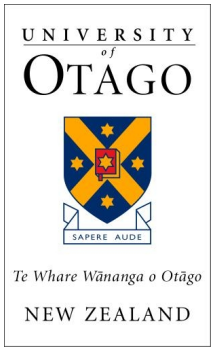
Student and graduate perceptions of the Doctor of Clinical Dentistry programme - a qualitative research project



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A thesis

submitted to the

University of Otago

in partial fulfilment of the requirements

for the degree of

Master of Health Sciences (MHealSc)

April 2012

ABSTRACT

Introduction: Research suggests that students' perceptions should be considered in any discussion of their education. However, to date, there has been no systematic examination of New Zealand postgraduate dental students' learning experiences in both the research and clinical settings. This study aimed to obtain in-depth qualitative insights into student and graduate perspectives of effective and ineffective learning experiences during their postgraduate dental education. *Methods*: Data were collected in 2010 using semi-structured individual interviews. Participants included sixteen 2010 final-year students and four 2009 graduates of the University of Otago Doctor of Clinical Dentistry programme. Using the Critical Incident Technique, participants were asked to describe at least one effective and one ineffective learning experience in detail. Interview transcripts were analysed using a general inductive approach. *Results*: Broad themes which emerged included supervisory approaches, characteristics of the learning process, and characteristics of the physical learning environment. Factors which participants associated with effective learning included: supervisor demonstration of new techniques; supervisor support; opportunities for both interactive and self-directed learning; constructive feedback; exposure to interdisciplinary clinical approaches and multiple clinical opinions; sufficient clinical practice; opportunities to do clinically-relevant research; and access to excellent facilities. Factors which participants identified as precluding effective learning included: inadequate supervisor demonstrations; intimidatory/discriminatory supervisory approaches; unsupported/isolated learning; destructive criticism; poor interdisciplinary coordination; the adoption of a "standard" patient treatment strategy; an over-emphasis on research over clinical practice; and outdated infrastructure. *Conclusion*: Participants' responses provided in-depth insights into their understandings of effective and ineffective learning. The research findings will inform curriculum and staff development in postgraduate dental education. Future research is needed that examines supervisors' perceptions of effective teaching/mentoring practices in postgraduate dental education.

ACKNOWLEDGEMENTS

I would like to generously thank my mentor and primary supervisor **Prof. W. Murray Thomson** (Professor of Dental Epidemiology and Public Health), and co-supervisors **Dr. Vivienne R. Anderson** (Lecturer, University of Otago College of Education), and **Dr. Kate C. Morgaine** (Lecturer in Public Health) for their consistent support, guidance, and constructive feedback.

I would also like to generously thank my lovely wife, parents, brother, parents-in-law, all my friends, and relatives for their continuous encouragement, emotional support and motivation. I eagerly look forward to spend time with you all again soon.

Thanks to all students and graduates who had enthusiastically taken part in this study.

I would like to acknowledge financial support from the University of Otago Faculty of Dentistry Research Scholarship Award.

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LIST OF ABBREVIATIONS

BDS	Bachelor of Dental Surgery
CALT	Committee for Advancement of Learning and Teaching
CIT	Critical Incident Technique
DClinDent	Doctor of Clinical Dentistry
HEDC	Higher Education Development Centre
MDS	Master of Dental Surgery
PBRF	Performance-Based Research Fund
PhD	Doctor of Philosophy
QAU	Quality Advancement Unit
TLP	Teaching and Learning Plan
UK	United Kingdom
USA	United States of America

THESIS OUTLINE

This thesis consists of five chapters. The structure of each chapter will be briefly outlined here.

The *first* chapter introduces the reader to the area of the research and then briefly highlights a knowledge gap relating to dental students' perceptions of their educational experiences. Chapter one also provides an overview of the contextual and background information relevant to the focus of enquiry by reviewing the current state of postgraduate dental education and the nature of the DClinDent degree in New Zealand. This chapter concludes with an overview of University of Otago policies and guidelines on teaching and learning.

Chapter *two* has two main parts. The first part of chapter two discusses the significance of listening to student voice in tertiary educational institutions. Thereafter, a conceptual framework informing the thesis is presented. The second part discusses the relevance and significance of a qualitative approach in the dental education context. It also critically analyses and synthesises the previously published qualitative research on student perceptions of their dental education. The aim of the current thesis is also presented here.

Chapter *three* describes the methods utilised to conduct this research.

Chapter *four* presents the research findings, providing an analysis of the data with illustrative verbatim quotes.

Chapter *five* discusses the relevance of the findings in relation to the existing dental education literature and pedagogical policy and practice in the dental education setting. Chapter five also includes recommendations for practice and future research. The final section provides the conclusions of the research.

CHAPTER 1. INTRODUCTION

1.1. Background

The Faculty of Dentistry at the University of Otago is the national school of dentistry in New Zealand. In 2007, its Master of Dental Surgery (MDS) programme was largely replaced by a professional doctorate, the Doctor of Clinical Dentistry (DClinDent) programme. This three-year programme is intended to foster the development of advanced clinical and research skills for specialist registration in New Zealand. The first cohort of DClinDent students graduated in 2009.

The consensus opinion in the dental education literature is that student perceptions of the curriculum should be sincerely considered in all discussions and decisions relating to their education (Divaris et al, 2008; Henzi et al, 2005; Schonwetter et al, 2006). In particular, only a few qualitative studies have explored students' learning experiences in the postgraduate setting and none has been published so far from the New Zealand postgraduate dental education context. Students' perceptions and experiences are not an objective measure of educational or teaching effectiveness, but they reflect the learning environment in a particular setting, and are strongly linked to student learning outcomes and satisfaction (Genn and Harden, 1986; Schonwetter, 1993; Schonwetter et al, 2006; Till, 2005).

The aim of this study was to explore 2010 final-year students' and recent graduates' perspectives of their learning experiences in the DClinDent programme.

1.2. Context and characteristics of the study setting

1.2.1. History of dental education in New Zealand

In 1904, an Act of the Parliament brought dental education under the jurisdiction of the University of New Zealand. In 1907, the four-year Bachelor of Dental Surgery (BDS) degree was established in the Dental School under the Deanship of Dr H.P. Pickerill, with facilities for 20-25 students. It was the third Dean of the Faculty, Sir John Walsh, who modernised the school by providing contemporary research facilities. He started postgraduate dental programmes in the early 1960, when the Faculty shifted to its current location, presently known as the Walsh Building. More recently, the Faculty has developed educational programmes for allied dental professionals: dental therapy in 1999, dental technology and dental hygiene in 2001; thus, the Faculty now offers educational programmes for all dental professionals.

1.2.2. The contemporary New Zealand dental education context

The Faculty of Dentistry sits within the Division of Health Sciences at the University of Otago. It is the only New Zealand provider of undergraduate and postgraduate education and training in dentistry. In the University's strategic direction to 2012, six strategic areas are emphasised, including: achieving research excellence; achieving excellence in research-informed teaching; ensuring outstanding campus environments and student experience; contributing to the national good and to international progress; strengthening external engagement; and building and sustaining capability (University of Otago). The Faculty of Dentistry's Strategic Plan (Faculty of Dentistry) reflects both the Strategic Plan of the Division of Health Sciences (Division of Health Sciences) and the University of Otago's Strategic Direction to 2012. Research excellence, research-informed teaching, and ensuring exceptional learning environments and student experiences are some of the important objectives in the Faculty of Dentistry Strategic Plan. Performance indicators and specific aims related to this objective are to: periodically review all the courses for their effectiveness, currency, vertical and horizontal integration within each curriculum; obtain student feedback and individual evaluation of teaching at least once every three

years; ensure attendance of teaching staff at the University's Higher Education Development Centre (HEDC) courses; publish course-books that have adequate information on course objectives, workload expectations, deadlines and assignments; and enhance communication by providing students and academic staff members a specific forum to discuss issues relating to specific courses. The Faculty's other strategic imperatives include contributing to national good and international advancements, strengthening external engagements, and building and sustaining capabilities.

1.2.3. The nature of the DClinDent programme at the University of Otago

The Faculty established professional/clinical doctoral degrees for almost all of the clinical dental specialties in 2007. At that time, the Faculty developed a proposal for a new clinical doctorate degree. The proposal suggested that what was then the MDS degree programme did not adequately reflect the quality of research-informed advanced clinical practice, research and scholarship in the programme.

The DClinDent degree provides postgraduate training in all clinical dental specialties. The purpose of the programme is to prepare graduate students to become registered specialists in a specific discipline. In addition, the programme facilitates the development of advanced clinical and research skills essential for registration as a dental specialist. Although the DClinDent programme content varies across the dental specialties, it primarily involves clinical practice, coursework and research aimed at preparing students to be specialist practitioners and consultants in their area of specialisation. The programme typically includes coursework (including assignments, seminars, student clinical/research presentations, journal clubs, undergraduate clinical teaching sessions, and examinations), advanced clinical practice and a supervised research project, which is presented in a thesis. The degree can be awarded in any of the following subjects: Endodontics, Oral and Maxillofacial Surgery, Oral Medicine, Oral Pathology, Oral Surgery, Orthodontics, Paediatric Dentistry, Periodontology, Prosthodontics, and Special Needs Dentistry. The DClinDent degree is awarded to a candidate after satisfactory completion of course work, clinical practice, and acceptance of the submitted thesis. A full-time candidate is expected to satisfactorily complete the degree requirements within three years.

A further rationale for the development of the DClinDent degree was a decision to reduce the number of existing postgraduate diplomas in clinical dentistry and to focus instead on graduate research degrees, so that these could be counted among the Faculty's Performance-Based Research Fund (PBRF) research outputs (Faculty of Dentistry, University of Otago, 2007). The PBRF is a mechanism for distributing research funding in the tertiary education sector in New Zealand (Tertiary Education Commission, 2006). Research funds are allocated through the PBRF according to the quality of the research undertaken in each Tertiary Education Organisation (TEO). The system takes into consideration the quality of researchers, research degree completions and external research income. In the latest PBRF evaluation carried out for 2001-2006, the University of Otago was New Zealand's top-ranked University for research (Tertiary Education Commission, 2006).

1.2.4. Teaching and learning at the University of Otago

Excellence in teaching and quality in learning has always been a goal for the University of Otago. The University has published several guides to assist students and staff as they undertake teaching and learning activities. This section provides an overview of the University of Otago policies on teaching and learning. These guidelines have been developed in consultation with senior University academics and also from international sources. They include (1) the guide developed by the Committee for Advancement of Learning and Teaching, (2) the Teaching and Learning Plan, and (3) Key Points for Good Feedback.

1.2.4.1. Committee for Advancement of Learning and Teaching guide

The University of Otago Committee for Advancement of Learning and Teaching (CALT, 2002) has developed a useful guide for staff and supervisors on good practices in teaching and learning.

The guide highlights the characteristics of effective teaching and supervisory practices. These are that supervisors should: build appropriate personal relationships with students both inside and outside the classroom to increase student motivation and commitment; be knowledgeable, enthusiastic and self-reflective in relation to their

own teaching strategies; adopt a model of collegiality, where supervisors take a shared responsibility in students' learning and encourage discussion and sharing of ideas to avoid students feeling isolated in the process of learning; encourage students to actively discuss their learning environment; use multiple and appropriate teaching approaches to match learning objectives; use appropriate assessment strategies (including self-assessment) to match the learning objectives and carefully consider student's workload; provide prompt and helpful feedback with concrete examples; have realistic workload expectations for students and provide guidelines for effective time-management; communicate high learning expectations to all students; and respect the educational, cultural and social diversity of students and build a climate of trust, co-operation and respect in the classroom.

1.2.4.2. Teaching and Learning Plan

Another University of Otago guide relating to teaching and learning is the Teaching and Learning Plan (TLP), which applies to all levels of undergraduate and postgraduate teaching in the University (University of Otago TLP). It was developed in consultation with a variety of stakeholders, including winners of the National Tertiary Teaching Excellence Awards and relevant University teaching Committees (such as the CALT, the Board of Graduate Studies and the Board of Undergraduate Studies). The TLP summarises a series of objectives for teaching and learning activities at Otago.

The goals of the TLP are to: develop students' deep, coherent and extensive disciplinary knowledge with development of skills such as critical thinking, reasoning, evaluation, conceptualisation, and interdisciplinary perspective and problem-solving; facilitate students' intellectual independence and self-directed activity; promote students' life-long learning skills; encourage and sustain teaching excellence; recognise interdependence between teaching, research and professional practice; foster students' awareness of the ethical, social and community implications of their knowledge; integrate international dimensions in teaching and learning activities; develop workplace-related skills such as effective communication skills, self-confidence, enterprise, effective team worker skills and the ability to learn new

skills; and provide a safe, healthy and suitably resourced learning environment for students.

1.2.4.3. Key Points for Good Feedback

To promote the importance of quality feedback in learning (and also following the mixed findings from the feedback in Student and Graduate Opinion Surveys), the University of Otago Quality Advancement Unit (QAU) appointed a Working Group to develop a guide for giving effective student feedback. The Working Group, after consulting with staff and conducting a literature review, developed a reference guide called Key Points for Good Feedback (Working Group, University of Otago). This was intended to be a helpful framework for supervisors. The Working Group also developed a dedicated online resource that illustrates good feedback examples provided by academic staff. The key points in the guide are to: develop specific and challenging objectives in collaboration with students and using appropriate assessment methods; provide comprehensible guidelines on performance expectations and assessment criteria; encourage critical self-assessment and incorporating formative feedback before final submission; help students to improve by giving specific illustrations and comparing previous feedback; build student self-confidence by identifying strengths and avoiding excessively critical feedback; communicate limitations in a manner that recommends solutions to address problems; and provide reasonably quick feedback when the task is still fresh in the student's mind.

1.2.5. Summary of teaching and learning at the University of Otago

Altogether, the University of Otago aims to promote independent thinking and self-directed learning by students; however, it also underlines the important role of academic staff in supervising, teaching and mentoring students, and actively facilitating their learning by ensuring the provision of a suitable learning environment. All of the University policy documents on teaching and learning are consistent in many areas on teaching and learning, including desirable supervisor attributes, learning approaches and the educational environment. These are summarised in Table 1.

Table 1: Desirable teaching approaches, staff attributes and learning environment characteristics identified in the University of Otago teaching and learning documents

Teaching approaches	Staff attributes	Characteristics of the learning environment
Encourages active learning and discussions	Builds good rapport with students	Safe and suitably resourced learning environment
Uses appropriate teaching and assessment strategies that facilitate the development of independent and critical thinking, analysis and problem solving skills	Rich subject expertise	Provides realistic workload
	Encourages and motivates students	Respects the educational, cultural and social diversity of students
	Self-reflective about their teaching approaches	
	Provides reasonably quick and effective feedback	
	Communicates high learning expectations	
	Seeks student feedback	

The University of Otago policy documents, outlined above, provide background and contextual information for examining DClinDent students' perceptions. The next chapter (Chapter 2) discusses the importance of heeding student feedback in tertiary educational institutions and critically analyses the previously published research on student perceptions of their dental education.

CHAPTER 2. LITERATURE REVIEW

The literature review chapter is divided into two major parts. The first part (2.1) illustrates the theoretical framework relevant to the focus of enquiry by discussing the significance of listening to student voice[1] in tertiary education. The second part (2.2) discusses the relevance and significance of a qualitative approach in the dental education context and critically analyses the previously published qualitative research on student perceptions of their dental education. The aim of this thesis is presented at the end of this chapter.

2.1. Rationale and theoretical framework informing the study - significance of actively engaging and reflecting upon students' perceptions in tertiary education

This section discusses key debates about a research focus on student perceptions and develops a theoretical framework for the legitimacy of listening to student voice in tertiary educational institutions. The first part introduces the concept of student voice. The second part analyses the theoretical arguments relating to the justification for student voice initiatives using themes from the seminal literature on student voice from the school[2], higher and dental educational sectors. The last part summarises the theoretical framework which informs this research project.

[1] In this thesis, the term "student voice" is used instead of *the* student voice in order to be consistent with the existing literature. Also, this term "student voice" is referred to using various terminologies, including student experiences, perceptions, and feedback.

[2] In this chapter, "school" refers to primary and secondary schools.

2.1.1. Student voice

Initiatives that rationalise a research focus on student voice endeavour to redefine the role of students in pedagogical reform by emphasising that they should be provided opportunities to dynamically influence their education (Harvey, 2003). Most higher education institutions around the world gather some type of feedback from their students on their learning experiences, perceptions of teaching, and perceptions of their learning environment. Harvey (2003) indicated that student voice projects consist of the following aspects: "perceptions about the learning and teaching, the learning support facilities (such as libraries, computing facilities), the learning environment, (lecture rooms, laboratories, social space and university buildings), other support facilities (refectories, student accommodation, health facilities, student services) and external aspects of being a student (such as finance, transport infrastructure)". Therefore, research that focuses on student voice generally includes attention to any or all of the above aspects of learning experiences and educational climate from students' perspectives.

Although there is no universally agreed definition for "student voice", there is a strong consensus in the literature that the main objective of a focus on student voice is to provide deep insight into insider (that is, student) perspectives of their learning experiences and educational climate. Researchers interested in student voice agree that these projects are important because students have distinctive perspectives of teaching and learning and can offer in-depth information on their learning experiences (Cook-Sather, 2002; Cook-Sather, 2006a; Cook-Sather, 2006b; Fielding, 2004; Harvey, 2003; Levin, 1998; Levin, 2000; Mitra, 2008; Rodgers, 2006). The student voice literature is strongly against students' exclusion from educational policy discussions or institutions maintaining control over students as if they are mere passive receivers of knowledge (Cook-Sather, 2002; Cook-Sather, 2006a; Cook-Sather, 2006b; Fielding, 2004; Harvey, 2003; Levin, 1998; Levin, 2000; Mitra, 2008; Rodgers, 2006). Cook-Sather (2002) asserted that attention to student perceptions challenges "the legacies of students as blank slates and teachers as sole authors of what students learn". The student voice literature emphasises that feedback from students, as important stakeholders, merits not only attention but also responsive

action by academic staff. Proactive attention to student voice ensures the provision of a framework for students to express their point of view on their learning experiences, and seeks ways to transform educational practices and the learning environment in response to student perspectives (Cook-Sather, 2002; Cook-Sather, 2006a; Cook-Sather, 2006b; Fielding, 2004; Harvey, 2003; Levin, 1998; Levin, 2000; Mitra, 2008; Rodgers, 2006; Rudduck and Fielding, 2006; Seale, 2010; Watson, 2003). Therefore, attention to student voice requires not just a focus on student participation but also proactive attention to students' views through subsequent critical examination, reflection, discussion, and an appropriate action or response. Hence, scholars interested in student voice argue for effective student participation in educational reform discussions, suggesting that the authority to influence pedagogical philosophies and practices does not rest exclusively with academic staff and educational researchers (Cook-Sather, 2002; Cook-Sather, 2006a; Cook-Sather, 2006b; Fielding, 2004; Harvey, 2003; Levin, 1998; Levin, 2000; Mitra, 2008; Rodgers, 2006; Rudduck and Fielding, 2006; Seale, 2010; Watson, 2003).

2.1.2. Significance of engaging and reflecting upon student perceptions in tertiary education

Attention to student voice is primarily justified from the following four perspectives: formative and constructive feedback on pedagogical practices; quality assurance and closing the feedback loop; student engagement and reflection on the learning process; and democratic participation, student empowerment and the stakeholder's perspectives. Each will be discussed.

2.1.2.1. Formative and constructive feedback on pedagogical practices

One of the prime justifications for student voice projects has been that they represent a pedagogical-improvement-oriented initiative (Harvey, 2003; Leckey and Neill, 2001).

The main argument in the higher education literature is that student voice projects help academic staff to focus on students' learning experiences (the how, when, what and where of student's learning), and understand students' perspectives of existing

teaching and learning practices; this may then inform academic professional development (Harvey, 2003; Leckey and Neill, 2001; Seale, 2010). Advocates of student voice projects assert that considering student perspectives in curriculum development discussions introduces the missing and unique perspectives of those who directly experience the consequences of current teaching philosophies (Cook-Sather, 2002; Harvey, 2003; Mitra, 2008; Rudduck and Fielding, 2006). They argue that students can provide feedback on instructional styles, curriculum content, assessment, organisation, support systems and other learning environment issues as they influence them (Cook-Sather, 2002; Harvey, 2003; Mitra, 2008; Rudduck and Fielding, 2006; Watson, 2003). Listening to these student perspectives through feedback on educational programmes can then assist policymakers to identify and nurture areas of excellence and reflect upon areas where development can be undertaken (Campbell, 2007; Cook-Sather, 2002; Harvey, 2003; Leckey and Neill, 2001; Mitra, 2008; Rudduck and Fielding, 2006; Seale, 2010). Student perceptions can be used not only as diagnostic feedback for staff development programmes (to assist them in the enhancement of students' learning experiences) but also to inform research on teaching and curriculum development. Educational researchers can obtain constructive feedback on innovative pedagogical approaches for further refinement (Harvey, 2003; Leckey and Neill, 2001; Levin, 2000). Consequently, through heeding students' perspectives, academic staff can better understand the priorities and difficulties of students (with respect to the learning environment) and refine educational practices, where necessary, to improve students' learning experiences, and reduce student attrition.

2.1.2.2. Quality assurance and "closing the feedback loop"

Quality assurance is the second justification in the higher education literature for student voice projects (Watson, 2003). Collecting feedback from students on their learning experiences has become one of the crucial elements of institutional quality enhancement initiatives, both internal and external (Harvey, 2003; Watson, 2003). Higher education institutions have acknowledged the importance of eliciting student feedback effectively in order to comply with national and international quality assurance agency guidelines (Harvey, 2003; Leckey and Neill, 2001; Watson, 2003). Higher education funding bodies also value student learning experiences (Watson,

2003). Watson suggested that tertiary institution administrators may support student feedback projects because they can provide evidence for quality agency reviews without requiring further efforts to listen and respond to student experiences (Watson, 2003). However, an effective quality process ensures that student perception projects are not just tokenistic consultations but are translated into action, and that students are informed of improvements made or actions taken. This process of taking feedback towards action and reinforming the source is called “closing the loop” (Watson, 2003).

Closing the loop is one of the most critical aspects of seeking student feedback (Shah and Nair, 2009; Watson, 2003). There is a strong argument in both the school and higher education student voice literature that students need to know the course of action that is taken in response to their feedback, and that attempts to elicit student perspectives require subsequent discussions, analysis and a response to students (Fielding, 2004; Leckey and Neill, 2001; Rodgers, 2006; Rudduck and Fielding, 2006; Shah and Nair, 2009; Watson, 2003). Thus, for an effective engagement in quality improvement exercises, student perceptions must be integrated into a continuous action cycle of listening, critical analysis, implementation and feedback (Harvey, 2003). It is implied here that, taking cues from practical principles in a democratic society, if student suggestions are inappropriate or unworkable, it is still important to respond to that feedback by explaining the rationale for current practices, including reasons for why the feedback cannot be implemented.

There are several methods which institutions may employ to present their response, including newsletters, the Internet, and direct communication with students in forums such as student associations, posters and campus radio. The style of presentation would depend on the institution's size and the available resources (Watson, 2003). Responding to participants has benefits, such as: establishing the value of participants' responses and encouraging involvement in future projects; and increasing student confidence in the authenticity, merit and outcomes of the research (through evidence of concrete response and action following feedback). Moreover, updating participants on research outcomes is sound ethical practice (Watson, 2003). Alternatively, when institutions are not genuinely interested in student perceptions, students may become sceptical and indifferent towards participating in future initiatives; that is, students are

less likely to provide feedback if they observe that the institution elicits feedback as an *ad hoc* and insincere effort to demonstrate their commitment to quality assurance procedures (Leckey and Neill, 2001; Watson, 2003). To summarise, effectively closing the loop is important if quality assurance measures are to involve genuine attention to student voice.

