental Centre Broad Street	2
	Total	33

List of Sampled Hospitals/Dental Centres both State and Federal Government

S/No	Name of hospitals/dental centres	Number of Interviews
1	General Hospital, Apapa	2
2	Federal Dental Centre Broad Street	2
3	General Hospital, Ikorodu	1
4	General Hospital, Agege	1
5	General Hospital, Surulere (now Randle General Hospital)	1
6	General Hospital, Gbagada	1
7	Federal Medical Centre Ebute-Meta	1
8	Lagos State Dental Centre, Broad Street	4
9	Lagos University Teaching Hospital (LUTH) Ikeja	5
10	Ajeromi General Hospital (Ajegule)	1
	Lagos University Teaching Hospital	3
	Total	20

Addendum 7: Interview schedule

INTERVIEW SCHEDULE

Dental Technologists

Sex	Age Range	Qualification Type	Work experience	Salary Grade Level	Employer	No. of Place(s) Worked
F { }	21-30 { } 31-40 { } 41-50 { }	CDT { } C&G { } HND { }	1-10 { } 11-20 { }	8-11 { } 12-14 { }	Fed { }	1 { } 2 { }
M { }	51-60 { } > 60 { }	B-Tech { }	> 20 { }	15-17 { }	State { }	3 { } 4 { }

1. As a dental technologist, are you satisfied with the entry/grade level placement from your employer? Yes { } No { } Please explain your answer
2. Do you get promoted when you are due for promotion? Yes { } No { } please explain your answer
3. Are you satisfied with the salary you are earning from your employer? Yes { } No { } please explain [probe: issues of remuneration]
4. Are you satisfied with the work-relationship with your professional colleagues? Yes { } No { } please explain
5. Do you have adequate equipment/facilities for your work? Yes { } No { } please elaborate your answer
6. Criteria noted as factors impacting on job satisfaction within the dental technology profession include: low entry point/level, poor remuneration, lack of educational structure, limited career advancement, lack of opportunity for specialty training do you agree? Yes { } No { } Please elaborate on each
7. Further factors affecting job satisfaction include: economic factors, political factors, geographical factors and policy issues: do you agree? Yes { } No { } please explain which of them has affected your job performance]?
8. Are you satisfied with your job as a dental technologist? Yes { } No { } Please explain
9. Are you satisfied with the working conditions/policies of your employer?
10. It has been observed that educational advancement, through improved academic qualification may be a motivating factor to career advancement and job satisfaction in dental technology profession, do you agree?
11. Have you been sent for professional training by your employer? Yes { } No { } please explain [probing: issues of opportunity for career advancement in govt. organisation]
12. Have any of the factors that we have discussed affected your work performance? Yes { } No { } [Please explain] How has this affected your job performance?
13. Have you had the thought about leaving this profession in the last five years? Yes { } No { } [Please explain]
14. What do you think could be done to make dental technology more attractive as a field of employment?
15. Do you have any other comments?

Addendum 8: Application for approval of amendment



APPLICATION FOR APPROVAL OF AMENDMENT

To be completed by the principal investigator/researcher in accordance with the Standard Operating Procedure for the IREC.

Title of the study: An exploration into the factors influencing job satisfaction among dental technologists in Lagos, Nigeria	
Institution: DUT	Date: 04-02-2016
Name and qualification of principal investigator/researcher: Ndubuisi M C	Name and qualification of supervisor(s): JD Pillay (PhD: Physiology) and DA Skea (MTech: Dental Tech)
Name of qualification: MH: Dental Technology	Student Number: 21447842
Ethical approval number: REC-147/15	Research site: Lagos, Nigeria

Nature of amendment:

The sampling frame was designed to be adopted directly from the Dental technologists Registration Board of Nigeria [DTRBN] list of registered dental technologists practicing in Lagos state for the selection of sample size as well as to facilitate recruitment processes of the research participants.

The nature of amendment comprise of the **sampling strategy** (see PG2 page 8, paragraph 3) and **recruitment** (page 8, last paragraph) **pattern of the research participants**. As was specified in my proposal that the “participants to be sampled, will be generated from the DTRBN register through secret balloting (i.e. by folding paper with numbers according to the categories, placing them in a container and then selecting consecutive pieces of paper until the total is reached). The selected participants will be identified and contacted through an introductory letter notifying them of the study and requesting informed consent for participation”.

In view of the above, the DTRBN, asserts that the individuals are not allowed direct access to the regulatory body's register due to the government policy. The Registrar, requested the “Head of Registration and Monitoring Unit”, to assist with the sample selection since individuals are not allowed access to the register. It was not possible accomplishing this through the sampling strategy specified in that, that the register is outdated as such could not provide the researcher with the sampling strata. The DTRBN, however, provided the researcher with the list of all registered dental technologists practicing in each of the state and federal government hospitals/dental centres in Lagos state, to enable the researcher to select the sample size and as well as recruitment of the study participants (see the attached DTRBN list).