2.1.2.3. Student engagement and reflection on learning process

The third rationale for heeding student voice is that it promotes student engagement in the learning process (Cook-Sather, 2002; Cook-Sather, 2006a; Cook-Sather, 2006b; Fielding, 2004; Mitra, 2008; Rudduck and Fielding, 2006).

Advocates for attention to student voice as a means of fostering student engagement argue that eliciting student perspectives provides an opportunity for students to engage with and understand their own learning processes as they reflect on the priorities and difficulties inherent in their learning (Ashley et al, 2006; Cook-Sather, 2002; Cook-Sather, 2006a; Cook-Sather, 2006b; Mitra, 2008). Opportunities for students to reflect on their learning allow them to examine their learning activities and environment and identify experiences that promoted or precluded effective learning (Cook-Sather, 2002; Cook-Sather, 2006a; Cook-Sather, 2006b; Fielding, 2004; Mitra, 2008; Rudduck and Fielding, 2006). Here, student voice is seen entirely from a student-centered perspective in order to provide an opportunity for students to reflect on and articulate the personal impact of current educational philosophies that shape their educational context (Ashley et al, 2006). However, it is important to note that student engagement and active participation in either affirming existing practices or proposing alternatives will be based on students' pre-existing assumptions, needs, preferences, beliefs and values about their education or programme.

2.1.2.4. Democratic participation, student empowerment and the stakeholder's perspective

A fourth justification for attending to student voice is the need to foster students' democratic participation and empowerment as a fundamental right. This rationalisation has a strong foundation in the school student voice literature (Cook-

Sather, 2002; Cook-Sather, 2006a; Cook-Sather, 2006b; Levin, 1998; Rudduck and Fielding, 2006). Consultation, participation, collaboration, inclusion, equality, partnership and social justice are fundamental principles in a democratic society. Advocates for attention to student voice conceptualise educational institutions as learning communities functioning in democratic societies, and all participants as having the fundamental right as citizens to have a voice and actively contribute to decisions affecting their learning experience or environment (Cook-Sather, 2002; Cook-Sather, 2006a; Cook-Sather, 2006b; Hill, 1995; Levin, 1998; Levin, 2000; Rudduck and Fielding, 2006; Watson, 2003). Some scholars note the need to also attend to "silent voices": students who may not discuss their concerns openly with staff because of a lack of self-confidence and/or linguistic expertise. Explicit attention to student voice can empower and encourage "silent voices" to comment on their learning experiences without fear of sanction (Rudduck and Fielding, 2006). This outlook implies that attention to student voice can also contribute to equality and social justice in educational institutions.

2.1.2.4.1. Confronting the traditional power relations – leadership redefined

Apart from the strong emphasis on participation and collaboration, attention to student voice based on democratic principles calls for a rethink of some pre-existing assumptions and beliefs about authority and control on educational practices and curriculum development. Advocates for student-centered educational research are critical of top-down models of traditional power relationships which could limit the democratising potential of student voice (Cook-Sather, 2002; Cook-Sather, 2006a; Cook-Sather, 2006b; Levin, 1998; Mitra, 2008). These scholars have argued that, ideally, educational institutions in democratic societies should build open structures which will enable both students and staff to work as authentic partners without fear of retaliation (Rudduck and Fielding, 2006).

Attention to student voice informed by democratic principles is consistent with the emphasis in the dental educational literature on student empowerment and feedback from a stakeholder perspective. It was a consensus opinion of the International Dental Educational Working Group (with representations from 14 countries) that the perspective of students as one of the primary stakeholder groups is significant and

should be carefully considered in all debates on dental education (Divaris et al, 2008). The Group further recommended that students must "feel part of the process and in control" and not be estranged from the development of their own education. They also highlighted the importance of regular and structured efforts to elicit student perspectives in all dental institutions.

2.1.3. Summary of the theoretical framework informing this thesis

In this thesis, attention to DClinDent student voice is entirely centered on investigating students' learning experiences and their perceptions of the academic learning environment from a formative feedback, student engagement and democratic perspective, rather than evaluating staff teaching *per se*. While educational philosophies and teaching approaches in the Faculty of Dentistry may be indirectly mentioned here, teaching is only explored in the context of student learning, and a critical appraisal of teaching is *not* the central issue in this thesis (Rodgers, 2006). Furthermore, the dimensions of collaboration, empowerment and democratic participation stressed in this project do not signal the abandonment of responsibility by academic staff, necessarily overthrowing existing academic practices or institutional core values, or giving dental students discretionary authority over pedagogical developments in postgraduate dental education. It is acknowledged that postgraduate dental students will have a range of pre-existing assumptions, preferences and expectations of their course and institution's resources. This project considers students as collaborative partners in educational processes and aims to elicit, reflect and critically analyse postgraduate students' expectations rather than recommending their direct implementation (Cook-Sather, 2002; Cook-Sather, 2006a; Cook-Sather, 2006b; Levin, 1998; Watson, 2003). Therefore, this research neither puts consumerist pressure on the Faculty of Dentistry to necessarily satisfy all DClinDent students' needs and preferences nor promotes plain acceptance of student opinions; rather, it insists on active participation, collaboration and authentic student inclusion through careful reflection on student perceptions and responsiveness to those.

The next section of the literature review critically analyses the previous research on student perceptions which has been published in the dental education literature.

2.2. Qualitative research on student perspectives in the dental education contexts

This section is divided into five parts. The first part explains the significance of qualitative research in the dental education context. The second and third parts critically analyse the previous qualitative research published on student perceptions on teaching and learning and educational environments respectively in the dental education literature. The fourth part summarises the findings of previous dental education research on student perceptions, and the final part identifies the gaps in the existing dental educational literature on student perceptions of their learning experiences.

2.2.1. Students' perceptions of their learning experiences and learning environment in dental and medical education

2.2.1.1. Students' perception of their learning experiences in dental education

In an effort to enhance the educational experience for students, many studies have previously examined student perceptions of teaching and learning, especially in relation to undergraduate dental education. The findings from existing qualitative research have consistently suggested that the characteristics considered by students to be important for an effective learning experience include: supervisor availability for informal discussions and questions, approachability, constructive feedback, encouragement, supportiveness, guidance and practical demonstrations; appropriate student-staff relationship; having a structured course, adequate peer-assisted interactive learning opportunities, adequate clinical practice sessions, lecture hand-outs, and adequate infrastructure (Ashley et al, 2006; FitzGerald et al, 2008a; Fugill, 2005; Henzi et al, 2007; Jahangiri and Mucciolo, 2008; Lynch et al, 2010; McMillan, 2007; Schonwetter et al, 2006; Victoroff and Hogan, 2006).

These studies have provided important insights on students' perceptions of their learning experiences, but they have some minor limitations (summarised in Table 2). First, a few papers (Fugill, 2005; Lynch et al, 2010; McMillan, 2007) had not reported whether their study received ethical approval. While it is unlikely that these

researchers would not have obtained ethical approval, lack of reporting on the ethical approval process raises some critical questions as to whether all sensitive and ethical issues had received full consideration. Second, there was a mismatch between the focus of enquiry and interview questions used in one study (Jahangiri and Mucciolo, 2008). This study, conducted to explore the characteristics of effective classroom teachers as identified by current dental students and graduates, had used words such as "like" and "dislike" in their open-ended questionnaire. These terms may indirectly refer to a personal "like or hate". The authors had assumed that, if a student "liked" a particular quality in a staff member, it could be considered as effective teaching and that it effectively promoted students' learning. Consequently, the paper's findings may not have precisely answered the researcher's original focus of enquiry. Moreover, the authors did not mention whether the questionnaire was piloted with students for improvement of clarity. It would have been appropriate if the authors had explicitly asked students to identify staff approaches to teaching or the characteristics of learning processes which promoted or hindered their learning. Lastly, little attention was paid to researcher reflexivity. In many of the papers, there was an inadequate examination and reflection on the effect of the researcher-setting relationship, background, preconceptions, beliefs and position of the researcher on the research process. However, many factors can influence the reporting of qualitative research findings. One such factor is the availability and quality of training in qualitative research methodologies in postgraduate and doctoral level programmes in Dental Schools. Another important factor could be a conflict between the amount of information to be presented in reports from studies using qualitative methods and the word-limit specifications of the journals. Qualitative researchers may find it challenging to condense richly detailed data. Hence, the quality of reporting in published qualitative articles may be sometimes influenced by journals' page limitations and formatting requirements (Masood et al, 2011).

Table 2: Critical appraisal on the reporting of published qualitative research on dental students' perceptions of their learning experiences

Paper	Comments
Fugill 2005	Inadequate researcher reflexivity The author had not reported whether ethical approval was obtained for the study
Ashley et al 2006	Inadequate researcher reflexivity Avenues for future research in the area were not discussed
Victoroff and Hogan 2006	Inadequate researcher reflexivity
Schonwetter et al 2006	Inadequate researcher reflexivity
Henzi et al 2007	Inadequate researcher reflexivity
McMillan 2007	The author had not reported whether ethical approval was obtained for the study Inadequate researcher reflexivity
Jahangiri and Mucciolo 2008	Survey questions were not directly related to the stated focus of enquiry because words such as "like" and "dislike" were used in the questionnaire. These words indirectly refer to a personal "like or hate" rather than staff qualities that effectively promoted or hindered students' learning Inadequate researcher reflexivity Avenues for future research in the area were not discussed
Fitzgerald at al 2008a	The role of the researcher and researcher–study setting relationship were briefly acknowledged in the paper
Lynch et al 2010	The authors had not reported whether ethical approval was obtained for the study Inadequate information on research questions and data analysis Inadequate researcher reflexivity

There are also notable differences between the justifications provided in these qualitative dental education papers and those in the school-based research literature on the reasons reported for listening to student perceptions. Most of these papers justified their student feedback studies from a student evaluation of teaching and formative feedback on pedagogical practices perspective (FitzGerald et al, 2008a; Fugill, 2005; Jahangiri and Mucciolo, 2008; McMillan, 2007; Schonwetter et al, 2006). Only a few studies referred to student engagement or reflection on their learning process or stakeholder perspective as a rationale for their study (Ashley et al, 2006). The dental education literature pays relatively less attention to political, societal and sociological justifications for listening to student voice. By contrast, student voice is discussed in the primary and secondary school education literature predominantly in relation to democratic participation, authentic inclusion and action, engagement, collaboration and empowerment (Cook-Sather, 2006a; Fielding, 2004; Mitra, 2008). The dental education literature fails to adequately attend to the democratic, student empowerment, and social justice domains, and the issue of power relations between academics and students are also under-represented here. Although some dental education studies (Henzi et al, 2007; Victoroff and Hogan, 2006) have given implicit attention to the stakeholder or the student-as-consumer perspective, there is a lack of studies based on a theoretical framework that explicitly foregrounds listening to student voice as student engagement, democratic participation, student empowerment and reflection on their learning experiences. That less attention is given to basic democratic elements such as listening, rights, partnership, engagement, empowerment and transformation in the dental education literature raises the critical question of whether dental educational institutions operate outside a democratic societal framework.

2.2.1.2. Students' perception of their learning environment in dental and medical education

Student perceptions of their educational environment and the overall quality of their learning experiences are a significant data source to inform the development and modification of pedagogical practices and curricula (Anderson et al, 2011; Divaris et al, 2008; Haden et al, 2006; Henzi et al, 2005; Till, 2005). It has also been indicated that the learning environment in health-sciences education significantly influences the

development of intellectual and professional skills in future health-sciences practitioners (Al-Hazimi et al, 2004; Bassaw et al, 2003; Dunne et al, 2006; Genn, 2001a; Genn, 2001b; Mayya and Roff, 2004; Pimparyon et al, 2000; Roff et al, 2001). Furthermore, research suggests that students' perceptions of their learning environment are strong predictors of their academic performance in tertiary education (Lizzio et al, 2002).

The ideal educational environment has been defined as one that provides appropriate attention to students' professional and personal development, and their emotional and social well-being (Divaris et al, 2008). In an effort to enhance the dental educational experience for students, many quantitative studies have investigated the dental learning environment using Likert-type items. The published literature reveals a consensus that undergraduate dental education is a challenging, demanding and psychologically stressful field for students (Henzi et al, 2005; Polychronopoulou and Divaris, 2009; Stewart et al, 2006). Despite major differences in student populations, educational settings, and curricular characteristics, questionnaire surveys undertaken internationally to understand dental students' perception of their learning environment and systematic reviews of the existing medial education literature collectively highlight performance pressure, assigned workload/course requirements, difficult staff-student relationships, and financial problems as the main sources of psychological stress for students (Dyrbye et al, 2006; Henzi et al, 2005; Muirhead and Locker, 2008; Polychronopoulou and Divaris, 2009; Stewart et al, 2006; Westerman et al, 1993). Furthermore, elevated levels of perceived stress reported among dental students have been associated with psychological distress and emotional exhaustion, and it has been hypothesised that this could lead to burnout in later professional life (Humphris et al, 2002; Pöhlmann et al, 2005). These findings are also consistent with the findings of systematic reviews of student stress in the medical education setting; these have found that there is a high prevalence of psychological distress, anxiety and depression in medical students (Dyrbye et al, 2006). However, there is still a lack of in-depth data on the impact of the learning environment on students' academic performance; overall health, wellbeing and quality of life; dropout rates and the future of the profession (Dyrbye et al, 2006; Rowland et al, 2010).

The International Dental Education Working Group outlined the features of a positive academic environment and recommended that attention be paid to workload, staff-student relationships, constructive feedback, interactive learning approaches, participation in extra-curricular activities, counselling and psychological support services and appropriate infrastructure (Divaris et al, 2008). It has been recommended that dental institutions should endeavour to balance the demands of academic and clinical training with students' needs for a reasonable personal well-being and quality of life if programmes are to successfully retain their students and successfully prepare them for the ongoing stress involved in private practice (Baldwin et al, 1999; Cooper et al, 1987).

2.2.2. Summary of the existing literature

Qualitative dental education research to date has consistently highlighted the importance of supervisor: availability, approachability, encouragement, demonstrations, supportiveness, and student relationships. Research has indicated that students value organisation, interactive learning, role modelling, peer-supported learning, appropriate workload and constructive feedback. These findings are also reflected in the quantitative dental education research literature on student perceptions of their dental education (Brunton et al, 2000; Chambers et al, 2004; Gerzina et al 2005; Henzi et al, 2006; Polyzois et al 2010); medical education (Irby, 1995; Parsell and Bligh, 2001; Van De Ridder et al 2008; Van der Hem-Stokroos et al, 2003); higher education (Feldman, 2007; Greimel-Fuhrmann and Geyer, 2003; Kane et al 2004; Marsh, 2007; Onwuegbuzie et al, 2007; Schaeffer et al 2003; Sheehan and DuPrey, 1999); and the University of Otago policy documents on teaching and learning.

2.2.3. Limitations of and gaps in the existing dental education literature on students' perceptions of their learning

The studies reviewed above provide important insights on student perceptions of their learning experiences and learning environments in dental education. However, published research that has explored student perceptions of their dental education has some limitations. First, in comparison to the other health professions, only a few

studies have focused on dental student perceptions of their education and learning environment, particularly using a qualitative approach (Divaris et al, 2008; Fugill, 2005; Gerzina et al, 2005; Henzi et al, 2005; Schonwetter et al, 2006; Victoroff and Hogan, 2006). Second, the existing qualitative dental education research has largely concentrated only on undergraduate (and a few on postgraduate) students' perceptions of learning experiences, and these studies have mostly emerged from dental institutions in the USA and UK. To date, there has been no systematic examination of New Zealand postgraduate dental students' learning experiences. Third, most of the published studies have focused only on students' learning in the clinical/laboratory and/or didactic context. There is a lack of published research that focuses on dental students' (and especially postgraduate and professional doctoral students'), perceptions of their learning in the research setting. Fourth, many studies have underlined the need for further research, especially using qualitative methods, that has a principal focus on students' perceptions and reflections as a basis for better understanding what constitutes an effective learning environment in dental education (Dyrbye et al, 2006; Henzi et al, 2005; Rowland et al, 2010). Finally, most of the published studies have rationalised their study from a student evaluation of teaching perspective, although implicit attention has been given sometimes given to student voice from the perspective of quality assurance, stakeholders' concerns, and formative feedback on pedagogical practices. Consequently, there is a lack of studies in the dental education literature which have been informed by a comprehensive theoretical framework concerned with the importance of listening to student voice and giving explicit attention to student voice as student engagement, democratic participation, student empowerment and reflection on their learning experiences.

2.3. Aim of the current study

The aim of this study was to explore the characteristics of effective and ineffective learning experiences in clinical and research settings, as identified by the 2010 final-year DClinDent students and the first cohort of DClinDent graduates (2009 graduates) at the University of Otago, New Zealand.

The next chapter (Chapter 3) describes the methodology employed in this study in detail.

CHAPTER 3. METHODS

The objective of this chapter is to describe the methodology employed in this research project. In this chapter, the study's sampling technique, ethical approval, method of recruitment of participants, data collection and analytical approach will be explained in detail.

3.1. Research design

This study used qualitative methods because its objective was to obtain information-rich, in-depth data (Edmunds and Brown, 2012; Patton, 2002) on participants' perspectives and experiences of their postgraduate dental education.

3.1.1. Significance of qualitative approaches in dental education research

Historically, dental research has been primarily dominated by quantitative research methodologies (Fugill, 2005). It has been argued that the importance placed on quantitative methodologies has resulted in a relative disregard for the social and interactive elements of dentistry (Gift, 1996). A quantitative research focus has also been cited as one of the possible reasons for the relative lack of discussion on teaching and learning processes in the dental education literature (Fugill, 2005). Albert (2004) has argued that multifaceted questions on teaching and learning processes in an educational research setting cannot be suitably answered by quantitative methods alone.

However, the dental research literature landscape has evolved considerably, and qualitative methodologies have become more accepted within medical and dental education alongside an increased application of social science frameworks to the health sciences sector (Bullock, 2010; Gill and Griffin, 2009; Newton and Scambler, 2010). A qualitative research design is more appropriate than a quantitative approach for exploring phenomena occurring in complex physical, social and psychological environments, such as students' learning in tertiary education, and for gaining an in-depth understanding, particularly when the research field is in its early stages

(Atchison, 1996; Bower and Scambler, 2007; Bullock, 2010; Gift, 1996; Masood et al, 2010; Mechanic, 1995; Newton and Scambler, 2010; Patton, 2002). The findings obtained from qualitative investigations could also form the foundation for further quantitative pedagogical research (Atchison, 1996). However, it is important to acknowledge that the selection of research methodology should always be directed towards the research question.

3.2. Sampling technique

Purposive sampling that involves selecting information-rich cases strategically and purposefully (Patton, 2002) was used in this study. More specifically, criterion sampling (participants who satisfied a specific criterion were chosen, here the criterion being adequate exposure to the DClinDent programme curriculum) was used to include all 2010 final-year DClinDent students and 2009 graduates of the DClinDent programme at the Faculty of Dentistry, the University of Otago, New Zealand. The study participants included final-year students and graduates of all DClinDent subjects. All final-year DClinDent students and 2009 graduates (total n=29) were invited to participate in the study because of their longitudinal experience of the DClinDent programme. The anonymous nature and the purpose of the study were explained to all participants, and participation in the study was voluntary.

3.3. Ethical approval

In April 2010, the project proposal received ethical approval from the *University of Otago Human Ethics Committee* (Appendix G).

A key ethical issue inherent in this project was its sensitive nature, given students' vulnerability because of their position within the DClinDent programme. There was also a potential threat for staff members of being directly identified in student responses.

Necessary steps were taken to minimise any harm to the participants and academic staff. Specific programme enrolment details of students and graduates were not

recorded during the interviews. The participants were advised not to name any staff member in their responses. No staff member in any discipline had access to tapes. Audiotapes were permanently destroyed after transcription. All personal identifying information of both staff and students were removed from the transcripts and each transcript was given a unique code after removing all the participant's personal information. Information sheets explained that participants had the right to remain silent during interviews if questions become uncomfortable or if they do not wish to speak. In addition, participants were reminded of their rights to remain silent or withdraw from the project at anytime at the beginning of each interview. The information sheet for 2010 final-year DClinDent students explained that participation in the project was not in any manner associated with their end of year assessments or course requirements, and that participants' names would not be reported in any presentations or publications arising from the study. Additionally, participants were informed that their withdrawal from the research at any stage would by no means disadvantage them. Participants were assured that in wider discussions, presentations, and publications about the project, personal information would not be divulged except in a general and descriptive sense to ensure that participants remain anonymous.

3.4. Maori consultation

In line with the University of Otago policy, consultation with Maori was initiated through the Ngai Tahu Research Consultation Committee. The Committee's response endorsing the proposed research project was received in May 2010 (Appendix H).

3.5. Method of recruitment of participants

The initial list of prospective participants and their contact details was obtained through the Dental School administration after the study had received ethical approval. Eligible participants were invited via email to participate in an informal, semi-structured, individual interview with a fellow postgraduate student (principal researcher). The information sheet (Appendix I) and informed consent form (Appendix J) were provided to eligible participants ahead of time. The interview questions were also provided prior to the interview, so that prospective participants

could consider the questions in relation to the University teaching and learning context and then reflect on their learning experiences in the programme.

3.6. Pilot interviews

Prior to interviewing the research participants, five pilot interviews were conducted with DClinDent students from all three years of the programme. The interview questions were refined in response to the resulting feedback.

3.7. Data collection

A total of 20 DClinDent students and graduates agreed to participate in the project. The interviews were conducted between June and December 2010. The interviews were arranged to take place in a private location at a time convenient to the interviewees. No academic staff member was present during any of the interview sessions. Following participants' consent, sixteen face-to-face interviews were recorded with a digital voice recorder. Two interviews were conducted over the telephone and using Skype because of the interviewees' geographical location. Two participants did not consent to audio recording; in those cases, notes were taken during these two interviews and then summarised later.

Before each interview began, the interview agenda was explained to the participant and he/she was reminded of his/her rights as stated in the information sheet (explained in section 3.3). Participants were also given the opportunity to ask questions if they were unsure about anything in the information sheet and consent forms. Informed consent was obtained from all participants. Interviews were conducted in an informal, conversational style, with participants asked to describe their perceptions of effective and ineffective learning experiences. Interviews lasted between 30 and 90 minutes. The use of a digital voice recorder allowed the researcher to pay full attention to the interviewees. However, participants were given the option of requesting that the tape recorder be switched off at any point of time. Participants were identified only by number on the audio recordings, and the recordings were stored securely.

3.8. Interview process and questions

Semi-structured interviews were conducted (Patton, 2002). This involved the use of open-ended questions and some probing questions, where appropriate to elicit more detailed information. The use of a basic interview structure helped to ensure consistency across interviews and minimise interviewer bias. It also ensured that the interviews remained efficient and focused. However, participants were free to explore any aspect of their learning experience which they perceived as significant, in relation to the interview questions.

Participants were invited to recall and describe both an effective learning incident and an ineffective learning incident that took place during their postgraduate dental education. Although participants were invited to recall and describe one of each incident, they were free to recall other learning incidents or to reflect more generally on their postgraduate learning experiences and learning environment. Participants were asked to provide detailed descriptions of the incidents, to describe the action or behaviours of those involved, and to recall the outcome of the incidents. Additional probing questions (detailing questions aimed at an in-depth understanding of interviewees' responses) were also used to elicit further information or clarification where appropriate (Patton, 2002).

The following standardised open-ended questions were used for all interviews:

1. Could you please recall and describe an *effective* learning incident in your postgraduate dental education?
2. Could you please recall and describe an *ineffective* learning incident in your postgraduate dental education?

3.9. Rationale for the interview questions

The two interview questions were based on the "Critical Incident Technique" (CIT) (FitzGerald et al, 2008b; Flanagan, 1954). The CIT is an efficient naturalistic

technique for focusing participants on a specific incident and eliciting their reflection in relation to specific events.

The CIT approach grew out of the work of Colonel John C. Flanagan (Flanagan, 1954). Flanagan, who was a psychologist, was unimpressed by the available records on why pilots were unsuccessful in training. The reports were limited to ambiguous statements such as “lack of inherent ability”, “unsuitable temperament” and “poor judgment”. Hence, he conducted a series of studies that focused on differentiating effective and ineffective work behaviours; this was part of the Aviation Psychology Programme of the United States Army Air Forces during World War II (Flanagan, 1954). Since then, CIT has broadened as a flexible approach for organisational development that facilitates (a) the development of recommendations for effective practice and (b) the establishment of competencies for professionals in various disciplines (Broström et al, 2003; Butterfield et al, 2005; FitzGerald et al, 2008a; Keatinge, 2002; Kemppainen, 2000; Mofidi et al, 2003; Norman et al, 1992; Redfern and Norman, 1999). In the current study, CIT was used as a basis for the interview questions in order to simultaneously examine the impact of existing educational strategies on students (and graduates), affirm areas of excellence, and identify areas for improvement.

The CIT technique has been used both in dental education research and in other health research settings (Broström et al, 2003; Butterfield et al, 2005; FitzGerald et al, 2008a; Keatinge, 2002; Kemppainen, 2000; Mofidi et al, 2003; Norman et al, 1992; Redfern and Norman, 1999). The objective of the CIT approach is to capture a comprehensive description of an incident and the associated behaviours of the study participants in a particular setting (FitzGerald et al, 2008b; Flanagan, 1954). CIT enables participants to provide details of their learning experiences, as they perceived them, rather than responding to selected areas that are identified by others (for example, in questionnaire surveys). In this study, participants had the opportunity to openly describe their experiences and feelings concerning incidents that they recalled as effective or ineffective from a teaching and learning perspective.

3.10. Respondent validation

In qualitative research, a member check (also known as informant feedback or respondent validation) is a technique used by some researchers to help improve the accuracy, trustworthiness and credibility of a study (Thomas, 2006). In this study, after the completion of all interviews, data were summarised and respondents were invited to immediately correct errors of fact or clarify their interview responses. Interview summaries were also returned to the participants to edit or clarify the data, as they deemed necessary.

3.11. Data analysis

All recorded face-to-face interviews were transcribed verbatim, and data analysis was conducted concurrently alongside data collection. Newly gathered data were continuously compared with previously collected data. A general inductive approach was used to systematically analyse interview data and develop explanatory thematic frameworks (Thomas, 2006). In this approach, each critical incident was initially studied in-depth line by line. Key phrases were underlined and later comparisons were made to identify key patterns in the data. Data were then organised into major themes and sub-themes and a brief description with illustrative quotes was given for each theme and subtheme.

Transcripts were coded manually, and emerging themes were identified in relation to the focus of enquiry (which was the characteristics of effective and ineffective learning experiences as identified by DClinDent students and graduates) (Thomas, 2006). Coding of transcribed data was done in two phases – a scanning phase followed by a closer examination of the raw data (in-depth, line-by-line analysis). Since interviewees' answers to the two questions were often intertwined, their perspectives of "effective" and "ineffective" learning were analysed together. The process of data analysis is summarised in Figure 1. To ensure that data categories were comprehensive, data analysis ended only when theoretical saturation was attained (Patton, 2002; Thomas, 2006). Theoretical (or data) saturation is the point at which analysis reaches a closure when no new categories or incidents emerge (Patton,

2002). In this study, the achievement of data saturation was confirmed when there was redundancy in the critical incidents and no new effective and ineffective categories emerged from the data.

Data analysis in qualitative research is a non-mathematical procedure that involves systematically examining and understanding participants' experiences (Patton, 2002). Exploration, description and in-depth understanding were the objectives of this study. Hence, numbers were not used in this thesis when reporting the findings, because (unlike quantitative research) quantification, statistical representativeness and generalisations were not the objectives (Burnard et al, 2008). The prime focus of this study was rather on exploring and understanding what constitutes effective and ineffective learning experiences from the participants' perspective.

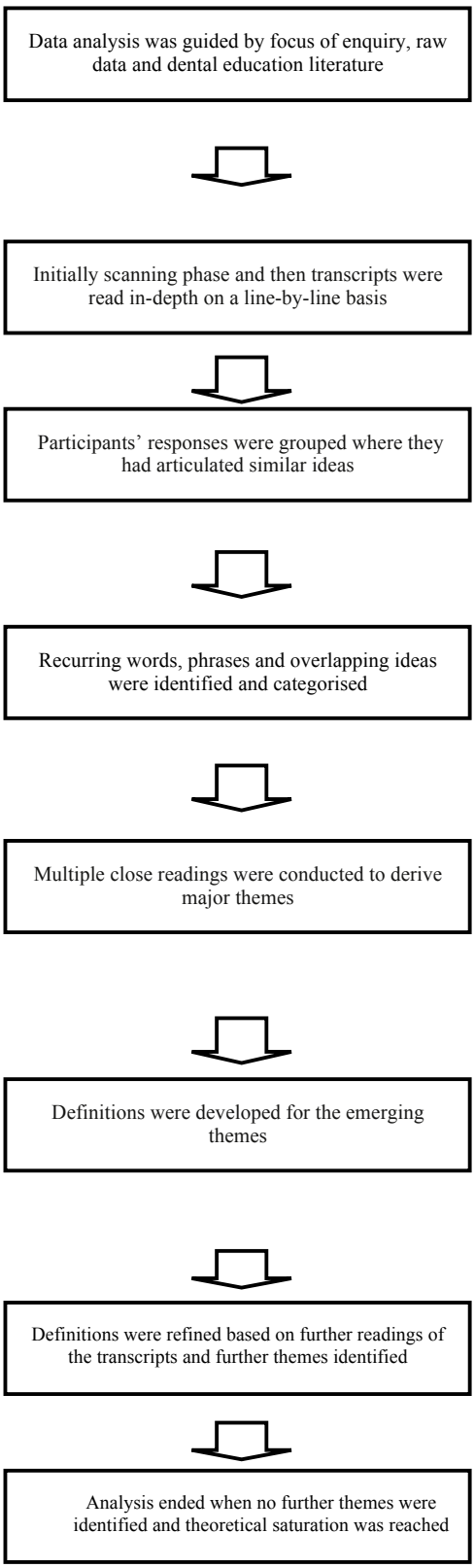

Figure 1: The data analysis process based on a general inductive approach

3.12. Triangulation

Triangulation is a method used in qualitative research to check and establish credibility in the findings (Patton, 2002). It refers to the application and combination of several methodologies in the study of the same phenomenon. According to Patton (2002), there are different types of triangulation, including source triangulation, data triangulation and analyst triangulation.

In this study, data were triangulated through attention to: (1) the perspectives of two different groups of participants - graduates and final-year students (*triangulation of sources*); (2) interview data alongside relevant scientific literature and University documents on teaching and learning (*data triangulation*); and (3) both student researcher and research supervisors' interpretations of the data (*analyst triangulation*).

3.13. Researcher reflexivity

Researcher reflexivity is a process of critically reflecting and acknowledging the effect of researcher-setting relationship, background, beliefs and position of the researcher on the research process (Côté and Turgeon, 2005; Malterud, 2001).

Qualitative researchers generally work close to the phenomenon being studied. This is because the investigator is usually the research instrument in qualitative research (Patton, 2002). As a student researcher, my preconceptions, motives, experiences, background, perspectives and the effect of these issues are now critically examined in relation to this study.

Educational background and professional experience

I am a dental graduate and currently a full-time postgraduate student at the Faculty of Dentistry in the University of Otago, New Zealand. Previously, I had worked for approximately two years as a general dental surgeon in a private dental practice setting. During the current research, I was not a full-time or part-time staff member, and I had never taught in the postgraduate clinic or supervised DClinDent research in

the Faculty of Dentistry at the University of Otago. However, as a postgraduate student, I was a peer of the student participants.

Conceptualisation of this study

One of the staff members initially suggested that I consider doing a project related to the DClinDent programme since it would benefit the Faculty and also satisfy my preference for a project in dental education. I then conceived and developed the current research proposal after reviewing and analysing a range of published dental and health professional educational literature.

Preconceptions prior to this study

When I began my postgraduate studies, I expected to have positive and fruitful learning experiences during my postgraduate training. However, during the course of the research project, I had both positive and negative learning experiences.

Researcher-setting relationship

In qualitative research, the influence of our own experiences and perceptions may be seen as both a strength and a limitation of the study (Bullock, 2010; Chavez, 2008; Dwyer and Buckle, 2009). As an "insider" to the study context, I had the following advantages. First, I had easy access to prospective participants and quickly established good rapport with them. Second, I had a good understanding of the participants' learning environment and therefore, the contextual background to their interview responses. Third, I was a peer and junior colleague to all the participants. This meant that they were able to candidly express themselves, and all participants seemed willing to share their learning experiences honestly with me. It is unlikely that participants would have been as open and honest in sharing their learning experiences with an "outsider" or a staff researcher.

However, it was important to maintain a level of disconnection in order to analyse the data objectively. With this in mind, I took the following steps to avoid making analytical assumptions based on my acquaintance with the participants, proximity to

the research context, and my own preconceptions, which were present in advance, with knowledge emerging from this research project. First, I asked participants to report on both effective and ineffective learning experiences, and I maintained a focus on both aspects during data analysis. Second, I endeavoured to maintain a focus on the participants' learning experiences (rather than my own) by emphasising their voices in research reporting. Third, I considered the research findings in relation to the existing scientific literature and related DClinDent course and University policy documents on teaching and learning. Fourth, a three-member supervisory team with rich and diverse educational, professional backgrounds and experiences in qualitative research, including educational, epidemiology and dental public health research, guided the research process. After the initial analysis was completed, my research supervisors critiqued my interpretations by suggesting alternative interpretations and findings as they saw fit. Extensive discussions and consultations were undertaken and supervisor feedback was sought and obtained during all the stages of the research process.

3.14. Study funding

This study was partly funded by a Faculty of Dentistry Research Scholarship Award (Appendix K).

The next chapter (Chapter 4) describes the research findings, paying particular attention to participants' voices in relation to their perceptions and experiences of effective and ineffective learning in the DClinDent programme.

CHAPTER 4. RESULTS

This chapter is divided into four major sections. The first section (4.1) describes the demographic characteristics of the participants and also the terms used in this chapter. The latter three sections (4.2, 4.3, and 4.4) discuss the major themes that emerged in participant interviews: approaches to supervision; characteristics of the learning process; and characteristics of the physical learning environment. Throughout the latter three sections of this chapter, themes and subthemes are illustrated through the use of *verbatim* quotes to emphasise participants' voices in relation to their dental educational learning environment and experiences. In order to represent the complexity of the research data, contrasting perspectives are included where indicated by the participants, and alternative interpretations of participants' perspectives are acknowledged.

4.1. Summary of participants' demographic characteristics and terms used in this chapter

Twenty participants were interviewed between June and December 2010. These included sixteen DClinDent students and four DClinDent graduates. The demographic characteristics of participants are summarised in Table 3.

Table 3: Overview of participants' demographic characteristics

Criteria	Participants' characteristics
Representation from different disciplines	Participants represented all of the ten DClinDent specialities currently offered at the University of Otago.
Sex ratio of participants	In total, eight male and twelve female dentists took part in this study.
Age of participants	Participants' ages ranged from 26 to 45 years.
Ethnicity of participants	Four participants identified as New Zealand-Europeans, while the remaining sixteen participants identified as Australian, Malaysian, Korean, Saudi Arabian, Indian, Pakistani or Chinese.
Undergraduate dental education	Nine participants had studied undergraduate dentistry at the University of Otago, and eleven participants had received undergraduate degrees from other countries, including Australia, Malaysia, India and the United Arab Emirates.
Clinical experience	All were qualified dentists and had between one and sixteen years of clinical experience before joining the DClinDent programme.
Research experience	Only one participant had graduated with a research masters degree prior to enrolling in the DClinDent programme.

Before introducing the research findings, an explanation of the terms used throughout this chapter is necessary. The meaning of "supervisor" and other terms is explained in Table 4.

Table 4: Description of terms used in this chapter

Term	Explanation
"Supervisor"	The term denotes any staff member who provided clinical and/or research direction and support for the participants and is also referred to by other terms such as instructor, tutor, lecturer, staff, and faculty.
"International participant"	The term refers to participants who had completed their undergraduate dental training outside New Zealand.
Learning in the "clinical" context	The term refers to learning within the context of all patient treatment clinics, hospitals, and operating theatres in the dental and medical school, and in any other patient care centre where the DClinDent students had their clinical practice and observation sessions. It also includes assignments, clinical and conference presentations, seminars, journal club sessions and any other activity within and external to the DClinDent programme directly or indirectly related to the provision of specialist level patient care by the participants.
Learning in the "research" context	The term refers to clinical, laboratory, or any other research activities undertaken by the participants, as part of the thesis and research-informed clinical practice requirements of the DClinDent programme. It includes thesis writing, assignments, conference or research presentations, seminars, journal club sessions and any other learning activity within or external to the DClinDent programme and directly or indirectly related to participants' research work.

Participants were asked to recall and share an effective and ineffective learning incident that occurred during their postgraduate dental education. All participants responded fully to the questions, describing effective and ineffective incidents experienced in both clinical and research contexts. Most of the participants had read the interview questions beforehand and came to the interview prepared to discuss learning incidents that they had found effective and ineffective in the DClinDent programme. Broad themes that emerged in participants' accounts of effective and ineffective learning experiences related to: approaches to supervision, characteristics of the learning process, and characteristics of the physical learning environment. Although the interview questions intended to primarily explore participants' perceptions of their learning experiences that they found effective and ineffective, in many instances participants indicated that certain teaching and/or learning characteristics also had a positive or negative emotional and personal impact. In participants' accounts, personal wellbeing and learning experiences were intertwined. Participants indicated that they valued and benefited from self-directed learning experiences, but that their learning experiences were largely influenced by the supervisor's approaches towards teaching and learning. Because participants' accounts of effective and ineffective learning experiences were closely related, their perspectives of approaches to supervision, and characteristics of the learning process and physical learning environment associated with both effective and ineffective learning and wellbeing are discussed concurrently.

In the next section, supervisory approaches that emerged in participants' accounts of effective and ineffective learning incidents within the DClinDent programme are discussed.

4.2. Approaches to supervision

Supervisory approaches emerged as a central factor promoting effective or ineffective learning experiences in the DClinDent programme. Almost all of the participants mentioned "approaches to supervision" when recalling effective and ineffective learning incidents. When describing learning incidents, most of the participants indicated that their learning was effective when they had: practical demonstrations from supervisors during their initial years; a cordial ongoing working relationship with supervisors; and supervisors who took an encouraging and consistently supportive approach when complex situations arose in research and clinical contexts. Conversely, participants indicated that learning was ineffective when they had: unsupportive supervisors, supervisors who failed to provide adequate demonstration or mentoring opportunities, and supervisors who had an aggressive, discriminatory and/or culturally insensitive approach in clinical and research contexts. While participants valued demonstration and guidance from supervisors, some participants suggested that self-directed learning efforts were also effective to a certain extent. This contrast is addressed in detail in the next section of this chapter (4.3). Participants' perspectives of how supervisor approaches and attributes influenced their learning in the DClinDent programme are summarised in Figure 2.

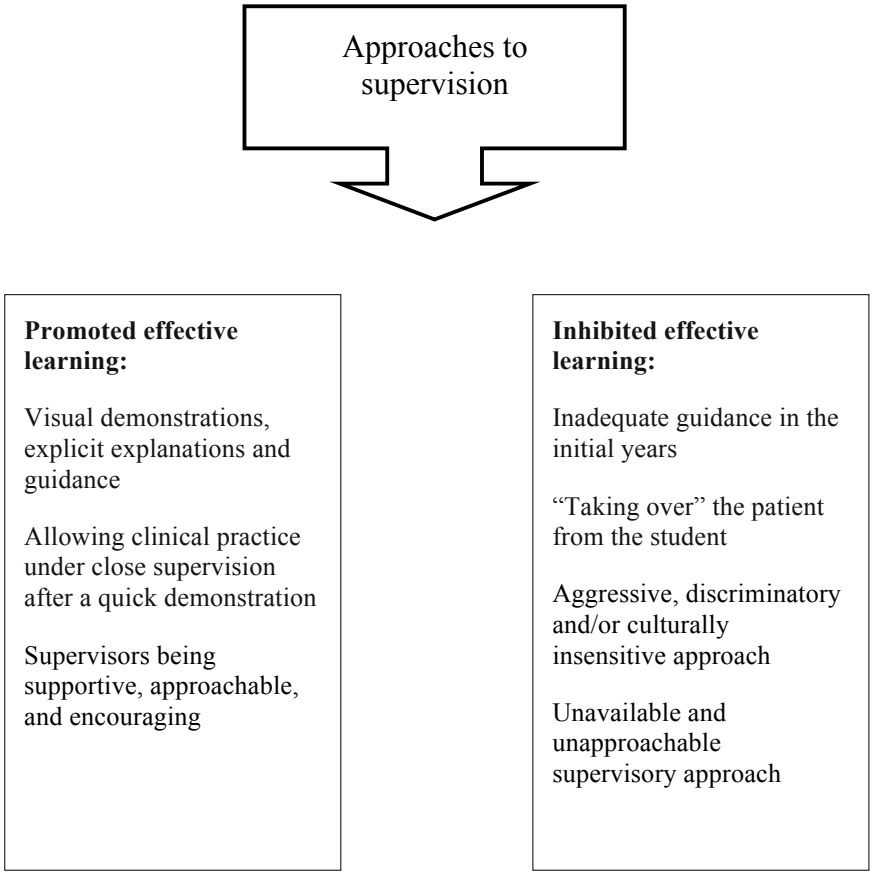

Figure 2: Approaches to supervision that participants associated with effective and ineffective learning incidents in the DClinDent programme

4.2.1. Visual demonstrations and explicit explanations versus no guidance in the initial years

Most of the participants emphasised that, when their clinical and research supervisors guided them with demonstrations in their initial years and provided ongoing support, it made their learning effective. They indicated that demonstrations of techniques with explicit explanations by the supervisors was effective because it helped them to observe, understand and effectively learn the nuances of technical and clinical procedures directly from supervisors. While many participants emphasised that explicit guidance and detailed explanations by the supervisors in their initial years helped them to independently and competently handle similar complex situations in the future, some suggested that, in specific clinical contexts, learning was effective when they had the opportunity to do advanced clinical procedures under close supervision after a quick demonstration by the supervisor. Participants also underlined the importance of ongoing mentoring in the form of close supervision and guidance even after initial demonstrations. The importance of this supervisory approach was emphasised equally in clinical, academic, and research contexts by both students and graduates. In contrast, many interviewees indicated that the absence of explicit guidance from supervisors during their early stages did not facilitate effective learning in the context of both clinic and research, and led to delays in the progress of research.

Most of the participants identified one-on-one help, explicit guidelines, and visual demonstrations from supervisors in their early stages of the programme as providing an effective learning experience. They also stressed the value of ongoing supportive guidance because it built up their existing clinical and research skills and confidence.

> Especially research related stuff like microbiology, usually we are clueless about it, so you really need someone to show you, like, from the very initial step 'til the end; the whole. And you learn. I learned from them, and then I did couple of, like, pilot study in batches, so I was able to do it then myself everything. But I really needed someone to show me everything for the initial stages, and the supervisor was really helpful. (Participant 10, student)

Additionally, students and graduates suggested that it was important to have guidance and demonstrations from staff, especially during their initial stages in the programme, so that they could progressively work towards independence in the final stages of the programme.

> It's a good experience if they get involved and help with the treatment planning, and demonstrate in the first year, and as we go through the programme, like, there will be less involvement with the supervisor, like, in the final year, but in the first year, I hope to receive greater supervision and support. (Participant 11, student)

However, some participants suggested that, in the later stages of the programme, they learned most effectively when staff treated them as colleagues or equal partners.

> In first year, they guide you a lot more; and second year, they start questioning what you would like to do, and direct you if you are wrong; and then in third year they tell essentially say, okay, you tell me what you think is the best thing to do for your patients, and you tell them enough and if you're wrong they will let you know, but I think that that's a really good way that they balance learning and teaching and allow you to treat the patient your way. (Participant 13, student)

Many participants indicated that they learned in-depth by capitalising on the previous clinical and research experience of their supervisors. They highly valued practical tips and demonstrations from supervisors and emphasised that this sort of information may not be available in any journal article or textbook. This initial guidance from the supervisors helped the graduates to effectively deal with complex clinical situations when they were independently working in their specialist practice.

> They gave practical tips that were very valuable, things that can never be read anywhere else. It happens mainly when tutors get their hands wet and show us something. It gets stuck in mind and helps later, staff lead us by example and clinical case presentations by tutors also helps sometimes but not as much as a live demonstration by staff... later on we can carry ahead on our own. (Participant 18, graduate)

Although participants generally valued guidance and demonstrations from supervisors, a few participants highlighted that, in certain clinical situations, learning

was effective when the clinical supervisor allowed the student to continue with the advanced clinical procedure, under "close supervision" after a "quick" demonstration, instead of the former completely taking over the situation. Some participants' valued this teaching approach because it improved their confidence level while minimising the possibility of harm to the patient because they were doing the procedure under the close supervision by clinical staff.

> My supervisor actually sat down, step by step showing me, and she actually allowed me to do it as well rather than just sit beside and watching her, so that was quite a good teaching experience... There are two types of supervisor. One is just to take over and do the whole lot, and you sit there like an idiot. The other one is actually she shows you, and tells you that you go ahead, and I like the second part... Like my supervisor didn't just take over. She actually allowed me to go just ahead, but she still keep me under her supervision. (Participant 1, student)

On the contrary, many participants highlighted that learning theoretically from textbooks or journal papers without any initial demonstrations from supervisors, especially in their early stages in the programme, was an ineffective learning experience. They asserted that a lack of sufficient guidance during the initial stages was ineffective, and even led to undesirable consequences such as delays in the progress of research.

> If they don't show it the first time, it's not going to make it easy, like, if you just give me a piece of paper and then instructions and say, okay, follow this, do the experiments, show me your results that – that won't help... but an effective way of saying that would be - oh this is what you should do, and I will show you the first time, and then you do it, and then I will tell you whether you did it right or you did wrong... In ethics or grant applications, they just say go apply for ethics or go apply for grants; they don't really tell like you should go for this type of ethics because you are dealing with fresh tissue samples or you should apply for another ethics because you are doing lab work. But they didn't tell that, so I find that experience ineffective because I did it the first time, I am new to all this and then it happened that was not the right one and had to later apply for another ethics, so it was a sort of like wasting time. (Participant 2, student)

With respect to the facilitation of clinical seminar sessions, some participants highlighted that it was important to have a tutor with up-to-date working knowledge

in the area to facilitate a seminar and guide the discussion, especially during their initial years.

> I think I spent a lot of my time, especially in the first half of first year trying to figure out what I should be reading in order to prepare for any given seminar... for the vast majority we weren't given any guidance on where we should be looking to read... when you first start, the literature is so vast, you don't even know where to begin... If you are reading a textbook... I think you run the risk of getting a one-sided view of the literature that is out there. I think a good way to do it would be, if we are given a list of papers to read, which were carefully selected so that we got a balanced view of the research area, and have those seminars be facilitated by someone who knew that research area quite clearly. (Participant 8, student)

Participants emphasised that the absence of timely guidance from supervisors inhibited effective learning, and they were unable to adequately obtain an unprejudiced view of the clinical topic. They pointed out that, if the supervisor did not provide a reading list for the seminar sessions to guide them (especially during the initial years in the programme), it hampered their learning.