There are only 9 state government hospitals/dental centres and 7 federal government hospitals/dental centres (DTRBN 2015). There are many other government hospitals in Lagos state without the existence of dental departments and few with a dental clinic without dental laboratories. These were the only few government hospitals/dental centres where the dental technologists are found in within the state, excluding those at the private owned hospitals and private dental laboratories.

The researcher, however, will purposefully select hospitals/dental centres including, state and federal government with the following criteria:

- 3) Hospitals/dental centres with the large number of dental technologists from the DTRBN list.
- 4) Proximity of the hospitals/dental centres (for easy accessibility of the various hospitals due to traffic congestion in the state and cost of transportation fare).

The selected hospitals/dental centres will be identified/located and the participants (i.e. dental technologists) will be approach individually by the researcher with letter information as well as offer more explanation if need be, then prospective participants will be allowed to make an informed decision and willingness to participant.

Effect on risk benefit profile of participants:			
Please submit the following documentation:			
<ul style="list-style-type: none"> • Approved proposal • Changes to letter of information and consent • Any other relevant documentation 			
Signature:		Date:	
Researcher:			
Supervisor:			
Head of Department:			
<i>TO BE COMPLETED BY THE CHAIR OF THE IREC.</i>			
Date received:		Review required:	
		Expedited	Full committee
<i>To be completed by the chairperson of the IREC</i>			
The amendment is:		Yes	No
Approved – there are no evident grounds for concern or further investigation.			
Approved subject to minor changes			
Needs to be re-submitted after recommendations are met			
Approved however a site inspection is recommended.			
Denied (please see attached)			
Signature:		Date:	
Chairperson of IREC			

Addendum 9: Ethical clearance certificate



16 February 2016

IREC Reference Number: **REC 147/15**

Mr M C Ndubuisi
14 Thornton Avenue
Seaview
Durban
4049

Dear Mr Ndubuisi

An exploration into the factors influencing job satisfaction among dental technologists in Lagos, Nigeria

The Institutional Research Ethics Committee acknowledges receipt of your final data collection tool for review.

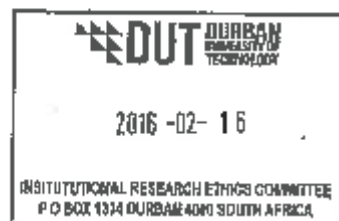
We are pleased to inform you that the questionnaire has been approved. Kindly ensure that participants used for the pilot study are not part of the main study.

In addition, the IREC acknowledges receipt of your gatekeeper permission letter.

Please note that FULL APPROVAL is granted to your research proposal. You may proceed with data collection.

Yours Sincerely,

Professor J K Adam
Chairperson: IREC



Addendum 10: Editing certificate (2017)

DR RICHARD STEELE

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EDITING CERTIFICATE

Re: Michael Chijioke Ndubuisi

**Master's dissertation: AN EXPLORATION INTO THE FACTORS
INFLUENCING JOB SATISFACTION AMONG DENTAL
TECHNOLOGISTS IN LAGOS, NIGERIA**

I confirm that I have edited this dissertation and the references for clarity, language and layout. I am a freelance editor specialising in proofreading and editing academic documents. I returned the document to the student with track changes so correct implementation of the changes in the text and references is the responsibility of the student. My original tertiary degree which I obtained at the University of Cape Town was a B.A. with English as a major and I went on to complete an H.D.E. (P.G.) Sec. with English as my teaching subject. I obtained a distinction for my M.Tech. dissertation in the Department of Homeopathy at Technikon Natal in 1999 (now the Durban University of Technology). During my 13 years as a part-time lecturer in the Department of Homoeopathy at the Durban University of Technology I supervised numerous Master's degree dissertations.

Dr Richard Steele
12 November 2017
electronic

Addendum 11: Editing certificate (2020)

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**Master's dissertation: AN EXPLORATION INTO THE FACTORS
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TECHNOLOGISTS IN LAGOS, NIGERIA**

I confirm that I have re-edited the language (not the references) of this dissertation for re-submission for examination. I am a freelance editor specialising in proofreading and editing academic documents. I returned the document to the student with track changes so correct implementation of the changes in the text and references is the responsibility of the student. My original tertiary degree which I obtained at the University of Cape Town was a B.A. with English as a major and I went on to complete an H.D.E. (P.G.) Sec. with English as my teaching subject. I obtained a distinction for my M.Tech. dissertation in the Department of Homeopathy at Technikon Natal in 1999 (now the Durban University of Technology). During my 13 years as a part-time lecturer in the Department of Homeopathy at the Durban University of Technology I supervised numerous Master's degree dissertations.

Dr Richard Steele

01 March 2020

electronic