4.2.2. Supportive, approachable and encouraging supervisory practices versus unavailable, aggressive, discriminatory and/or culturally insensitive approaches

Apart from having technical demonstrations from staff during their initial years, most of the participants reported that, when supervisors were encouraging by giving ongoing support, it increased their self-confidence and made their learning effective. Participants emphasised the value of a good working rapport with supervisors throughout the duration of the programme, because supervisors' ongoing encouragement, nurturing and personal support facilitated learning in an effective manner. On the contrary, many participants articulated a view that the absence of a respectful attitude and professional approach by some supervisors had taken a significant toll on their personal wellbeing, and directly affected their learning. When responding to ineffective learning incidents, some international participants indicated that some staff members' insensitivity towards their cultural, educational and social backgrounds inhibited both their emotional wellbeing and learning in the programme.

Students suggested that a social learning environment marked by respect and cultural inclusion would be more likely to facilitate effective learning.

The importance of supervisor support and approachability emerged from participants' responses in relation to clinical learning contexts. Participants highlighted that guidance and additional insights from their clinical supervisors were helpful in promoting the effective management of complex cases, both in the clinic and in the operating theatre.

> I feel that whenever that guy is there, I can do anything I want, as he is very approachable... Okay, and if something went wrong, he is there to correct it or to help me correcting it... He didn't think that you know like, I am post-grad, I am supposed to know this or he didn't look down at me, you know, he reacted as okay, this is a someone who wants to learn something new, I have to teach him. (Participant 7, student)

The importance of availability of ongoing supervisory guidance and support was also highlighted in relation to research contexts. Since the great majority of participants did not have previous research experience, ongoing support and encouragement from supervisors promoted participants' effective learning experiences. Many participants indicated that they could learn effectively when they had assistance from the supervisor to troubleshoot technical research-related problems.

> I found learning in microbiology lab effective... we never know how to, like, do cultures and stuff, so the supervisor really helped me in that area showing me how to do cultures... they were really kind, and even if I forget it after, like, a few weeks they repeatedly taught me again and go step by step with me... Always remaining supportive, and always if there is anything, they are always around. (Participant 10, student)

On the contrary, participants indicated that the non-availability of clinical staff inhibited clinical learning, and delayed the progress of patient treatment in the clinic. This happened especially when the student got stuck in a complex clinical situation and could not find the clinical tutor for assistance and support. In certain situations, some participants indicated that, even if the clinical tutor was available in the clinic, he/she did not come to offer assistance and guidance for the student, even when

called. Students found that this compromised their learning and, in some cases, patient treatment outcomes.

> Usually, autistic persons, they can only be there for about 5 minutes sometimes... sometimes you get stuck, you can't find your supervisor for guidance and we have to send the patient home. (Participant 9, student)

> At the beginning... I assumed that everyone is there to help and everyone is saying that he or she are there for help... And with time it happens, like, if I have a difficulty in the case and I go to talk to that supervisor, the supervisor will say... Okay I will come in a while, and I am busy with that student and that while never happens. (Participant 7, student)

Some participants reported that some clinical tutors were not easily approachable, and were hesitant to offer assistance in the clinic. Participants perceived these tutors as expecting the student to be "always and already" fully independent. The non-availability and non-approachability of some clinical staff resulted in compromised clinical learning experiences for some participants.

> Because other staff you know think, like, you are supposed to know this, you should do it by yourself, or what are you talking about, how do you don't know, you should know or may be others do react in a way like I am busy right now, you start and I will come later and see what are you doing, but that later never happens. (Participant 7, student)

Many participants indicated that the lack of a respectful attitude and professional approach by some supervisors took a considerable toll on their personal life and affected their learning. Some participants felt that specific supervisors had bullied them, and noted that this had a direct impact on their learning. Some participants also considered leaving the DClinDent programme because of the intimidation and a lack of courtesy experienced in day-to-day interactions with some supervisors.

> Personality of specific tutors was awful... We were made to feel like we knew nothing and we were worthless... This affected my self-esteem and confidence... There was swearing, and an aggressive approach by many tutors... We were mostly told things in a demeaning way and I felt like quitting the programme... it had a negative spin effect... We were made to feel like we are crap, it was an absolute disrespectful behaviour... I feel tutors should be less aggressive and more respectful and should not put down the

> students... I feel this sort of behaviour could be seen as bullying students. (Participant 18, graduate)

Some international participants highlighted some staff members' limited understanding and appreciation of students' unique cultural, social and educational backgrounds as contributing to ineffective learning incidents both in clinical and research contexts.

> You have to understand that, in the postgraduate education, the level of entry varies and people come from different culture, background, working experience, career experience, some are clinicians, some academician, and some are just freshy graduates; so their level of communication and thinking maturity are not the same. Somehow when it comes to this programme there is a very high expectation that you have to achieve this, you should be able to be good at this, and I mean, I know this is what we come here for, to be excellent but the starting point is not the same, so I don't think it's fair to expect everybody will be able to run on the first day itself here. I think the path on communication skills can be improved here in the sense that probably, I think most people though they recognise the different cultural background, different experience, but they cannot appreciate and value it. They could not see the essence of it you know, you are facing human beings with different backgrounds - they are unique, they have different factors social, economy, financial, that should be appreciated rather than just only poor remarks like this is the standard here you know. (Participant 3, student)

In contrast, some international participants indicated that their learning would be effective if each student were supported, and nurtured by supervisors in an inclusive manner that recognised and addressed students' individual strengths and weaknesses.

> It is okay to have a standard but you should tailor-make the path to achieve it to each student and say well for this person I should be able to appreciate him in his way, not to bend the rules, but to be able to have more humanitarian way. (Participant 3, student)

In instances where the student had poor communication skills, especially because of having English as their second language, some international students suggested that if staff understood their communication difficulties, it would create a more supportive learning environment which was likely to contribute to their effective learning.

Hence, participants implied that if a supervisor was thoughtful, and considerate and/or sensitive to their cultural backgrounds, linguistic issues could be overcome.

> Probably day-to-day interaction with the staff was very difficult.. because probably there is some lack of communication in my part, it's quite difficult for me to put forward my views because, I think my, probably in a way it's the, probably language is quite a difficult thing for me and they don't understand all this... I think for me because English is my secondary medium of communication, secondly, the supervisors are hard to be approached too, like probably they just say they don't have time for me and most of the time they are quite busy and secondly, sometimes it was difficult for me because I could not understand what was the point that they was trying to convey to me at times. I don't know why they take us here if they can't tolerate us. (Participant 4, student)

Many international participants highlighted that a discriminatory approach inhibited their learning, as they perceived that certain staff members did not treat them equally to their "local" colleagues. Furthermore, some international students indicated that they felt afraid to contribute actively to seminar discussions for the fear of being discriminated against, if they mentioned something wrong.

> I didn't do my bachelors here, I am an overseas student as they say, so they think that if you are not, this is a general thing among all of them, if you are not an Otago Graduate, you know nothing. Regardless of the place you are coming from. If something happens wrong or something went wrong or I will hear an expression or something that means that if the student was an Otago graduate, he will not do this mistake, this happens several times... The thing is that because of this when I had some difficulties or when I had questions, I hesitated to ask. Because they will think, they will again start to imply that he didn't study in Otago, so it is expected that he doesn't know... I was always silent and I didn't involve myself into discussions and if I did, they didn't consider me or consider whatever I am saying to be something reliable or worth to talk about. (Participant 7, student)

Some international students felt that this fear of "discrimination" within the DClinDent learning environment had had a significant impact on both their academic progress, and their personal lives while studying. Some participants had even contemplated quitting the programme because of perceived discrimination.

> I feel that we should be given some more respect you know, professional attitude is not there with some staff here, I have come here a long way assuming that we would have a fantastic learning experience but no it never happened mostly, they don't value us I think... I know it's not only me but many of us feel international candidates should be treated better, yeah, at least equally to others students from here... The supervisor always talks to me in a very rude way, but if the supervisor is rude to all of the students, this is not discrimination it is just a personality of the supervisor, but again with people who graduated from here even if they do a big mistake, it was ignored, so that is why I felt discriminated... I didn't really actually even want to come to this building. I hate it myself when I was coming to the school because nothing worked for me here. This is affecting me not just emotionally, it is affecting my studies. I just wanted to quit ... It just put me down; I have lost my confidence after coming here and affected my productivity overall.. I just feel sorry for myself for having come to this school... I am depressed. (Participant 10, student)

International participants from many disciplines emphasised that cultural insensitivity on the part of academic staff and a sense of being devalued within the programme made them reluctant to recommend the programme to their colleagues and friends in their respective home countries.

> We are from a different background... I feel helpless that we are being treated differently like this... I feel there is less tolerance to students from other country backgrounds... I will never let this happen to any of my friends back home in the coming future. (Participant 4, student)

> I was left out and felt discriminated... I was surprised at all this... I thought that I am coming to one of the first world countries and things should be different here and everyone should be professional, but it's not, so the thing is when now anyone of my friends or colleagues from back home ask me, do you think that I should come here, I said no, I advised strongly don't think about coming here at all. (Participant 7, student)

> I don't think I will tell about this programme to anyone... There is always the VIP treatment for people who did their bachelor's degree from this school. So, there is that discrimination and it can really put off the graduates from overseas. It will be maybe still appealing for the local graduates, but definitely not for the overseas graduates. (Participant 10, student)

Participants indicated that such poor treatment of students could affect the international reputation of the Faculty, and a learning environment marked by a humanitarian approach and cultural inclusion would be more likely to facilitate effective learning. In contrast, participants suggested that effective learning could be better facilitated if all staff maintained a professional, tolerant and humanitarian approach towards international (and all) students.

In the next section, participants' accounts of "characteristics of the learning process" linked with effective and ineffective learning incidents in the DClinDent programme are discussed.

4.3. Characteristics of the learning process

Characteristics of the learning process emerged in participants' accounts of critical incidents within the DClinDent programme as a further factor promoting effective or ineffective learning experiences. Almost all participants made reference to certain characteristics of the learning process when recalling effective and ineffective learning incidents. When describing learning incidents, they indicated that learning was effective when there were adequate opportunities for: interactive learning sessions and discussion with staff and peers; constructive and timely feedback; interdisciplinary approaches to the treatment of complex multidisciplinary cases; exposure to multiple clinical opinions from the clinical supervisors; sufficient clinical practice sessions; and undertaking clinically-oriented research and assignments as part of the programme. While many participants emphasised the importance of peer and staff supported learning, they also valued self-directed learning efforts as facilitating effective learning in certain contexts. On the other hand, many emphasised that unsupported learning, destructive criticism and delayed feedback, poor interdisciplinary coordination, the adoption of "standard patient treatment" strategies, inadequate exposure to complex cases, and an over-emphasis on research at the expense of clinical work inhibited effective learning. Participants' perspectives of the ways in which learning process characteristics influenced their learning in the DClinDent programme are summarised in Figure 3.

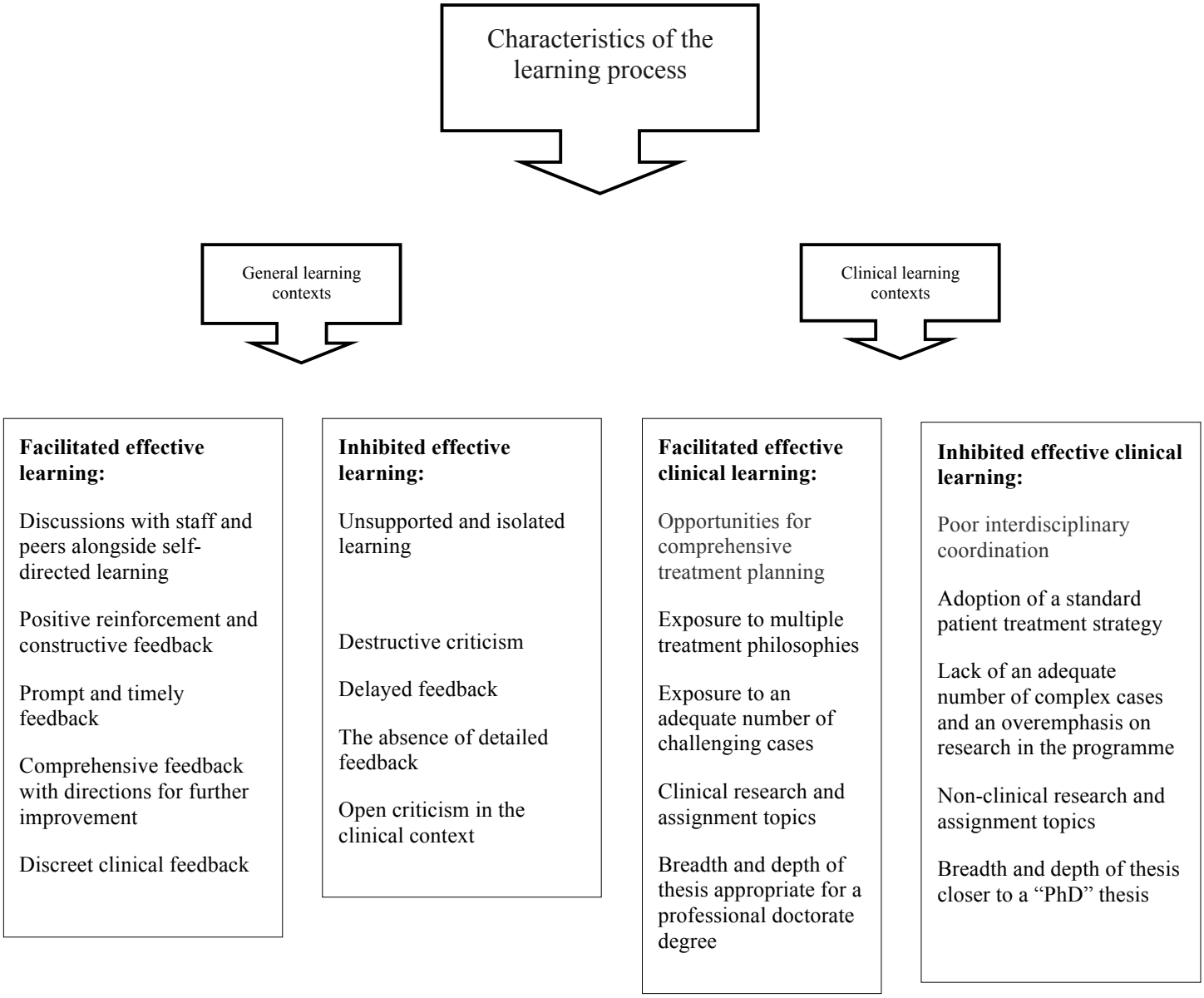

Figure 3: Characteristics of the learning process that students associated with effective and ineffective learning within the DClinDent programme

4.3.1. Learning processes in both clinical and research contexts

In this section, learning processes that participants identified as promoting or precluding effective learning in both clinical and research contexts are discussed. When recalling effective and ineffective learning incidents, most of the participants emphasised that learning processes were effective when they included adequate opportunities for interactive discussions with staff and other postgraduate student colleagues. Most participants suggested that discussions (especially during case presentations and journal club sessions) encouraged critical thinking and in-depth understanding of the subject at hand.

Although participants emphasised the importance of learning from staff and colleagues and valued the guidance and support provided by their clinical and research supervisors, some perceived that, in many circumstances, effective learning could also result when students took control of their own learning. Some participants perceived self-directed learning (where the student takes the initiative and the primary responsibility for his or her own learning) to be effective in the postgraduate context, in certain situations. These are discussed below. On the other hand, many participants suggested that learning was ineffective when there were fewer opportunities for active discussions. Many participants highlighted that although the DClinDent was a postgraduate programme, learning could not take place in isolation and that interactive sessions with their peers and staff members (alongside self-directed learning) were imperative for an effective learning experience.

Constructive and timely feedback from the supervisors with suggestions for further improvement was another important learning process that most of the participants associated with an effective learning experience. Apart from directly influencing their learning, constructive feedback from the supervisors had a positive impact on participants' personal and emotional wellbeing. Conversely, most of the participants highlighted harsh criticism, delayed feedback, and a lack of direction for further improvement as precluding effective learning. In the clinical context, many participants implied that discreet feedback given by the supervisors in a private setting facilitated engagement with the feedback.

4.3.1.1. Discussions with staff and peers alongside self-directed learning versus isolated/unsupported learning experiences

Participants articulated several reasons as to how interactive learning processes were effective. First, they indicated that, when staff facilitated a process of active learning and challenged them with appropriate questions, it opened up their minds and stimulated critical thinking, because they had to defend their work. Second, participants underlined that this interactive learning process was effective irrespective of whether one was the presenter or a participant in discussions that took place during seminars and presentations since the discussions involved openly sharing ideas and challenging presenter and participants' thinking. Third, students acknowledged the benefits of being able to question the thoughts of their peers and staff members. Participants found it effective when a trained facilitator in seminars and journal clubs supported the seminar and clinical/research presentation sessions. Fourth, participants suggested that this interactive teaching approach provided sufficient learning opportunities, and a suitable educational environment in which to understand, critically analyse, and reflect on their learning experiences.

> The most effective [was] probably during a seminar with X ... and my perception of and understanding of... the disease itself changed dramatically after that discussion and thinking because the understanding I gained was different and I had developed a new insight ... during the presentation, our discussion, it sort of makes you think during the time and ponder upon what you know already. (Participant 4, student)

> We present to the department ... and if there are other treatment options then those are discussed and I think that's a really effective way to teach because rather than just coming up with a treatment plan on your own. You learn from everybody else's input... I think we all have the opportunity to say what we feel, and no one is judged according to what they think is an option. We have the ability to question, think and reflect on those discussions here, so you don't have to straight away say I think my plan will work, so you can say this is an idea I have, do you think it will work and you get feedback which I think is very good. (Participant 13, student)

Fifth, participants indicated that discussions with their colleagues were effective learning experiences since discussions promoted active collaborative learning, the sharing of expertise, and opportunities to learn from each other's mistakes and

problems. Students also valued the learning interactions with their colleagues more than learning directly from textbooks/journal papers, because such interactions promoted critical thinking, reinforced and consolidated their basic understanding of key concepts, and enhanced in-depth learning. This was especially appreciated in a clinical and academic context during clinical case, assignment or journal club presentations.

> I would have to say the discussions within our discipline; if we have to present a case to our colleagues, I find I learnt an awful lot from that because it gives me the opportunity to go and analyse the work that I have done and it's an opportunity that I have to go and examine the literature that support or not support the treatment that I have carried out and that information tends to stick a lot more than if I was directly learning something. (Participant 8, student)

> I think with our programme it's very reliant on the other graduates in your course, so when I was a first year, we sort of learnt a lot from the second and third years and now that I am in third year, I am helping the first and second years but I am also learning from them by doing, like, their treatment planning, and say may be I would do it this way and how and by teaching someone else you kind of learn yourself of how to do something because you have to be clear in your mind, how you will do it and why you will do it, to explain to them why you would do it this way. (Participant 15, student)

Sixth, participants reported that they received constructive feedback from their peers during presentations, and this helped them to further refine their work. Participants indicated that peer feedback encouraged them to develop the skills to self-assess, and to critically analyse their own work as well as the work of their colleagues.

> Case presentation is a situation where you can actually show off your skills and understanding and when something goes terribly wrong, you can be honest and show it to your colleagues who will give you positive or negative feedbacks... Well, when I first started case presentation, if someone gives you negative feedback, I took it as personally as I could, but as you get older and you get more matured, I actually evaluate seriously most of the feedback from my case presentation from my colleagues these days. (Participant 5, student)

Seventh, participants indicated that these interactive discussions, and being challenged with questions when presenting to staff and colleagues developed their self-confidence and public speaking skills. Participants asserted that sharing knowledge with their colleagues at the Dental School prepared them to give presentations in bigger platforms, and to wider external audiences after they had graduated as specialists. Presentations also developed the necessary skills for teaching their junior colleagues.

> We had these multidisciplinary presentations... it was more interactive along the way itself and staff would interrupt right in the middle and challenge you with questions and you know, you have to defend the statements with literature. These interactive discussions with staff and peers really helps a lot for public speaking ... Mainly the tutors threw a lot of questions, and we were challenged. You learn to teach yourself here and later you feel confident to teach even others. (Participant 18, graduate)

While participants emphasised the importance of guidance and support from staff and colleagues, some participants perceived that, in certain contexts, it was effective when they were the driving force for their own learning. Participants articulated several reasons for the effectiveness of self-directed learning in the postgraduate context.

First, they reported that self-directed learning was valuable because it motivated them to evolve as independent thinkers and practitioners, rather than considering themselves as an empty vessel to be passively filled with knowledge by their lecturers. Although participants indicated that they initially found self-directed learning relatively difficult, over time a self-directed approach helped them to manage their own learning experiences to a certain extent.

> I think this programme is largely self-directed; you get out what you put in. It's not people providing you with information that you need to learn. It is facilitating you teaching yourself certain things. You have got support and people we can seek advice from, experts, around us but if you don't ask the questions, if you don't put yourself in that position where you're going to learn something then you probably won't learn anything. And I think it is fine at this level. (Participant 8, student)

> Research project we do here is definitely fully student driven. We get only suggestions and advice from supervisors and we carry out the rest by ourselves. This helps us to work

> out problems, and yeah, mainly we develop independence, independent thinking and working here. (Participant 20, graduate)

Participants drew a distinction between self-directed learning expectations within the DClinDent programme and their undergraduate learning experiences, where information was mostly "fed" to them through lectures.

> This is a postgraduate experience and it's different from an undergraduate experience. I think here it all depends on you and you are the one who decides what is and what to do, and you are the driving force of the situation. (Participant 4, student)

> Seminars are here design[ed] in a way that is not a spoon-feeding. I mean it is quite a big step from undergraduate level to the postgraduate level and lot of us found it very difficult at the beginning in the course when we started. Our seminar has actually been designed in a way that we can go and look for journal articles. (Participant 5, student)

Second, interviewees recognised the value of self-directed efforts, suggesting that having to find justifications and rationalisations for each step in both their clinical and research work facilitated in-depth learning. They acknowledged that learning was a process that was ongoing and lifelong, and that the most important objective in learning was the deep understanding and insights gained through their self-directed efforts.

> Well it's not just the feedback we are getting from the staff and the colleagues; it's the process you go through to put the presentation together. Because in order to present a case effectively, it's not just about cropping photographs and making a PowerPoint. You have to understand the basis for your treatment otherwise you won't be able to support the techniques or put the treatment plan that you carried out. So it provides a golden opportunity to really learn in-depth [about] that particular problem that [the] patient may have had. (Participant 8, student)

Participants indicated that all self-directed learning sessions in postgraduate settings (such as case/assignment presentations and journal club sessions) were effective in promoting in-depth learning and understanding rather than plain memorisation of facts or concepts.

> They don’t teach us exactly what it is and they don’t give us black or white answers, but they allow us to think and allow us to go back and look for more articles or evidence based studies... I mean, when we first started, we think any journal was a good journal. As you go through.. it is a huge learning curve... Effective in a way, what I mean by effective, is if the information stuck to your brain for the rest of your life, I mean, if you just cram to study to pass your exam, yes, it will stuck in your brain for may be hopefully for only until the exam is finished.. but the effective learning what I say is in the fundamental that you understand more so than how you do it, it is more that you figuring out the fundamentals when you try to realise what is the reason behind it. (Participant 5, student)

Third, participants reported that self-directed efforts developed their problem-solving skills. They outlined how self-directed efforts had facilitated learning effectively and helped them to successfully manage clinical and research problems by themselves using a combination of reflecting on previous knowledge and analysing the current situation critically.

> Every time you decide on a treatment plan for a patient and sometimes you may get it right and sometimes you get it wrong. You kind of take something away from that and say okay, I can't do this in this situation so may be next time I could try this, to see if it works, so it's almost like elimination of what you can't do in a bad situation... so you learn things that you can't do and then you slowly piece together the puzzle and then you learn what you can do... I think with research I found that it's quite a big learning curve and, like, because when we start the programme, we don't know anything about research... and then I think you almost learn by your mistakes, so you learn by if you don’t do this, you know, properly then you may get this consequence. (Participant 15, student)

Although participants valued self-directed learning, they differentiated between self-directed and unsupported learning, indicating that unsupported learning was largely ineffective. Participants emphasised the value of a supportive framework in the programme (with appropriately facilitated seminars, presentations, assignments and journal clubs) that allowed them to ask questions, discuss issues with their colleagues and seek external support when they required it.

> Only in year one that I have received a formal seminar from the lecturers. However, the seminars given, which related to my specialty was done on the undergraduate level, no interaction. In Year 2 and 3, it was even worse, there were no seminars and discussions whatsoever from the faculty... I was a self-learner totally and not even a bit of support and guidance from the faculty... As an international student, I came from far away hoping for an excellent learning experience from well-known university but such a waste of money and time, learning it all only by myself... This incident just shows that this university only favours financial rather than giving good education to the students. (Participant 19, graduate)

> The structure of the course wasn't set in concrete when I started it out. This leads to ineffective learning... It's like if you don't have the information and you haven't been given a timetable, it's very hard to point out what you should be learning at what time... I actually complained and said this is just ridiculous, and you need to actually structure it better... It's not structured but that I guess it's something because it's a new course. (Participant 6, student)

Moreover, participants saw the opportunity to ask questions in these interactive sessions as being an asset, and highlighted that the absence of such opportunities undermined their understanding (for example, in undergraduate-style didactic lectures). They indicated that one-way interactions with staff and staff who were dictatorial and confrontational, or who did not encourage questions and discussion during presentations and seminar sessions, precluded effective learning.

> We've recently had a staff remember who came to our university from another place and all of the post-grads... found questioning just was not an option, and anytime you asked a question it was seen as confrontation... it was more of a didactic, like, this is what I say, this is what you do, and you just have to do it... I felt that we couldn't learn because we were being told you can't ask and that's it ... I think it was ineffective learning because all of the postgraduates felt so uncomfortable to ask and in fact you ended up totally self-teaching because you couldn't ask and discuss. (Participant 13, student)

> In the beginning of first year, I was told to do a particular procedure on a patient and then when I tried to, like, ask and discuss the reason for why we are going to do this or what is the reason behind... the supervisor said - because I said so... I was, like, told off from the same person couple of times, like, because I said so, or just do it like that. I was really upset that there is no discussion and I just quietly went and did my procedure I was told to do because again I cannot go against my supervisor... I can always look up later but some stuff you really don't get it in books or papers and it really needs some experience

> to comment... it totally defeats the purpose of supervisors in clinics... I think if there was little discussion or even if it was, like, - we can discuss it later, it would have been better. (Participant 10, student)

Hence, participants asserted that their learning experiences were largely ineffective when a supportive learning environment, including access to and availability of suggestions and advice from supervisors/colleagues, was inadequately established.

4.3.1.2. Positive reinforcement and constructive feedback versus destructive criticism

Positive reinforcement was highly valued by most of the participants as facilitating effective learning. Participants articulated the effectiveness of constructive feedback from the supervisors, when clinical and research supervisors were balancing the amount of positive and negative comments in their feedback to students. Participants emphasised that ongoing encouragement and nurturing by reinforcing strengths helped them to be more receptive to the feedback, and to better engage in their learning.

> First understand what the student is trying to say and see whether the student is making any sense and if they are saying something that is sensible just comment on the positive side at first, encourage them, and then slowly let them see what their negative points are or then comment about what they have not said. (Participant 14, student)

Participants asserted that they were more likely to absorb and engage with negative feedback and deepen their learning if some positive comments also accompanied the negative ones. On the contrary, participants reported that overly critical and dismissive feedback had strong self-devaluing consequences and affected their learning.

> I feel that sometimes when you put in lots of effort to do a lot of work, you would expect people to appreciate what I can do first and then tell me why and how I have to improve rather just pick on one thing that I didn't do good at... that's really really sad and depressing. (Participant 3, student)

> There are times when I realised that, hey, I have given my full capacity, but there was no praise or nothing whatsoever, forget there is no praise, but there would be just criticism

> in a very horrible way that you just wish that you just don't want the next day to even dawn and you do not want to show up at the Dental School anymore... it hurts me so badly. (Participant 14, student)

Participants perceived that the body language, tone and the words used by the supervisors when giving feedback were also critical for an effective learning experience. Participants had experienced strong emotional responses to supervisors' feedback. Positive and constructive feedback motivated them, while solely negative feedback led to disappointment and frustration. Participants indicated that they were more likely to disregard such feedback than to engage in learning.

> I would like to talk about destructive criticism... For me, probably there are various way[s] of saying you are wrong, but you have to say in a way that didn't intimidate and demoralise people, I see students who barely can lift up his head and continue on, it's just like you are just killing him and I have seen cases where this has been repeatedly done... even sometimes telling that... you are stupid, it's just a simple thing everybody else know it, how come you alone are like this. (Participant 3, student)

Participants indicated that, if feedback was consistently given in a negative manner, it intimidated them and greatly reduced their morale. Such consistently over-the-top critical feedback from specific supervisors was perceived as highly ineffective in promoting students' learning.

> What I can't take is the fact that you literally spit on me practically every time I got to see you, and you literally bite me off so much so that I am petrified to even come next you ... every time I go there he says okay it is always about what I don't have... so the experience that I have had with this person is if I take one little step forward, I am pulled back eight steps and I really cannot deal with this ... if you can only spit at your students and suck away even what little confidence they have, then sorry you cannot be a teacher. (Participant 14, student)

Some participants stated that consistent overtly critical feedback had pushed them to consider quitting the DClinDent programme.

> I think I felt like I was a piece of shit and I felt as if I just wanted to disappear from there at that particular time and I wanted to discontinue from the programme, many a time... I

> think it did a lot to affect my self-esteem because I kind of felt quite discouraged. (Participant 14, student)

Some participants also offered solutions for giving constructive feedback in situations where the student had a particular difficulty or problem that needed to be rectified. They implied that it would facilitate effective learning if possible solutions were proposed and discussed with the student, in order to assist him or her in overcoming the difficulty, rather than just giving negative, overtly critical feedback.

> The problem should be identified, solution should be offered and discussed and then it's more like you tell and you show how to improve things and bring it forward in a nice way and you hope to see the next presentation is better that rather than just you know put full stop telling that you are rubbishy. It hurts very much... they are here to develop and fine tune their skills and take it forward from your input but rather we come here and just you keep suppressing us. (Participant 3, student)

Thus, participants indicated that feedback was most effective in helping them to move forward in their learning if it was given in a non-intimidating manner and alongside positive reinforcement.

> They just walk you through patiently and don't just yell at you, oh this is rubbish and throw back the papers, also I think when you do get that feedback in a non-intimidating manner you have the opportunity to ask questions further and improve from there. (Participant 13, student)

4.3.1.3. Prompt and timely feedback versus delayed feedback

Participants emphasised that feedback was most effective in benefiting subsequent research work when feedback was timely, so that the submitted work was fresh in the student's mind. Students indicated the importance of timely feedback particularly in the context of research and assignments.

> With my research and with my assignments... you send it to your supervisor, he will read it, correct it, he will give some suggestions quite quickly, in a few days, when it is still fresh in my mind. (Participant 7, student)

Participants indicated that they found it difficult to engage with feedback when a substantial period of time had lapsed between the student's submission of work and the supervisor's response.

> Well others don't care even about giving any feedback. That delay just frustrates you and you lose interest even if you get it finally months later. (Participant 7, student)

Students generally expected relatively faster response times from their research and clinical supervisors. Long delays, sometimes of several months, frustrated students, and students indicated that they found it difficult to take an interest in delayed feedback.

4.3.1.4. Directions for further improvement versus the absence of detailed feedback

Participants perceived detailed, precise explanations and directions for further improvement as being important ingredients in effective feedback. This was emphasised for both the clinical and research contexts. Feedback was perceived as more effective when there was an opportunity for discussion about negative comments, and when students were offered help with specific problems rather than being given negative comments without constructive advice. Detailed feedback from the supervisors provided students a guideline of where they should be headed for the future, and encouraged reflection on their work.

> He called me to his office and told me what's is actually wrong and explained how to actually get things moving forward. I found that quite beneficial and effective. (Participant 6, student)

> By explaining why they would do something and why they wouldn't, so not just saying no you are wrong, but actually explaining, you know like, this is why you don't do this, this is why you do this, you know like that, so that's kind of helpful. (Participant 15, student)

Conversely, participants perceived the absence of detailed feedback as resulting in delays in the progress of research, and as inhibiting effective learning. Participants

were sometimes unable to appreciate the shortcomings of their work unless the supervisors gave a detailed explanation of what was wrong in their work.

> Saying in general like, oh do this; but not really giving specific information and feedback... all this delayed my research... some of the supervisors like they don't know really sit and discuss comments, or while you send something and then they just look at it and then they just correct it and send something through email or just scribble on it instead of sit down in office and then discuss in-depth. Because, what you understand might be different than what they expected you to do... there will be a better understanding from both sides if there is a one to one communication across the table. (Participant 2, student)

Therefore, participants suggested that it was helpful when supervisors identified weaknesses in a manner that suggested how they might be addressed in the future.

4.3.1.5. Discreet feedback versus open criticism in the clinical contexts

Participants highlighted the importance of discreet feedback in the clinical setting, especially in front of patients. This applied to both the clinic and the operating theatre. Participants suggested that from both a learning and a patient care perspective, staff should be sensitive of the presence of the patient, and reserve negative comments for a more private setting or until after the patient had left.

> I think the student should be take[n] out from the cubicle, discuss it somewhere else then come back once you decided what to do, rather than sometimes there are instances where halfway through the supervisor says: ah, this is not the way to go about, you know... it's insulting in front of patients. (Participant 3, student)

Conversely, participants indicated that abrupt critical comments in front of the patient were insulting, and had lowered their confidence in doing specific clinical procedures. Participants asserted that, in a few situations, such open criticism by the supervisors in front of the patients also made their patients lose confidence in the student as a clinical service provider. Some patients had consequently elected not to return for follow-up care with the student.

> I have had experiences where I have literally being yelled at in front of the patient to the point that I start to fall to pieces and then the patient is left petrified and the patient's family members are wondering what is happening... my supervisor who just comes in like a little hurricane and just cuts me down and just walks away and after that I am just left speechless... it has happened multiple times particularly with one supervisor... It has done a lot of damage to my self confidence. (Participant 14, student)

> The way someone who comes in and says in front of the patient oh! This is not the way you should do it, I would do it this way... there is way to go about it in telling it when the patient is there... Patient might be shaken and feel that they are getting work from the wrong hands... We lose patients then and they just don't turn up again for the appointment... disagreement shouldn't be brought into the clinical situation, in theatre where that could damage the rapport between patients and the trainee surgeon. (Participant 3, student)

Participants suggested that, for an effective learning experience, staff should either reserve their critical comments for a more private setting, or in unavoidable situations, give the negative feedback in a discreet and professional manner if the patient was present.

4.3.2. Clinical learning processes

When recalling effective and ineffective learning incidents, many participants (across all disciplines) suggested that effective learning experiences resulted from: adequate opportunities for comprehensive treatment planning; exposure to multiple treatment philosophies; an adequate number of complex cases; clinically oriented research and assignment topics; a focus on clinical practice in the programme generally; and a research topic of a reasonable depth and breadth, suitable for their "specialist training" degree. Conversely, most of the participants indicated that the absence of an adequate number of clinical cases, and an overemphasis on research (versus clinical practice) in the DClinDent programme could preclude effective clinical learning.

4.3.2.1. Opportunities for comprehensive treatment planning versus poor multidisciplinary coordination

When recalling effective learning incidents, some participants asserted that learning was effective in multidisciplinary case contexts when clinical team members from various specialties worked together, sharing information about the contributing factors underlying a patient's disease condition, for the appropriate diagnosis, treatment planning and monitoring of the patient. Students indicated that a multidisciplinary, collegial approach contributed to effective learning for the following reasons. First, coordinated diagnostic assessments and treatment planning resulted in better treatment outcomes for the patient. Second, a multidisciplinary approach provided a holistic form of health care that concentrated on all aspects of the patient's condition that might impact on the treatment success.

> Postgrad, it's not like undergrad, it's not like one person doing the whole thing. We just specialise on doing certain things, but the tooth is actually more complicated, it is actually relating to the whole lot. So if you can actually get the opinion from two or three different disciplines, it is more beneficial for the patient... So you know you are looking at not just from your point of view, you're looking from the other person's point of view as well, so at the end of the treatment it's more comprehensive. (Participant 1, student)

Third, participants emphasised that a coordinated approach facilitated effective learning that was patient-friendly, in that each member understood the treatment plan and learned where to refer the patient. The patient stayed at the centre of all care given by the team. Overall, this approach was seen as valuable for both the clinician and the patient because it broadened students' understanding of multidisciplinary cases, and enabled cohesion in the delivery of patient support, treatment modalities, and information on prognosis to the patients.

> Clinical training in the Hospital with ENT department was the most effective one... As a registrar/postgraduate student, I was observing the consultation/treatment given to the patients there, which was a very good experience... Also, it increased my understanding in the diagnostic process of the systemic disease... Thus, overall, I found these various methods of hospital activities, meet patients, discussion of the case by various specialists, case discussion amongst the specialists with various diagnostic modes very effective...

> when we had patients with a wide range of problems; this multi-disciplinary learning helped us in problem solving these complex cases, with inputs from a variety of specialists with differing levels of experience. (Participant 19, graduate)

Fourth, participants reported that multidisciplinary sessions facilitated effective learning because they helped students to build their communication skills for better rapport with patients, and developing appropriate referral pathways with colleagues from different clinical disciplines, a skill that was seen as crucial in private specialist practice.

> The multidisciplinary learning and whole patient management, that I have with them down here, with the surgeons and the Paediatrics team plus the special needs; I found that they had been really a good resource for using you know, the specialist knowledge for treatment. We learn how to develop a good rapport and interact and refer to other specialists when in practice. (Participant 6, student)

Conversely, when recalling ineffective learning incidents, many participants voiced concern that there were inadequate opportunities for multi-disciplinary sessions in certain disciplines, suggesting this hampered their learning experiences. Participants indicated that the lack of such interdisciplinary communication impeded their development of knowledge about various strategies and approaches used by different disciplines in the treatment of complex multidisciplinary cases.

> I think another learning experience that I missed is that it would be good to actually involve the hospitals in public health areas we are going to work in the future, and maybe spending a bit of a time in those areas working with those kinds of people so that you actually see bigger range of patients, and we get an idea of the way they are working within that sort of environment. So *not* having those outpostings was quite ineffective (emphasis added). (Participant 6, student)

Some participants indicated that a lack of interdisciplinary treatment approach was mainly attributable to a lack of adequate rapport between clinical supervisors within some disciplines.

> Another thing is the lack of good interdisciplinary communication... This hampers our learning as we miss the opportunity of completing comprehensive cases and learning from each other... This mostly happens as all the staff don't get along well with each other and their personal enemity affects our treatment plans and they just don't agree on a plan to move forward... It just delays the treatment, as we finally have to look for some other staff and shift the case to another session. (Participant 20, graduate)

Students perceived a few staff members in specific disciplines as not having an adequate coordination among themselves. Participants outlined a lack of cordial relationships between staff as negatively affecting their learning and delaying their treatment of comprehensive cases.

4.3.2.2. Exposure to multiple treatment philosophies versus standard patient treatment strategy

Some participants emphasised that exposure to different clinical supervisors' varying treatment approaches promoted effective learning. Clinical supervisors in some disciplines had been trained in different countries, and therefore had different approaches for treating the same clinical problem. Participants suggested that exposure to multiple treatment strategies both broadened their understanding of patient management and promoted their ability to think analytically in relation to patient management. Furthermore, participants reported that they could plan each treatment for the specific clinical situation after critically considering the strengths and weaknesses of the various options available to them, and that this would likely be useful when in private practice.

> In our discipline... there is a wider variety of clinical supervisors and each have their own strengths and experience... their own technique or ways of handling, have their own way of treatment planning... you know you would adapt yourself and you would think over and decide which is best, in a way after graduation in specialist practice it will just broaden your perspective of management of patients. (Participant 4, student)

On the contrary, some participants indicated that the absence of diverse clinical opinions amongst the supervisors promoted less effective learning, because students did not have the opportunity to be exposed to multiple clinical treatment philosophies.

> I would probably say we lack in the variety of clinical supervisors... I think it would have more effective to have supervisors with different training and backgrounds so that we can be exposed to many strategies of treating a case. (Participant 5, student)

4.3.2.3. Exposure to an adequate number of challenging cases versus a lack of challenging cases and an over-emphasis on research

Since "the vast majority of people who are coming to do a DClinDent were doing so because they want to be dental specialists' [and not] because they want to be expert PhD researchers", participants indicated that it would be effective if they had adequate clinical exposure within the programme. Most of the participants had joined the programme with a view to acquiring advanced clinical skills in a specific discipline. Participants mostly saw the DClinDent programme as a pathway to becoming a registered clinical specialist.

> I think my personal goal for this programme is to become an effective clinician and to become a good specialist, that's my prime focus as opposed to research... I think other students and myself, we want to become a good specialist clinicians but this programme puts a heavy emphasis on research, well I think that that is an important component, but I certainly don't think it should be the focus. (Participant 8, student)

Similarly, participants emphasised that an inadequate exposure to challenging and complex patient cases precluded effective learning. Participants articulated a view that a sufficient number of clinical sessions was important for the development of their clinical skills and self-confidence in treating advanced and challenging cases after graduating.

> Right now, I only have, like, four sessions, so when you actually graduate, you feel unsure about yourself whether you are the specialist. So…yes we just need more clinic time rather than research... We just don't get to do enough cases here. (Participant 1, student)

> I feel a specialist training programme should have more emphasis on clinics and at times felt we were not getting enough clinical experience, and just had the theoretical background rather than practical skills. (Participant 18, graduate)

Participants from many disciplines suggested that an overemphasis on research within the DClinDent programme was the major reason for a lack of appropriate clinical exposure. Participants suggested that the heavy research component meant that they had limited time to devote to patient care activities. Some graduates reported that they had to treat some clinical cases for the first time after graduation.

> There is less number of cases that we see here and this is because of the research emphasis and inadequate time devoted for clinics... So we may have to try out certain types of treatment on the patient for the first time after we graduate as a specialist...That's very ineffective. (Participant 20, graduate)

Although most of the participants recognised the value of learning to critically appraise and evaluate the quality of research, the majority highlighted the intensive focus on research in the programme as a threat to their clinical learning. Although clinical "specialist training" had been a major objective when enrolling for the programme, participants stated that the heavy research workload impacted on their clinical learning time. On the contrary, most implied that their clinical learning would be more effective if they could devote a relatively larger percentage of time to clinical practice and treating more complex cases to improve their confidence instead of an overemphasis on research.

> And I think that the emphasis on research should not be at the detriment of our clinical learning time, and I think the pendulum probably swings little bit too far in research focus. If I wanted to be a researcher, then that should be up to me and I could essentially add more time to my programme and do a much bigger research but I don't think that is the focus for me or anyone else here. I don't even really understand why it is like this here. (Participant 8, student)

Additionally, some local and international participants noted that the University promoted the DClinDent programme as a clinical specialist-training programme

rather than a professional doctorate programme. They noted that they had been unaware of the intensive research focus in the programme prior to enrolment.

> I felt that the course is not directed towards specialist registration as told to us initially...We just don't have the time to a PhD kind of research, and I was not here for that... I don't think my friends in other countries have to go through all this to be a specialist. (Participant 20, graduate)

Furthermore, some local and international participants also suggested that a focus on research at the expense of clinical learning within the programme might affect the popularity and reputation of the Faculty's postgraduate programmes in the future.

> In a given dental population if people start to see the standard of graduates in terms of their clinical ability is low, that affects the reputation of the programme as well.. I think that, in this university there is probably more of an emphasis on academics in terms of research output which doesn't really benefit us, so I think that takes away from us the time that we had to learn, our clinical skills and that's very ineffective. (Participant 8, student)

> I will not recommend anyone here absolutely... It would have been better if we had to do less research work and more clinical sessions. (Participant 19, graduate)

Although many participants perceived the intensive research focus in the DClinDent programme as a reason for a lack of sufficient clinical exposure, they also indicated some other reasons for a lack of adequate clinical learning experiences. Participants in some disciplines indicated they were disadvantaged because of an ineffective case distribution system adopted by their course coordinator and high competition among postgraduates for the opportunity to treat complex cases. Some international participants suggested that local participants (who had graduated from the University of Otago) had existing connections both inside and outside the Dental School (previous undergraduate colleagues who were also doing DClinDent programme and former undergraduate colleagues in private dental clinics). Moreover, DClinDent students who had obtained their undergraduate degree from the University of Otago were registered with the New Zealand Dental Council, and had the licence required to supervise in undergraduate student clinics. Some international participants suggested

that these “local” students had obtained referrals directly from their undergraduate students and private practitioners, while international graduates received less exposure to complex specialist-level cases. Some participants proposed that each discipline should have a common patient pool from which the course coordinator distributed cases to students in a fair and transparent manner.

> I feel my clinical experience is lacking in some critical areas due to lack of cases here... I did not know how these can be tackled because I tried to talk to the supervisor before asking for a common pool, but he said this cannot be done, it just depends on referral here and some people develop their own networking, they teach in clinics, and some people are disadvantaged because of that just because you are not trained here, you don’t have your inside and outside connections and other people have the piece of your pie you know... I think if you can have a common pool this can be addressed. (Participant 3, student)

Participants in some disciplines reported that a lack of exposure to specialist-level cases threatened their ability to learn effectively as “specialist trainees”.

> There is no appropriate selection of cases for us to treat, I know that in some disciplines it happens every case that the students are allocated has to be vetoed by the course coordinator there, it’s not the same way for us... And as a result we spent a great deal of the programme treating cases that really we don't learn all that much from probably miss out on a lot of stuff that we need to know, but we don't get access to that here. (Participant 8, student)

A few participants cited the global economic recession, and patients’ personal financial difficulties as an additional reason for the lack of availability of complex challenging cases in certain disciplines.

> I think at the same time there was a problem last year, there was an economic recession and a lot of patients, could not afford to go for treatment and that sort of gave way to a lot of patient failure. A lot of patients just went halfway after treatment, because they couldn’t afford for the treatment. (Participant 4, student)

Finally, a few participants also perceived the characteristics of the local patient population in Otago as another reason for students' lack of exposure to complex clinical cases.

> I think one of the problems here in Dunedin is that the amount of patients or the variety of cases is very limited... I think, mainly it's just a variety of cases that is lacking in the programme because the population of Dunedin is like that. (Participant 4, student)

4.3.2.4. Clinical research and assignment topics versus non-clinical research and assignment topics

Many participants indicated that their research was an effective learning experience if it was related to their clinical specialty. This is in contrast to the earlier section, where most participants had indicated that an overemphasis on research precluded effective clinical learning.

Almost all participants had a clinical background and did not have much research experience prior to joining the programme. Hence, they lacked basic working knowledge in non-clinical research areas and had major difficulties in grasping the nuances of a laboratory-based, non-clinical research topic. When recalling ineffective learning incidents, many participants recounted that non-clinical research topics delayed their progress in research, because there was a lack of basic conceptual understanding and practical working knowledge of that non-clinical area prior to starting the research project.

> Coming from a clinical background, it was very difficult... because the research is more of a lab, I am doing something on looking at genetic based, lab research... I have not even heard of all this before... when you want to write, you need to have a good basic understanding of the topic and we don't know anything about it. (Participant 4, student)

Additionally, participants from some disciplines perceived their research to be irrelevant to their respective specialist clinical disciplines, and suggested that as such, it provided an ineffective learning experience.

> I am doing immunohistochemical staining, which has got nothing to do clinically... I am not an immunologist, but I am doing immunologist job, yeah, so and it wastes a lot of

> time... I feel like an immunologist... So I know more about toll receptors now than my subject and that's not something I would like to focus on... I look more at microscope than holding the hand piece. It's just, it's rubbish, yeah, just something you have to do to get out of here. (Participant 1, student)

Participants in certain disciplines reported that they were being forced to do non-clinical topics by their research supervisors and hence, suggested that their research provided an ineffective learning experience.

> I felt like guinea pig to satisfy my supervisor's career advancements... I could not relate my research to my clinical work. (Participant 20, graduate)

On the contrary, some participants implied that effective learning could occur in research settings if they had an initial orientation from their research supervisors on the theoretical and practical skills essential for this research topic so that they could equip themselves with the appropriate theoretical knowledge and technical skills prior to embarking on the research.

> I think, it will be much more effective if there was like a run through of what is expected from me and what current knowledge you have to know before you embark to that particular research and in that sense, you know, it helps though it requires more of your effort to do it to get to that point, but to me I felt that I didn't get the support and encouragement required to do this research. (Participant 4, student)

When recalling ineffective learning incidents and assignments required as part of the DClinDent programme, some participants reported that their degree of engagement with an assignment topic was relatively less if the topic was non-clinical or unrelated to their thesis research.

> Assignment topic should be related to our usual clinical work or our usual let's say research work. Sometimes you are given, I can't say stupid, but they are totally irrelevant to our work, you still do it, you have to do it, but I think if we get more relevant topics, we are going to get more benefit from it... I am not saying that I didn't gain any information, I gained information, but I could gain more relevant information in something I am going to use clinically, but anyway I felt it was something I had to do and I did it. (Participant 7, student)

> I mean the tutor should give us more clinical-orientated questions I think for your assignment. (Participant 1, student)

Participants suggested that learning could be more effective if both their topic of thesis research and assignment topics were more oriented toward their specialty.

4.3.2.5. Breadth and depth of "specialist training"/clinical doctorate (DClinDent) thesis versus research doctorate (PhD) thesis expectations

Participants from the majority of disciplines reported that the overall programme workload (especially the research workload) was high, especially because of the "huge" breadth and depth of their thesis, and felt it directly influenced both their learning experience in the programme and their personal lives. Most participants asserted that the current timeframe of three years was not sufficient for them to complete their research alongside the course's clinical requirements. Research expectations were perceived as being similar to those required for students undertaking PhD study. Many participants indicated that they felt that the nature (breadth and depth) of research expectations within the programme were not appropriate for a professional doctorate degree and were closer to their expectations of PhD study.

> It is just ridiculous to expect people to do a PhD thesis in a DClinDent you know and just because the school wants a $100,000 for each one they hand in... Yeah, so unless they turn the course into a five-year degree, I don't think there is time to do a DClinDent. (Participant 15, student)

> In PhD programme, it has three years pure research or research related, but in DClinDent they expect the thesis to be almost at the same level of PhD and in addition to that also clinical work, assignments, case presentations, seminars, exams etc. So, I think all that practically cannot be achieved in this timeframe. (Participant 10, student)

In addition, many participants reported that their "heavy workload" was very stressful and had considerably affected their personal quality of life.

> I think you need to drop all the research or at least reduce it to a minimum because it's just too much work for someone that is doing a full time clinical degree to be doing like

> 40 hours at night time for research, it is just ridiculous, you might as well not have a husband or boyfriend, and have no kids, and you might not even have friends because of the course, so I think that definitely needs to be reduced. (Participant 15, student)

As mentioned previously, since most of the participants had joined the programme in order to become a registered clinical specialist in their discipline, they indicated that the overemphasis on research within the programme did not correlate with their expectations prior to enrolment.

In the next section, participants' accounts of aspects of the physical learning environment are discussed in relation to their accounts of effective and ineffective learning incidents within the DClinDent programme.

4.4. Characteristics of the physical learning environment

When participants reflected on ineffective learning incidents, some referred to aspects of the physical learning environment that precluded effective learning in the DClinDent programme. However, when recalling effective learning experiences, none directly referred to any characteristic of the physical learning environment which promoted effective learning in the DClinDent programme.

Largely, participants reported that learning was ineffective because the physical infrastructure inside the Dental School clinics was “outdated”. Students highlighted that a physical learning environment characterised by “up-to-date” equipment and infrastructure would be more likely to facilitate effective learning. Participants’ perspectives of the characteristics of their physical learning environment that promoted or inhibited effective learning in the DClinDent programme are integrated in Figure 4.

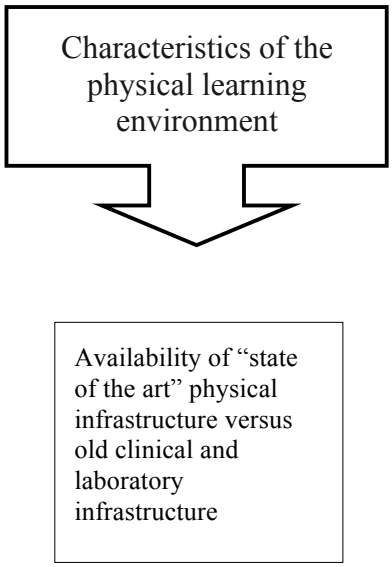

Figure 4: Characteristics of the physical learning environment that participants identified as promoting or inhibiting effective learning within the DClinDent programme

4.4.1. Availability of "state of the art" physical resources versus old clinical and laboratory infrastructure

Some participants emphasised aspects of physical infrastructure when recounting ineffective learning incidents within the DClinDent programme. Participants from several disciplines indicated that the physical learning environment and infrastructure within the school were mostly "outdated" and that this impacted directly or indirectly on their learning experiences. Participants indirectly emphasised that effective learning could be best supported through "state of the art" clinical and laboratory infrastructure for their postgraduate clinical training.

Participants put forward several reasons as to how outdated clinical and laboratory facilities precluded an effective learning experience. First, some stated that they were not able to learn certain advanced clinical techniques because of the lack of advanced equipment in certain clinics within the Dental School.

> We also need more acceptable technology and resources in clinics to begin with. Many facilities in the Faculty are no longer available even in third world countries... Clinics are outdated and the facilities are very ancient. We are definitely not exposed to the state of the art. This definitely hampers our learning. (Participant 19, student)

> The facilities also are pathetic here... Files go missing... On the fourth floor [clinic], the modern standards of infection control are not there. I think it would have been a good learning experience if we had access to the latest technology like digital records and equipment like cone beam [Cone Beam Computed Tomography] instead of trying to do with the oldest technology... That is frustrating. (Participant 8, student)

Second, a few participants from specific disciplines considered that even some basic facilities were missing in their clinics, and that this sometimes put the patient in an unsafe situation.

> Attached x-rays [equipment] to [dental] chair and extra space are the basic needs for patients with special needs... So, to relate it to the learning process, if these facilities are not there, you still can treat your patients, but with difficulties... Sometimes you can also put the patients in danger... This is a very very old [clinical unit] and then we need more

> space in that unit, because you know sometimes we have patients with stretcher coming in... We can't move with the big stretcher in it. (Participant 9, student)

Third, some participants who conducted laboratory based research investigations stated that, in specific instances, the lack of availability and/or adequate maintenance of technical equipment delayed the progress of their research.

> I had this bad experience during my research work with one of the microscopes and it broke down, and then for few months there was a delay in the repair because of the parts had to come from overseas, the engineer had to come from overseas, and then it took, like, four five months to fix it and, like, the next year the same thing happened again. So, there was delay in the research due to lack of maybe proper availability of those stuff or proper maintenance of equipment or maybe we don't have enough of that microscope. (Participant 10, student)

Fourth, some participants emphasised that the lack of appropriate infrastructure in the Dental School might have an influence on future postgraduate student enrolments, because prospective postgraduate candidates might not be impressed with the facilities that were currently available in certain clinics.

> To me, the course is now less appealing as there are no proper facilities in the clinic, I think that we have to improve the facilities for a good learning experience, this is an old school, who is going to come the old school, you know, do you think these old clinical units will impress the future students who want to come here. (Participant 9, student)

Fifth, some participants expressed a concern that, from a patient perspective, their image as specialist clinical service providers was compromised when a clinic's physical resources were broken down or outdated.

> Better facilities and newer equipment... We definitely need that in our clinics... Sometimes stuff just breaks down and it's embarrassing in front of the patient. (Participant 1, student)

> All the equipments [are] very old in the clinic; it feels like a third world experience with respect to the equipment. I felt like why the hell am I back here. I felt very embarrassing. (Participant 18, graduate)

Sixth, some participants had worked for several years in private practice with state of the art facilities. Those participants found it difficult to acclimatise to the available facilities in the Dental School clinics after working with latest equipments in private practice and hence, indicated that outdated facilities inhibited their learning.

> It's difficult to work with old clinical equipment... Adjustment is difficult after working with latest equipment in private practice. (Participant 17, graduate)

> It was difficult to adapt to this working style after working in private practice for a long time... There were stains on the walls or leaking chairs, hand piece was not working ... it's a question of whether we should adapt to all this... Why can't we have high standards in terms of clinical equipment and working environment? (Participant 18, graduate)

Seventh, a shortage of dental assistants and the lack of electronic patient data management were the other critical issues identified as inhibiting clinical learning. Participants felt that these factors affected the quality of specialist patient care being provided in the clinic by participants. Some participants articulated a view of paper patient files as ineffective and as posing many difficulties from both the patient care and learning perspectives. In instances where patient files had been lost, participants could not use their case for presentations and examinations because of the lack of previous clinical records.

> I will probably say I have a lot of little issues regarding the chair side assistants. We first just don't have enough of them... they want to go away for a break or something where you need them the most and you don't get that and because you are trying to do two things, two people's job than you solely focusing on that one thing. (Participant 5, student)

> The facilities are outdated here especially filing system is very ineffective... We need to go digital... The files go missing and we end up not using those cases for our exams and presentations... Also we need advanced stuff like cone beam [Cone Beam Computed Tomography] being a postgrad institute. (Participant 7, student)

The next chapter (Chapter 5) discusses and contextualises the findings of this project in relation to aims of the project, existing dental education research, and University policy documents.

CHAPTER 5. DISCUSSION AND CONCLUSION

This final chapter will discuss and contextualise the findings of this study by: (1) summarising the key findings of the study; (2) analysing how the findings of this study corroborates and contradicts the previous literature on dental students' perceptions of their learning experiences, and the University of Otago teaching and learning policy documents; and (3) discussing the contributions of the study findings, the potential limitations of the study, and the recommendations for extending the scope of the research presented in this thesis. The final section of this chapter provides the conclusions of the research.

5.1. Summary of key findings of the study

This qualitative study was designed to explore the characteristics of effective and ineffective learning experiences, in clinical and research settings, as identified by participating 2010 final-year DClinDent students and 2009 DClinDent graduates from the University of Otago, New Zealand. Participants were asked to recall and describe an *effective* learning incident and an *ineffective* learning incident in their postgraduate dental education.

Overall, participants identified many effective and ineffective learning experiences as characterising their educational environment. Perceptions of effective and ineffective learning experiences were largely similar across both groups of participants (students and graduates). Broad themes that emerged in participants' accounts of effective and ineffective learning experiences related to approaches to supervision, characteristics of the learning process, and characteristics of the physical learning environment. The key findings of this study are summarised in Figure 5.

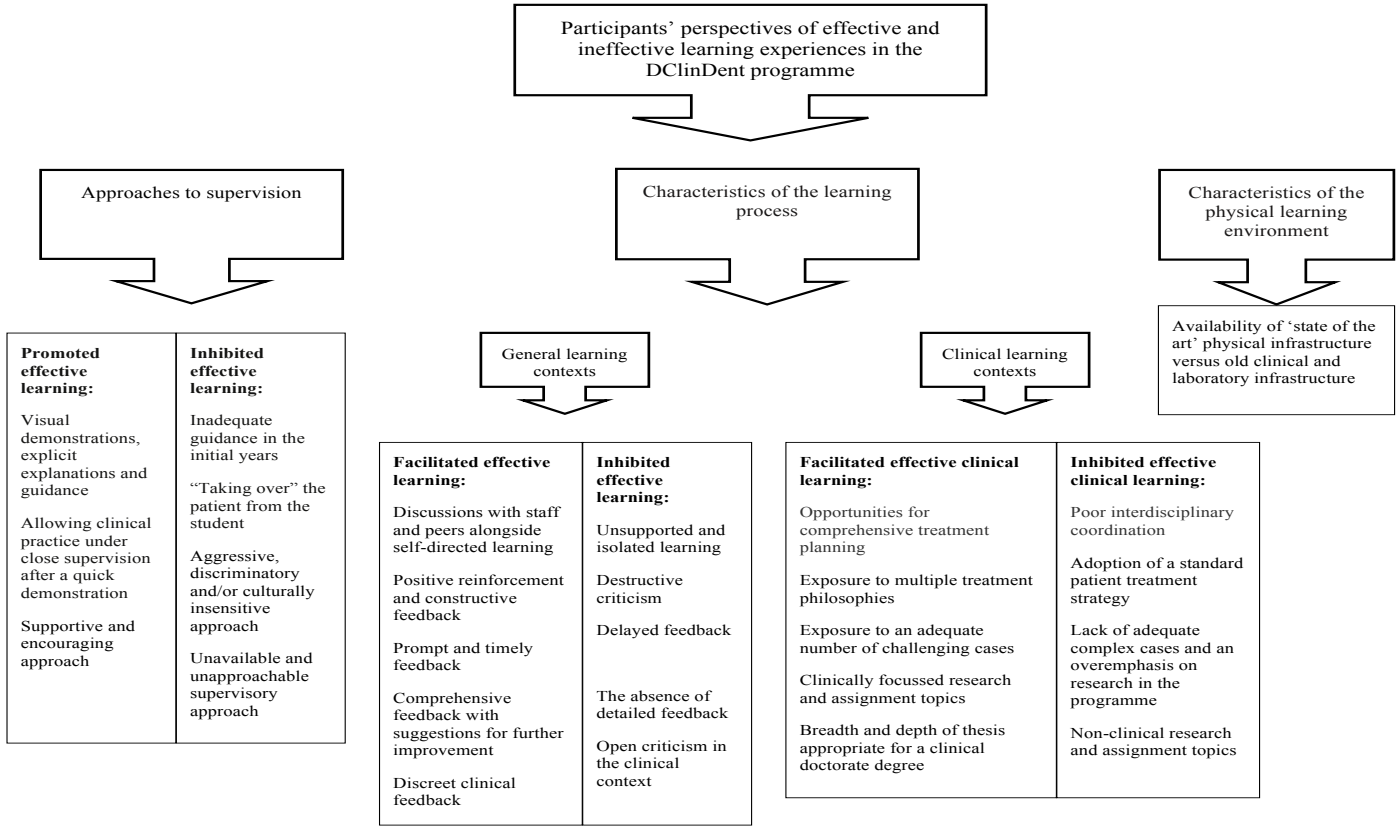

Figure 5: Characteristics of learning experiences identified by participants as promoting or inhibiting effective learning within the DClinDent programme.

Although the research questions primarily aimed to explore participants' perceptions of the learning experiences that they found effective and ineffective, interviewees indicated in many instances that certain teaching and/or learning characteristics also had a positive or negative emotional and personal impact. In participants' accounts, personal wellbeing and their learning experiences were intertwined. However, it is important to note that student perspectives in either affirming existing supervisory practices or proposing alternatives will be based on their pre-existing assumptions, needs, preferences, beliefs, and values about their education.

Participants' responses to the two questions provided rich, in-depth insights into their understandings of effective and ineffective learning. This thesis is a comprehensive and contextualised "snapshot" of students' and graduates' perspectives of effective and ineffective learning experiences in the DClinDent programme. Although these findings could not be interpreted as being representative of postgraduate dental students in all Dental Schools, the findings nevertheless revealed rich insights into New Zealand postgraduate dental students' perspectives of effective and ineffective learning.

5.2. Similarities and differences between the findings of this study in comparison to the existing dental education literature and the University of Otago teaching and learning policy documents

Overall, the findings that emerged from this study were similar to those from previous research on how dental students and graduates perceived their undergraduate and postgraduate learning experiences (Anderson et al, 2011; Ashley et al, 2006; Fitzgerald et al, 2008a; Fugill, 2005; Henzi et al, 2007; Jahangiri and Mucciolo, 2008; McMillan, 2007; Schonwetter et al, 2006; Victoroff and Hogan, 2006). In this study, participants' responses reiterated the critical role of supervisors in shaping students' learning processes and learning environments, as suggested by Victoroff and Hogan (2006).

While the "approaches to supervision" that participants associated with effective learning incidents—including mentoring, visual demonstrations with adequate

explanations, ongoing support, availability, and approachability of staff—largely echoed the previous dental educational literature (Anderson et al, 2011; Ashley et al, 2006; Fitzgerald et al, 2008a; Fugill, 2005; Henzi et al, 2007; Jahangiri and Mucciolo, 2008; McMillan, 2007; Schonwetter et al, 2006; Victoroff and Hogan, 2006), participants also valued autonomy in their advanced clinical practice. Some indicated that allowing clinical practice in some complex clinical situations (under close supervision) promoted effective clinical learning. Hence, students may find it beneficial if clinical supervisors exercise judgment in their teaching and/or mentoring approaches, by carefully alternating between providing practical demonstrations, allowing clinical practice under supervision, and facilitating independent clinical practice, according to the needs and clinical expertise of the student.

When recalling ineffective learning incidents, both local and international participants highlighted the negative learning and emotional implications of an intimidatory approach by supervisors, including public belittlement, cultural insensitivity, discrimination and harassment. This was similar to the findings of a previous multinational quantitative survey of dental students (Rowland et al, 2010). Previous medical education studies (Frank et al, 2006; Neville, 2008; Wood, 2006) have also emphasised the importance of supervisors maintaining a professional and culturally sensitive approach. As outlined by the American Dental Education Association Commission on Change and Innovation in Dental Education (Haden et al, 2006), and Otago University's own CALT, participants indicated the importance of a humanistic pedagogy, where there is respect, tolerance, understanding, and concern for others, for facilitating effective learning. Participants asserted the importance of a humanistic approach, which is characterised by close professional relationships between supervisors and students, fostered by mentoring and ongoing support. It is somewhat ironic to note that a profession that supports caring and empathy for patients is not perceived as adequately ensuring the provision of a culturally-inclusive and respectful learning environment for all of its students. This finding indicates the importance of defining the cultural norms of professional behaviour between supervisors and students through a process of discussion with students and consultation with behavioural experts (Neville, 2008). As suggested by participants, the provision of a respectful, supportive, and culturally inclusive learning environment is not only likely

to facilitate effective learning but it would also ensure students' retention and enhance the international reputation of the programme.

Specific characteristics of the learning process also contributed to effective learning experiences for participants. These included: discussions with staff and peers alongside self-directed learning; constructive, timely feedback; and adequate clinical exposure. These findings mainly corroborate the previous dental education literature and the recommendations of Otago University's CALT. For instance, similar to the findings of Ashley et al (2006) and Schonwetter et al (2006), participants emphasised interactive learning and discussions with staff and peers as promoting effective learning. Moreover, similar to the findings of Victoroff and Hogan (2006), students valued questioning by staff during seminars and clinical or research presentation sessions, indicating that this helped them to refine their critical and analytical skills.

The findings of this study also differed in some respects from those identified in the earlier research. While participants acknowledged the centrality of staff to students' learning experiences, they also highlighted the value of self-directed learning experiences in certain situations. Participants articulated that self-directed efforts facilitated their effective learning. Opportunities for self-directed learning helped them to successfully and independently manage clinical and research problems by themselves, using a combination of reflection on previous knowledge and critical analysis of the current situation. Participants' emphasis on the value of self-directed learning is in contrast to previous research (Ashley et al, 2006; Fugill, 2005; Schonwetter et al, 2006), where students largely expected academic staff to give handouts for lectures, and to play a central role in facilitating the integration of theory and clinical practice. Nevertheless, participants in this study differentiated between self-directed and unsupported learning, indicating that unsupported independent learning was largely ineffective. Similar to the findings of Schonwetter et al (2006) and McMillan et al (2007), participants emphasised the value of a structured learning framework including properly facilitated seminars, presentations, assignments and journal clubs, that allowed them to ask questions, discuss issues with their peers and seek external support from supervisors when required.

A further contradiction between the findings of this study and those of previous research was that participants in this study indicated that exposure to multiple clinical treatment philosophies facilitated effective clinical learning. In contrast, Anderson et al (2011) found that undergraduate students felt "lost" when faced with clinical supervisors' differing clinical opinions. This disagreement may be because this study included only postgraduate students and specialists who valued it, because it broadened their understanding of patient management, and helped them to tailor each treatment for the specific clinical situation after critically considering the strengths and weaknesses of the various treatment options available to them. Participants in the Anderson et al (2011) study were undergraduate students, who were not able to think adequately at a "specialist" level.

Constructive feedback and positive reinforcement emerged as another central learning process that facilitated effective learning. Consistent with the recommendations by the University of Otago's policy documents (CALT and Working Group, QAU), participants highlighted that ongoing encouragement by reinforcing their strengths helped them to be more receptive to supervisors' criticism and to better engage in their learning. Additionally, participants emphasised that feedback was most effective in benefiting subsequent research work if it was timely, so that the submitted work was fresh in the student's mind, and specific suggestions were given by the supervisor on refining the work further. These findings are also comparable to those of previous dental education studies (Anderson et al, 2011; Ashley et al, 2006; Fugill, 2005; Schonwetter et al, 2006; Victoroff and Hogan, 2006). Furthermore, similar to the findings of Anderson et al (2011), participants in this study indicated that the manner in which criticism was delivered in front of the patient influenced their learning; respectful, discreet and professional feedback promoted effective learning, while feedback with condescension threatened their learning and confidence.

Additional factors shaping effective learning that emerged in this study include an emphasis on clinical learning in the programme. Many participants across all disciplines suggested that effective learning was facilitated through exposure to an adequate number of complex cases, clinically-oriented research and assignment topics, and a research study of reasonable depth and breadth, suitable for their "specialist training" degree. Additionally, when recalling effective learning incidents,

some asserted that a multidisciplinary approach contributed to effective clinical learning, echoing the findings of Henzi et al (2007) and Fitzgerald et al (2008a). Many participants indicated that the absence of an adequate number of complex clinical cases and an overemphasis on research (as opposed to clinical practice) in the DClinDent programme precluded effective clinical learning. It is important to note that participants' emphasis on the importance of clinical practice is consistent with the findings of previous dental education research (Ashley et al, 2006; Henzi et al, 2007; Victoroff and Hogan, 2006). The apparent dissonance between the DClinDent programme regulations and participants' perceptions of effective learning may be largely attributed to the preconceptions, priorities, understandings and expectations that students bring to their professional programme. Additionally, participants from a majority of the disciplines indicated that the overall programme workload was considerable, due especially to the extensive breadth and depth of their thesis study. Similar to the findings of Divaris et al (2008) and Alzahem et al (2011), many participants emphasised that their workload within the DClinDent programme was stressful and negatively influenced both their learning experiences in the programme and their personal lives. Most perceived the current timeframe of three years to be inadequate for completing their thesis research alongside clinical requirements, and they felt the DClinDent research expectations to be comparable to those required for PhD study. Additionally, echoing the findings of Baldwin et al (1999) and Cooper et al (1987), participants indicated that the Faculty should endeavour to balance the demands of students' clinical and research workload with their needs for reasonable personal well-being and quality of life, if the programmes were to successfully retain their students and also successfully prepare them for the ongoing stress involved in private practice. Consequently, steps including a close re-examination of the course structure and requirements in each discipline; initiating a consultation with incoming and present students to understand their priorities and expectations before joining the DClinDent programme; clearly communicating the rationale for the organisational structure and course requirements of the programme may be helpful in reducing the gap between students' expectations and reality in the programme.

Finally, certain features of the learning environment—specifically the physical infrastructure—impacted on students' learning experiences. Participants from several disciplines described the Dental School's physical learning environment and

infrastructure as mostly "outdated", and indicated that this impacted on their learning experiences. Similar to the recommendations of the University of Otago's CALT and the findings of Henzi et al (2007) and Fitzgerald et al (2008a), participants asserted that effective learning could be best facilitated through the provision of a suitably resourced clinical and laboratory infrastructure for their postgraduate clinical and research training.

5.3. Contributions of the study findings

This section has two parts. The first part discusses the implications of the study findings for the scientific literature and the second part discusses the implications for pedagogical practices at the University of Otago Faculty of Dentistry, and postgraduate dental education in general.

5.3.1. Implications for existing knowledge and understanding

In comparison to other health professions, only a few studies have focused on student perceptions of their learning experiences and learning environment, particularly, using a qualitative approach (Divaris et al, 2008; Fugill, 2005; Gerzina et al, 2005; Henzi et al, 2005; Schonwetter et al, 2006; Victoroff and Hogan, 2006). Many studies have underlined the need for further research (especially using qualitative methods) that has a principal focus on students' perceptions and reflections on their overall educational experience, student-staff relationships and the entire learning environment in Dental School in order to better understand what constitutes an effective academic environment (Dyrbye et al, 2006; Henzi et al, 2005; Rowland et al, 2010). Moreover, there has been a lack of qualitative research on postgraduate and professional doctoral students' learning experiences, particularly in the New Zealand context to date. The in-depth findings of this study contribute to the scientific literature that identifies approaches to supervision, learning process, and learning environment characteristics which facilitate effective learning from New Zealand postgraduate students' and graduates' perspectives. What makes these findings different from others is that this study emphasises the perceptions of both current postgraduate students and recently graduated specialist practitioners. The majority of the literature (as described in

Chapter 2) has focussed largely on the perceptions of undergraduate and postgraduate students who have not completed their dental education. The apparent scarcity of similar qualitative investigations that compare and contrast postgraduate students with specialist professionals makes these findings unique.

While most of the published studies have examined students' learning in the clinical, laboratory and/or didactic contexts, the findings of this study are unique because it also explores postgraduate students' perceptions of their learning in the dental education research setting. Finally, most of the previous studies that examine students' perspectives have taken a student evaluation of teaching perspective, although implicit attention has sometimes been given to student voice from the perspectives of quality assurance, stakeholders and formative feedback on pedagogical practices. This study is unique because it is informed by a comprehensive theoretical framework which emphasises the importance of listening to student voice, and it gives explicit attention to student engagement, democratic participation, student empowerment and reflection on their learning experiences.

5.3.2. Implications for pedagogical policies and practices

The findings from this study will help academic staff to focus on students' learning experiences (the how, when, what and where of students' learning) and better understand postgraduate perspectives of existing teaching and learning strategies; this may then inform academic professional development (Harvey, 2003; Leckey & Neill, 2001). While the aim of this project was not to evaluate teaching, the findings suggest specific recommendations for improving teaching and learning in the DClinDent programme. They highlight the need to increase supervisors' awareness of the importance of acquiring evidence-based educational skills, formatively assessing supervisory practices, and providing learning experiences that promote interactive learning and critical thinking (Behar-Horenstein et al, 2005). As suggested earlier by Victoroff and Hogan (2006), the findings provide specific insights into how supervisors may improve their teaching effectiveness, and thus, improve students' learning experiences and reduce students' attrition. For example, supervisors may be able to implement changes in how they give feedback to students, or in the extent to which their seminar sessions are interactive.

Additionally, the findings can be used to develop and/or refine curriculum, design academic staff development programmes, and plan continuing education programmes. The findings of this study will be shared with the Dental School administration for possible action, where appropriate. Since academic staff within the same institution may not always be informed about the effective and/or innovative teaching strategies used by their colleagues, approaches to initiate professional staff development may include peer observation of teaching and the provision of a forum for academic staff to share their "best" supervisory and/or mentoring practices (Behar-Horenstein et al, 2005; Victoroff and Hogan, 2006). Additionally, students should be kept informed by the course co-coordinators of all actions taken and improvements made in the DClinDent programme. If certain student suggestions are inappropriate or unworkable, the respective course co-ordinators should explain the rationale for current practices, including the reasons why specific student feedback cannot be implemented (Harvey, 2003).

In this thesis, attention to student voice is only considered in relation to the University of Otago postgraduate dental education context. As discussed in Chapter 2, attention to student voice here is informed primarily by formative feedback, student engagement and reflection on the learning process, and democratic participation perspectives that emphasise the importance of listening to students. It is not an evaluation of teaching *per se* or an unreflective focus from a students-as-consumers perspective. An emphasis on student voice here does not assume or emphasise that staff and institutional practices should necessarily change based on what students propose, but it is critical of institutional approaches which ignore students' insights or fail to act on them (Cook-Sather, 2002, 2006a, 2006b; Fielding, 2004; Harvey, 2003; Levin, 1998; Mitra, 2008; Rodgers, 2006; Rudduck and Fielding, 2006; Watson, 2003). Hence, a focus on student voice emphasises the need for open and critical consideration of DClinDent students' perspectives. Although student voice initiatives include attention to students' perceptions of teaching, the project is fully student-centered. Thus, this study is concerned only with eliciting students' perspectives; it does not aim to be judgemental on what constitutes effective teaching or on the quality of teaching in the DClinDent programme (or postgraduate dental education in general).

Democratic attention to student voice in this thesis respects the teaching and learning process in the higher education sector and does not consider higher education as a market to fulfill consumers' (students') needs and preferences. Further, it is recognised that attention to student voice must be contextualised in relation to the voices of other stakeholders (including academics, students, parents, prospective employers of graduates, professional bodies, government and communities), and that multiple sources and other stakeholders may need to be consulted for final decisions in relation to institutional and pedagogical practices. This thesis pays specific attention to student voice because students remain an important source of information on their own learning experiences. The emphasis here is that students' perspectives require response and action from both academic staff, and the enrolling educational institution (Cook-Sather, 2002, 2006a, 2006b; Fielding, 2004; Harvey, 2003; Levin, 1998; Mitra, 2008; Rodgers, 2006; Rudduck and Fielding, 2006; Watson, 2003). This study's attention to student voice is synchronous with the democratic society traditions of consultation, collaboration, participation, equality and social justice.

Many changes have been undertaken recently in the Faculty of Dentistry at the University of Otago. Although these changes are not a direct outcome of this research, they have been undertaken partially in response to recent dental educational research in the Faculty (Anderson et al, 2011). These changes include the introduction of a new Faculty management structure that includes a student representative on the Postgraduate Studies Committee. This has opened an avenue for postgraduate students to raise concerns about aspects of their learning environment as they arise, and to have them addressed promptly by staff with curricular responsibility. Additionally, a Student Affairs Officer and a Dental Education Support Officer were appointed in 2008 and 2009 respectively. The position of Dental Education Support Officer was planned to conceive, design and collaborate on educational research, and to work with academic staff to address teaching or learning issues identified by both dental students and supervisors. The Student Affairs Officer coordinates support for students when needed, and liaises with supervisors when problems are raised by, or in relation to, students. It is hoped that the Faculty administration will initiate consultation with postgraduate students and staff to discuss the study's findings, and initiate further improvement in pedagogical practices, where appropriate.

5.4. Potential limitations of this study

Qualitative methods of inquiry used in this study provided a level of in-depth insight that cannot be obtained through the strict use of quantitative methods. However, it is important to understand some limitations of this study.

This investigation was limited to a sample of a particular group of postgraduate students and graduates of a specific Dental School as the aim of this qualitative research was to gain an in-depth understanding, and represent the learning experiences of this group of participants as they encountered and engaged within a specific learning context. On an institutional level, this objective has been achieved, and the findings of this investigation will be helpful in guiding practical changes in pedagogical practices. Although they cannot be generalised to every postgraduate programme, they may stimulate reflection on pedagogical and student support practices in other dental institutions.

Although this thesis provides a comprehensive snapshot of postgraduate dental education from the students' and graduates' perspective, it provides only a partial view of postgraduate dental education in New Zealand. Since postgraduate supervision is a complex endeavour, the students' perspective provides only one angle on the complex dental education setting. Research including other stakeholders, including clinical and research supervisors, dental assistants, and/or patients, could provide a *complete* picture.

5.5. Recommendations for future research

Qualitative research is well suited for investigating unexplored territory, and the findings from this investigation could form the foundation for further research (Atchison, 1996). They provide the following insights for the future. Future research could examine supervisors' perceptions as to what were effective and ineffective teaching behaviours in the clinic and research setting. This process may facilitate supervisors in reflecting on how they think they teach, thus fostering self-awareness, and perhaps ultimately leading to mentoring practices that support students' learning

more effectively (Behar-Horenstein et al, 2005). This study did not examine the broader circumstances which might influence supervisory approaches adopted in the clinic; for instance, it did not investigate how supervisors' concerns for patient safety might preclude the possibility of providing discreet clinical feedback to students. Moreover, as indicated by Anderson et al (2011), future research should investigate how supervisors identified by students as "effective" undertake their supervision, irrespective of day-to-day competing commitments.

It was noteworthy that neither postgraduate students nor graduate participants directly indicated the importance of supervisors' professional clinical competence and/or research expertise for an effective learning experience. Future studies can explore the significance of supervisors' clinical competence and research expertise, as perceived by postgraduate students. Since this study was conducted at only one institution, its replication at other Dental Schools could help to ascertain whether the findings are applicable elsewhere. Additional studies, both qualitative and quantitative, will lead to a better understanding of effective postgraduate student learning experiences.

5.6. Conclusion

Traditionally, dental research has been dominated by quantitative research methodologies. However, the dental education literature landscape has evolved significantly, and qualitative methodology has become an emergent technique employed within medical and dental education, alongside an increased application of the social science framework to health sciences education (Bullock, 2010; Gill and Griffin, 2009; Newton and Scambler, 2010). A qualitative research design is more suitable for investigating phenomena happening in complex physical, social and psychological environments (such as students' learning in tertiary education institution); and for obtaining an in-depth understanding, particularly when the research field is in its early stages (Atchison, 1996; Bower and Scambler, 2007; Bullock, 2010; Gift, 1996; Masood et al, 2010; Mechanic, 1995; Newton and Scambler, 2010; Patton, 2002). This qualitative study obtained in-depth insights into the characteristics of effective and ineffective learning experiences, in clinical and research settings, as indicated by the 2010 final-year DClinDent students and the first cohort of DClinDent graduates (2009 graduates) at the University of Otago, New Zealand. Both DClinDent students and graduates had largely similar perspectives of what constitutes effective clinical and research learning. Broad themes that emerged in the participants' accounts of effective and ineffective learning experiences related to: approaches to supervision, characteristics of learning process, and characteristics of physical learning environment. Although the research questions were primarily directed to explore participants' perceptions of learning experiences that they found effective and ineffective, in many instances, participants indicated that certain teaching and/or learning characteristics also had a positive or negative emotional and personal impact. These findings are a starting point for the development of curriculum and supervisory practices, enhancement of supervisory and mentoring approaches, and the design of continuing education programmes for supervisors at the Faculty level. Additionally, the findings of this study suggest important topics warranting reflection and discussion amongst dental educators and administrators worldwide. It is hoped that the Faculty administration will soon initiate consultation with postgraduate students and academic staff to discuss the study findings, and initiate appropriate staff development programmes, where appropriate.

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Appendix A: University of Otago Strategic Direction to 2012

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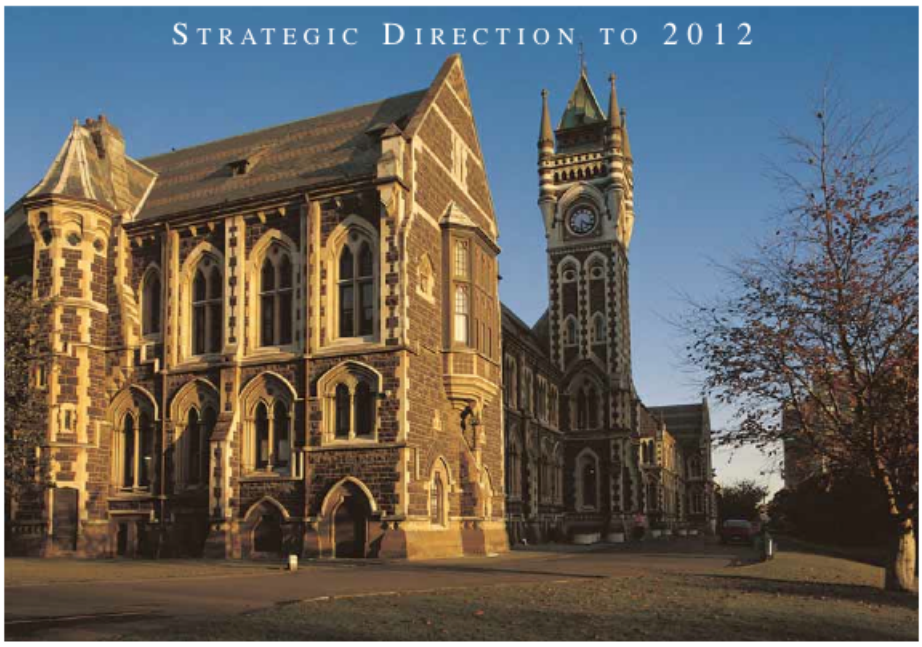
UNIVERSITY OF OTAGO



UNIVERSITY of OTAGO

Te Whare Wānanga o Otāgo

APPROVED BY THE UNIVERSITY COUNCIL
MARCH 2006

STRATEGIC DIRECTION TO 2012

1 INTRODUCTION

This document presents the current strategy of the University and identifies key challenges it is expected to face through to 2012. Universities operate in a rapidly changing environment, so it would be naive to specify in any detail what the University of Otago will be like in 2012. Nevertheless, the University has the opportunity to make choices that will help to forge its future direction and character.

The main purpose of *Strategic Direction to 2012* is to support the vision and mission of the University, as outlined below and in the University Charter, by advancing Otago as a research-led University. Developed with substantial input from the University community and other interested parties, the document is designed so that it can be used as a framework by units of the University in their own strategic and operational planning.

Key actions being taken centrally to develop the University and to monitor progress will be contained in an annually-updated *Strategic Direction to 2012 Action Plan*.

2 VISION AND MISSION

The University's previous statement of strategic intent, *Strategic Direction to 2005*, was prepared in 1999. Since then, there have been significant changes within the University and in the wider environment in which it operates.

The first responses to these changes were embodied in the University Charter. The present Charter was finalised in December 2003 and will remain current until the end of 2010.

The University revised both its vision and mission statements in preparing the new Charter to give greater emphasis to research. The new Charter also emphasises more clearly the special character of Otago and this is an approach that will be continued.

Together with the other key elements of the Charter[1], the vision and mission statements provide a basis for the development of the University's strategy. They are as follows:

VISION

A research-led University with an international reputation for excellence.

MISSION

The University of Otago will advance, preserve and promote knowledge, critical thinking and intellectual independence to enhance the understanding, development and well-being of individuals and society. It will achieve this by building on foundations of broad research and teaching capabilities, unique campus learning environments, its nationwide presence and mana, and international links.

3 STRATEGIC IMPERATIVES: AN OVERVIEW

The following six strategic imperatives have been identified by the University:

- Achieving Research Excellence
- Achieving Excellence in Research-Informed Teaching
- Ensuring Outstanding Campus Environments and Student Experience
- Contributing to the National Good and to International Progress
- Strengthening External Engagement
- Building and Sustaining Capability

While there is, inevitably, some overlap between the imperatives, each addresses a critical issue or area from a particular perspective which is regarded as vital to the future of the University. The observations that led to the selection of each imperative and the proposed response to the imperative appear on the following pages.

[1] Particularly the University's Statement of Special Character and identified Core Values.

IMPERATIVE ACHIEVING RESEARCH EXCELLENCE

OBSERVATION:

Otago is one of New Zealand's largest research organisations and it is the most research-intensive university in the country[2]. Nevertheless, a lower than expected overall ranking in the first PBRF round, together with failure to be selected to host any of the first national Centres of Research Excellence, showed there are no grounds for complacency about research performance. If our mission statement is to be taken seriously, the research performance of the University needs to be improved significantly.

RESPONSE:

Otago will take decisive steps to strengthen its research culture and ethos, and to maintain and develop its national and international research profile.

The University will seek to attract and retain high-quality, research-active academic staff (including full-time researchers) from within and beyond New Zealand, and provide support and encouragement to such staff. It will also provide an attractive, supportive environment for research students and aim to increase the number of such students enrolling at Otago.

Existing areas of research strength will provide a foundation for promoting research excellence, and these will be nurtured and supported. In areas of academic endeavour where research is not strong, decisions will be made either to invest in improving research performance or to reduce our involvement or withdraw from the area. Attention will be given to both pure and applied research, and comparisons of departmental performance across PBRF rounds will assist analysis of research performance and potential.

Additional funds secured through the PBRF, the Partnerships for Excellence programme, and other sources will be deployed to support increased research performance. Joint research programmes with other universities and research organisations, both within and beyond New Zealand, will also be fostered.

High-quality research infrastructure, including an enhanced e-research capability as well as physical facilities and equipment, will underpin the enhancement of research performance.

IMPERATIVE ACHIEVING EXCELLENCE IN RESEARCH-INFORMED TEACHING

OBSERVATION:

Given its vision, mission and core values, the University needs to favour teaching developments that involve a strong research-teaching synergy and ensure that teaching quality is enhanced, not weakened, by the response to the imperative above.

RESPONSE:

Otago will ensure that the research-teaching link that distinguishes research-led universities from other tertiary providers is nurtured and enhanced at both the undergraduate and postgraduate levels.

Innovative approaches will be used in the delivery of research-informed teaching[3]. National leadership in this will be achieved by fostering research-active academic staff within an institution that also supports their development and excellence in teaching.

The University will seek to maintain (or increase at a manageable rate) the student roll, recruiting a higher proportion of 'top calibre' entrants and a higher proportion of postgraduate students, especially research students. There will be a continued commitment to distance learning, especially at the postgraduate level in areas where we have special expertise.

Otago will continue to maintain a balanced approach to the internationalisation of learning through the incorporation of international perspectives in the curriculum, clear quotas and targets in respect of international student numbers, and an emphasis on international student exchange.

High-quality facilities and support services, as well as the ongoing development of e-learning capabilities, will also be required to ensure teaching excellence.

[2] Ministry of Research, Science and Technology report (2006).
[3] Research-informed teaching encompasses teaching undertaken for the most part by active researchers, which is closely informed by current research knowledge and scholarship.

IMPERATIVE

ENSURING OUTSTANDING CAMPUS ENVIRONMENTS AND STUDENT EXPERIENCE

OBSERVATION:

Otago is nationally known, and generally renowned for its exceptional campus environment and student experience, centred on Dunedin, and also for its specialist facilities in Christchurch, Wellington, and Auckland[4].

In recent years these campus environments have come under pressure from rapid growth.

Current national demographic trends and changes to the international student market suggest that enrolments are unlikely to grow at anything like the previous rate over the next seven years. At the same time, competition for students will intensify.

RESPONSE:

The quality of our campus environment and student experience will be nurtured and where necessary enhanced, both in Dunedin and elsewhere, to ensure that the University maintains its attractiveness to students, their parents, and future employers, and that it provides an appropriate high-quality environment for staff.

Investment is needed to ensure that our campus facilities, including grounds, buildings, equipment and information technology infrastructure, are world-class at all of our sites.

The University will work particularly hard to foster an appropriate social and cultural environment. Residential Colleges and Halls, the provision of first-rate student support services, and partnership with the Otago University Students' Association, the Dunedin City Council and other local bodies will all be crucial for success in this area.

The physical and cultural environment at each campus site will have to develop to meet changing student and staff expectations and the needs of a changing student and staff mix.

The special Otago learning experience, in which students develop through their wider student life as well as their studies, will be reflected in the qualities of graduates who are known for an intellectual and personal independence and maturity. These qualities will set Otago graduates apart from those who have studied elsewhere in the minds of both employers and the wider community.

IMPERATIVE

CONTRIBUTING TO THE NATIONAL GOOD AND TO INTERNATIONAL PROGRESS

OBSERVATION:

New Zealand is in the midst of major demographic, social and economic changes which, over the course of the next few decades, will transform the country. Key elements underlying these changes include the deployment of research (often with a collaborative and/or applied focus) in the development of New Zealand, the growing size and voice of the Māori people, the increasing size and aspirations of the Pacific community, greater global connectivity, and the rise of Asia and the Pacific rim in the world.

RESPONSE:

Otago will embrace a role that includes contributing to the regional and national good, being active in national debate about the future direction of the country, and being fully engaged internationally.

Resources will be deployed to encourage research that supports regional and national development,[5] or the needs of the developing world. Distance teaching in fields where the University has specialist knowledge and expertise will help sustain and enhance Otago's national and international role.

Building on the present relationship with Ngāi Tahu, the University will extend its partnership with Māori. This partnership will include collaboration in research, as well as efforts to increase the recruitment, retention and achievement of Māori students.

Otago will strengthen its links with Pacific communities both within New Zealand and in the Pacific region. It will take steps to increase the recruitment, retention and achievement of Pacific students, and to support the development of higher education in the Pacific.

The University will undertake a wide range of community service activities, embrace its role as a critic and conscience of society, and act in an ethically, socially, and environmentally responsible manner.

[4] The proposed merger with the Dunedin College of Education would extend the size of the Dunedin campus, and add further facilities in Invercargill and Central Otago.
[5] Including social and cultural as well as economic development.

IMPERATIVE STRENGTHENING EXTERNAL ENGAGEMENT

OBSERVATION:
While the location of Otago's main campus in Dunedin confers outstanding advantages, it also separates much of the University geographically from the major centres of population and political and economic decision-making. Otago is therefore likely to have to work hard to engage effectively with national bodies.

RESPONSE:
The University will place a particular emphasis on building relationships with the country's political, business, professional and community leaders. It will also seek appropriate representation on key national educational and research bodies.

The University will raise awareness of its capabilities in research and of the unique and positive benefits of the Otago student experience. Through improved interaction with national bodies it will become better connected, more responsive to emerging national opportunities and priorities, and more active in influencing the shape of those opportunities and priorities.

A key element of the better-connected University will be an enhanced entrepreneurial spirit. This will see the University become engaged with a greater number and variety of partners, particularly in applied research and commercialisation. Collaborative partnerships and other arrangements that assist in the application of research will continue to be pursued.

Although the main focus of this imperative is national, it will also encompass regional and international dimensions.

IMPERATIVE BUILDING AND SUSTAINING CAPABILITY

OBSERVATION:
To achieve its goals, the University must secure sufficient resources and use those resources effectively and efficiently.

Given that staff are our most important asset, resources in this context include academic and general staff as well as physical and financial assets. The important role that academic departments and other units play in sustaining Otago's capability as a vital and collegial University is also acknowledged.

Effectiveness and efficiency depend on ensuring that the University does not burden itself with excessive bureaucracy, so that academics are able to devote their time to the core academic activities of research and teaching. A further characteristic of successful research-led universities is a participative and consultative approach to decision-making.

RESPONSE:
Otago will seek and advocate for adequate funding, and maintain a diversified funding base that provides protection from fluctuations or declines in particular areas of activity. It will invest in the staff and the physical and information technology resources required to achieve excellence.

Entrepreneurial and enterprise-based activities of the University, including the successful commercialisation of intellectual property, will assist in diversifying the funding base and in providing additional resources for investment in research and teaching.

Internal structures and processes will be scrutinised. Those that are excessively bureaucratic or that do not support the University's goals will be eliminated or modified. There will be similar vigilance about external obligations placed on the University by Government or professional bodies.

Care will be taken to sustain the University as a vibrant and diverse community, with members who are engaged in their own academic and professional callings, but who also have an effective voice within the wider organisation and are supportive of its development and broader goals.



UNIVERSITY OF OTAGO

STRATEGIC DIRECTION TO 2012

Appendix B: Faculty of Dentistry Strategic Plan 2007-2012

Appendix B : Faculty of Dentistry Startegic Plan 2007-2012

UNIVERSITY of OTAGO
SAPERE AUDE
Te Whare Wānanga o Otāgo

FACULTY OF DENTISTRY

Strategic Plan 2007 – 2012

1 MISSION AND VALUES

MISSION

The mission of the Faculty has three components:

- To pursue excellence in research, both basic and applied, in which the encouragement of individual endeavour is complemented by the development of productive collaborative research groups both within the Faculty and the wider University, and also internationally.
- To provide an environment, accessible to all sections of the community, for the provision of the highest quality undergraduate and postgraduate education and training in the disciplines of:
  1. dentistry;
  2. oral health (dental hygiene and dental therapy); and
  3. dental technology.

  in accordance with the University's Teaching and Learning Plan 2005 - 2010 and Strategic Direction to 2012.
- To provide clinical expertise and first-class clinical services to the people of Dunedin and Otago and consultative advice nationally, and in some disciplines internationally.

VALUES

- The generation of knowledge and understanding of the scientific basis of modern dentistry, through excellence in research and research-informed teaching, with continuous efforts to improve quality.
- Provision of an academic and clinical environment for the continuing development of all the disciplines within the Faculty.
- The personal development of all staff members, based on equity and justice.
- Openness and transparency in decision-making.
- Meeting the Faculty's obligations under the Treaty of Waitangi. Due to the variety of interpretations of the Treaty we have adopted a policy consistent with the 1988 Royal Commission on Social Policy recommendations viz partnership, participation and protection.

2 GENERAL AIMS AND OBJECTIVES

The primary aim of the Faculty is to remain a nationally and internationally recognised leader of academic excellence in the areas of research, oral health education and training, and clinical practice by:

- Achieving and retaining a reputation for the highest quality research, teaching, and clinical expertise in each discipline.
- Fostering an environment that stimulates intellectual and professional development.

We also endeavour to qualify undergraduates and postgraduates who meet the University's Graduate Profile. The following attributes are to be fostered at the University of Otago:

- COMMUNICATION: the ability to communicate information, arguments and analyses effectively.
- CRITICAL THINKING: the ability to analyse issues logically, consider different options and viewpoints, and make informed decisions.
- CULTURAL UNDERSTANDING: an understanding of cultural diversity within the framework of the Treaty of Waitangi, and biculturalism and multiculturalism in New Zealand.
- ETHICS: a knowledge of ethics, ethical standards and social responsibility.
- GLOBAL PERSPECTIVE: an appreciation of the global perspective in their chosen discipline(s), and an informed sense of the impact of the international environment on New Zealand and New Zealand's contribution to the international environment.
- IN-DEPTH KNOWLEDGE: a deep, coherent and extensive knowledge of at least one discipline coupled with an understanding of the fundamental contribution of research.
- INFORMATION LITERACY: a basic understanding of information literacy and specific skills in acquiring, organising and presenting information, in particular through computer-based activity.
- INTERDISCIPLINARY PERSPECTIVE: intellectual openness and curiosity, and the awareness of the limits of current knowledge and of the links between disciplines.
- LIFELONG LEARNING: a commitment to lifelong learning, with the ability to apply knowledge, develop existing skills, adapt to a changing environment, and acquire new skills.
- RESEARCH: the ability to conduct research by recognising when information is needed, and locating, retrieving, evaluating and using it effectively.
- SCHOLARSHIP: a commitment to the fundamental importance of the acquisition and development of knowledge and understanding.
- SELF-MOTIVATION: the capacity for self-directed activity and the ability to work independently.
- TEAMWORK: the ability to work effectively as both a team leader and a team member.
- WORKPLACE-RELATED SKILLS: enterprise, self-confidence and a sense of personal responsibility within the workplace and community

(Adopted by Senate March 2003)

3 SPECIFIC GOALS AND OBJECTIVES

3.1 ACHIEVING RESEARCH EXCELLENCE

GOAL 1 *To foster and develop research of the highest international standards within each Discipline.*

OBJECTIVES

- To encourage and support involvement in collaborative research locally, nationally and internationally.
- To maintain and upgrade the Faculty equipment base and also to strive for better equipped, safe research facilities.
- To encourage and support research programmes and mentor new staff members.
- To appoint research-active staff of the highest calibre.
- To increase research funding by taking advantage of funding opportunities through the University, nationally and internationally.
- To improve research productivity in terms of the numbers and quality of publications and completed postgraduate courses through fostering the ethos of a research intensive environment.

PERFORMANCE INDICATORS

- Visits by overseas experts as Visiting Fellows.
- The acquisition of equipment needed to achieve our research goals through application for contestable grants and/or from industry sources.
- Numbers of masters and doctoral students.
- Success in the attraction of internal and external research funds.
- A strategy to maximise the financial return to the Faculty through Performance Based Research Funding, PBRF.
- Publication by academic staff members of reviewed research papers in appropriate journals.
- Dissemination of research findings to health professionals, academics and the public.

GOAL 2 *To develop a new doctoral programme in clinical dentistry for introduction in 2007.*

OBJECTIVES

- To increase the research component of the graduate programmes.
- To gain appropriate funding for the full courses for our graduate students and;
- To be competitive in the international market place in offering degrees that lead to specialisation.

PERFORMANCE INDICATORS

- Review of the Master's degree and postgraduate diploma programmes in order to align them with those of other Faculties and Departments.
- Establishment of Professional Doctoral degrees for all specialties in Dentistry.
- Reduction in the number of postgraduate diplomas offered in order to concentrate on graduate degrees with research components that may be counted for PBRF.

3.2 ACHIEVING EXCELLENCE IN RESEARCH-INFORMED TEACHING

GOAL 1 *To provide the highest quality curriculua which are informed by research and have a clear philosophy and objectives.*

OBJECTIVES

- To regularly review all the courses and programmes offered in the Faculty for their effectiveness, currency and vertical and horizontal integration within each curriculum.

PERFORMANCE INDICATORS

- Student feedback on courses and papers every three years.
- Benchmarking with similar courses in Australia.

3.3 ENSURING OUTSTANDING CAMPUS ENVIRONMENTS AND STUDENT EXPERIENCE

GOAL 1 *To provide a learning environment that encourages all students to reach their full potential.*

OBJECTIVES

- To be innovative and effective in teaching, to recognise and consider the use of new developments in education, educational research, information and communication technologies (ICT), and to encourage self-directed learning.

PERFORMANCE INDICATORS

- Attendance of teaching staff at Higher Education Development Centre (HEDC) courses.
- Individual evaluations of teaching, and each course, at least once every three years.
- Production of course-books that provide clear information on course objectives, workload expectations, deadlines and assessments.
- Utilisation, where possible and appropriate, of small group, PBL-type and/or ICT or web-based technologies for teaching.

GOAL 2 *To respond to student needs and to take account of academic, professional, cultural and ethical aspirations of the community.*

OBJECTIVES

- To produce informative, attractive and accurate publicity material for prospective students.
- To foster safe and ethical clinical and research attitudes and practices among our students.
- To foster teaching, clinical and research practices that are sensitive to the cultural backgrounds of our diverse students.
- To encourage, and support Māori and Pacific Island students.
- To enhance communication by giving students and teachers a clearly defined "forum" to discuss issues relating to specific courses.

PERFORMANCE INDICATORS

- Publicity material that is current and attractive.
- Contact with prospective students e.g. Hands-on Science, Open days and Career Expos.
- Provision of up-to-date information on safe clinical and laboratory procedures.
- Liaison with the University Disabilities Co-ordinator so as to create the best possible learning environment for all students.
- Students are advised of the support available from the Pouhere Tangata and Te Roopū group, and also from the Pacific Island Student Centre.
- Monitored progress of all students, at all levels with emphasis on self-identified Māori and Pacific Island students.
- Working groups, subcommittees and Year Committees, to discuss and review current and new academic initiatives have student representation.

GOAL 3 *To review changes to the student selection admissions process.*

OBJECTIVES

- To assess the success or otherwise of changes to the selection process for students admitted in 2006 and beyond.

PERFORMANCE INDICATORS

- Review, undertaken in association with appropriate groups within, and outside of, the Faculty e.g. HEDC of the admissions process indicates that the quality of students admitted to the teaching programmes is of a consistent high calibre.

GOAL 4 *To recruit, retain and develop academic, teaching, research, clinical and general staff of the highest calibre.*

OBJECTIVES

- To provide an open, enthusiastic and supportive working environment which fosters the development of all staff.
- To involve staff, at all levels, in policy development and to encourage and facilitate communication between members of the three departments within the Faculty.
- To encourage diversity in staffing and to foster awareness of Treaty responsibilities among staff.
- To mentor junior staff members.

PERFORMANCE INDICATORS

- The Heads of Departments (HoDs) discuss teaching, research and clinical responsibilities and aspirations with each academic staff member annually.
- The HoDs endeavour to assign appropriate teaching/administrative loads for newly appointed academic staff.
- The HoDs make strategic decisions that will optimise teaching, clinical and research commitments according to each academic staff member's needs and aspirations.
- Academic and general staff informed of decisions via regular meetings.
- Staff attendance at relevant HEDC programmes.
- Staff training in Te Reo (Māori language).
- Staff appointment equitable.
- Academic and general staff involved in management at School, Division and University levels.

GOAL 5 *To manage the Faculty's resources effectively and efficiently.*

OBJECTIVES

- To manage the Faculty's physical, financial, teaching related data and information, clinical, research and personnel infrastructures efficiently.
- To continue with a flat, open management structure.
- To ensure realistic budgets are set for each department and expenditure is constrained within their budgets.

PERFORMANCE INDICATORS

- The Executive Management Committee meets monthly to discuss management and other issues.
- The HoDs communicate the outcomes of these discussions to staff, where appropriate.
- The HoDs develop or encourage the development of space plans for each discipline, in consultation with the Associate Deans.
- The HoDs liaise effectively with the Dean on matters of finance and/or management.

GOAL 6 *To develop an effective committee management structure for the administration of clinics, the allocation of resources and facilities and the promotion of research*

OBJECTIVES

- To facilitate the redevelopment of the School as an internationally recognised research-led entity in a contemporary physical environment that is conducive to meeting the University's and Faculty's Mission.

PERFORMANCE INDICATORS

- The introduction of a new committee structure with identified responsibilities. (See Appendix).

3.4 CONTRIBUTING TO THE NATIONAL GOOD AND TO INTERNATIONAL PROGRESS

GOAL 1 *To communicate opinions, expertise and research findings to the wider community and to foster the exchange of skills with the wider national and international communities.*

OBJECTIVES

- To inform the community of our activities, achievements, interests and concerns.
- To make our specialist knowledge available to the community.
- To maintain strong academic professional links at national and international levels.

PERFORMANCE INDICATORS

- Members of the staff publicise their research, clinical findings, and opinions in the popular press.
- Publication of non-refereed articles of general interest.
- Staff deliver public lectures.
- Publication of research in appropriate Māori channels such as hui, journals and newsletters.
- Staff continue to serve in decision-making capacities in professional organisations at all levels.
- Staff present research findings to professional bodies and at scientific meetings.

3.5 STRENGTHENING EXTERNAL ENGAGEMENT

GOAL 1 *To graduate well-educated professionals in Dentistry who become integral members of the oral health team.*

OBJECTIVES

- To offer programmes for undergraduate and graduate students to ensure that they will have highly-valued skills for the delivery of clinical care and also the skills necessary for safe and ethical practice in their discipline and also in their community.
- To instill an understanding of society and its infrastructure in order to build relationships with professional and community leaders, mindful of issues relating to specific ethnic groups.

PERFORMANCE INDICATORS

- Interactions with national groups, District Health Boards and other health-focused organizations to ensure that the quality of graduates meets the needs of the community.
- Positive responses to our graduates from community, business and professional leaders, and national bodies.
- Recognition and celebration of the achievements of the Faculty in its Centennial year (2007).

GOAL 2 *To be more responsive to opportunities and shortcomings in oral health care, including the needs of low socio-economic status groups, and Māori and Pacific peoples.*

OBJECTIVES

- To provide a learning environment which fosters an awareness of the need to form collaborative working relationships with a variety of partners, in order to meet challenges in the community - nationally and internationally.
- To involve staff in policy development to encourage and facilitate communication between commercial companies and private enterprise.

PERFORMANCE INDICATORS

- The adoption of a holistic approach to health and oral health in New Zealand.
- The development of comprehensive health strategies - including oral health, utilizing the private and public sectors.
- The development of entrepreneurial graduates that can participate in collaborative partnerships.

GOAL 3 *To improve oral health through research focused on the needs of the Nation, e.g. fluoridation and clinical disease prevention for lower socio-economic groups, including Māori and Pacific peoples.*

OBJECTIVES

- To develop an appropriate research infrastructure to support the dental professions and enhance their understanding and knowledge of the scientific basis of health, disease and treatment modalities,used at the level of the individual or the community, in order to enhance health.

PERFORMANCE INDICATORS

- Application of research in physical and biological sciences to the understanding of the development, nature, properties of oral tissues and interactions with their environment, and how disease processes modify these.
- Applied quantitative research and qualitative research that has addressed issues relating to the inequalities that are evident within the community - nationally and internationally.

3.6 BUILDING AND SUSTAINING CAPABILITY

GOAL 1 *To prepare and plan for graduate facilities and equipment required over the next 5 years in all programmes offered by the Faculty.*

OBJECTIVES

- To increase EFTS funding.
- To meet undergraduate and graduate student needs for the next 5 years. This will include study space, staff offices, clinical facilities, clinical equipment, research equipment and research space.

PERFORMANCE INDICATORS

- There is adequate space, facilities, infrastructure, and staff to support the research and teaching activities of the Faculty.
- Increased funding from the Ministries of Education and Health.

GOAL 2 *To lobby for an increase in the number of domestic students in Dentistry.*

OBJECTIVES

- To increase EFTS in all programmes offered.
- To address documented shortages in the dental workforce.

PERFORMANCE INDICATORS

- Increased EFTS.
- Reduction in dental workforce shortages.

APPENDIX

1 CLINICAL SERVICES COMMITTEE STRATEGIC PLAN

MISSION

The Clinical Services Committee will develop and sustain policies and procedures to ensure that clinical services within the School of Dentistry are of the highest quality for the optimum benefit of the patients, the students, the staff and the University.

All activities should contribute to the vision of the University to be a research-led university with an international reputation for excellence.

As an operational group the Clinical Services Committee will, of necessity, have practical or operational objectives.

OBJECTIVES

1. Improve management of patient records

Rationale
Availability of records in a timely and reliable manner is identified as a key aspect of efficient and safe oral health care.

Process
- Introduce entry of treatment codes onto patient records by clinicians.
- Introduce bar code tracking of patient records.
- Extend the use of full hard covered files to more patient groups.

2. Maintain a rational schedule of patient fees

Rationale
Patient fees are a significant source of income for the School of Dentistry.
The School incurs charges for outsourced laboratory work that must be offset by fees charged to patients.

Process
- Ensure that fees are adjusted in line with the CPI.
- Identify and correct anomalies in fees by consultation with the discipline heads of the clinical services.
- Ensure that the fees charged cover charges incurred for outsourced work.
- Ensure that contracts with outside agencies, which fund patient care, are optimised for the achievement of the School's mission

3. Monitor clinical quality assurance programmes

Rationale
To ensure that best practice is followed at all times in the School's clinical programmes

Process
- Liaise with discipline heads to ensure that quality assurance programmes are developed and maintained and that outcomes are communicated with the Clinical Services Committee.
- Ensure compliance with Codes of Practice adopted by national and international professional bodies.

4. Establish a process for clinical complaints resolution

Rationale
- Patients have the right to complain in any form appropriate to them.
- The School must comply with the Code of Health and Disability Services Consumer's Rights 1996, right 10, The Right to Complain.
- Following a complaint the School must work to provide a fair resolution.

Process
Prepare and distribute a protocol for dealing with patients' complaints.

5. Support development of the technical laboratory service

Rationale
- High quality technical services are essential to the operation of clinical programmes.
- Outsourcing of technical work is a significant cost to the School.

Process
The Committee will recommend staffing and equipment the Technical Services Laboratory in order to provide the highest quality, most cost efficient service possible for the School's clinics.

2 FACILITIES COMMITTEE

2.1 *To develop and sustain a well-equipped internationally recognised contemporary physical environment conducive to the University and Faculty objectives.*

2.1.1 *Achieve research excellence*

2.1.2 *Achieve excellence in research-informed teaching*

2.1.3 *Contribution to community service*

2.1.4 *Enhancement of the campus environment and student experience*

PROCESS

a) To develop and implement a building and refurbishment plan for the School of Dentistry to ensure that the infrastructure and facilities are world class, sustainable for several years, and flexible enough to evolve in response to changing circumstances and opportunities.

b) To ensure that the research facilities are equipped to meet the research goals of the Faculty of Dentistry.

c) To ensure that the academic, laboratory, preclinical, and clinical teaching facilities for all dentistry, oral health, and dental technology undergraduate and postgraduate students are well equipped, flexible to accommodate facility developments and growing student numbers.

d) To ensure that Information Communications Technology requirements are integrated into the School's infrastructure and facilities to enhance teaching, research, community service and administration.

e) To ensure that the School of Dentistry's facilities enhance the work and social environment for both students and staff.

f) To ensure that the facilities enhance the integration of clinical teaching, clinical support services, laboratories and clinical administration.

g) Provide a safe working environment

h) To ensure that the facilities enable staff to provide high quality service to patients, other health practitioners and national and international organisations.

i) To ensure that regular and appropriate maintenance is conducted on all facilities and equipment.

j) To prepare University capital and equipment expenditure requests for the School of Dentistry.

k) To lobby potential external organisations for funding for ongoing equipment facilities.

3 RESEARCH COMMITTEE

3.1 *To establish a culture of research in the Faculty of Dentistry that leads to, and celebrates, research, scholarship and training within the framework of a performance based research funding model.*

3.2 *Maximize the opportunity for academic staff members, research fellows and students to undertake high quality research.*

OBJECTIVES

a) Require that all academic staff appointments and promotions within the Faculty use research productivity and research quality as key assessment criteria.

b) Maximize research opportunity and productivity for all academic staff by improving the balance between research, teaching and administration through effective timetabling.

c) Encourage Faculty to conduct high quality research by celebrating and rewarding success in obtaining research funding, in receiving outside recognition, in publications and in research supervision.

d) Enhance the research reputation of the Faculty by attracting more high quality graduate students into Masters, Clinical Doctorate and PhD level research programmes and by providing academic credit for the research activities of elective students.

e) Establish mechanisms for the active recruitment of postgraduate research students, both nationally and internationally.

f) Develop and implement effective policies on career path and support mechanisms for full-time researchers.

3.3 *Increase funding for research*

OBJECTIVES

a) Allocate a proportion of PBRF and overhead funding to seed new research projects.

b) Encourage expansion of the New Zealand Dental Association Research Foundation funding.

c) Actively encourage staff to pursue local and external funding, including grants from commercial sources.

3.4 *Improve the PBRF rating and research reputation of the Faculty of Dentistry*

OBJECTIVES

a) Increase the numbers of research degree completions.

b) Allocate time for research active staff to obtain and effectively utilise research funding.

c) Provide travel funding for all research staff to present research at relevant conferences and for the establishment of high profile collaborations.

3.5 *Increase research effectiveness*

OBJECTIVES

a) Efficiently allocate time for research and space for research.

b) Ensure that essential equipment needs are met.

c) Institute a Faculty research equipment plan.

d) Minimise the impact of research, health and safety compliance issues through effective communication, information sharing and management.

e) Ensure that research complies with University policies on responsiveness to Māori, prior consultation with Tangata Whenua, biological safety and bioethics committees.

f) Strengthen existing collaboration with inter-departmental, inter-divisional, inter-university and international research groups through the exchange of personnel, skills, and information and through joint grant applications.

g) Promote the development of existing Areas of Research Strength and support the establishment of novel areas of research.

3.6 *Promote the value of research activity both within and outside the School of Dentistry*

OBJECTIVES

a) Encourage the translation of research from the bench to the clinic and into appropriate journals.

b) Encourage academic staff to join appropriate research associations.

c) Encourage academic staff to apply for research awards and to join the editorial boards of journals.

d) Inform commercial enterprises of our research capabilities, strengths and achievements.

e) Encourage research input into health policy.

f) Encourage participation by Māori and disadvantaged groups in research and research training.

g) Promote research on health issues affecting disadvantaged groups in New Zealand society.

h) Bring prestigious visitors to the School to take part in research, present seminars or undertake sabbaticals.

i) Establish a high profile seminar series.

j) Increase awareness within the School of ongoing research by instituting and publicising a system of prizes that recognise high quality research and research training.

k) Support a website that effectively profiles research and training in the Faculty.

l) Encourage staff to make high quality presentations on research activities to professional groups.

m) Increase awareness of the Faculty in the University, by professional groups and by the public through participation in conferences, seminars, expert panels and other professional organisations, through public lectures and by using press releases.

n) Encourage staff to undergo media training.

3.7 *Prepare students for careers in research by encouraging intellectual excellence and by teaching them the methodology of research*

OBJECTIVES

a) Encourage and reward research-informed teaching.

b) Introduce research methodology teaching into the undergraduate curriculum and enhance this teaching in the graduate curriculum.

c) Secure funding for studentships offered by the Faculty.

d) Encourage undergraduates to undertake summer research studentships.

4 UNDERGRADUATE STUDIES COMMITTEE

OBJECTIVES

- To monitor the undergraduate curricula against international standards.
- To consider curriculum, teaching and learning changes as required.
- To provide guidance to students in course selection and enrolment procedures and to monitor student progress and welfare across the programmes.
- To monitor course assessment and examinations.
- To advocate for the provision of appropriate resources for programmes.
- To advise the Faculty's Executive and Management Committee and the Dental Admissions Committee on matters relating to BDS student selection.
- To advise the Faculty's Executive and Management Committee on matters relating to Oral Health and Dental Technology student selection.
- To consider the recommendations of external reviews.
- To consider recommendations from the Undergraduate Studies BDS Commitee, the Undergraduate Studies Oral Health Commitee and the Undergraduate Studies Dental Technology Committee.

FUTURE GOALS AND DIRECTIONS

1. To lobby for an increase in the number of domestic students in dental programmes.
2. To review changes to the selection process for dental students.
3. To review the undergraduate dental curriculum.

5 GRADUATE STUDIES COMMITTEE

5.1 *To advise the Faculty on policy and procedures relating to higher degrees and diplomas including postgraduate diplomas, masters degrees and doctorates.*

The role of the committee includes monitoring and reviewing:

a) The development and implementation of new subjects and courses

b) Matters related to admission

c) Assessment and examination procedures

d) Matters pertaining to academic standards

e) The identification of required support and facilities for graduate students and programmes

f) The approval of research projects and supervisors in conjunction with the Research Committee

FUTURE GOALS AND DIRECTIONS

1. To develop and introduce a new doctoral programme in clinical dentistry in 2007.
2. To review the postgraduate diploma programmes offered by the Faculty.
3. To prepare and plan for graduate facilities and equipment required over the next 5 years in all programmes offered by the Faculty.
4. To investigate liaisons with other dental graduate programme providers throughout Australasia to optimise graduate student exposure to the academic, research and clinical expertise in each discipline.
5. To investigate and implement continuing professional development for overseas trained dentists and dentists who have been out of the workforce to enable them to register to practice in New Zealand.
6. To review and update programmes of continuing professional development for practising dentists and oral health professionals in New Zealand.



UNIVERSITY OF OTAGO

STRATEGIC DIRECTION TO 2012

Appendix C: Division of Health Sciences Strategic Plan 2006-2012

Appendix C : Division of Health Sciences Strategic Plan 2006-2012

DIVISION OF HEALTH SCIENCES
STRATEGIC PLAN 2006 - 2012

ACHIEVING EXCELLENCE



UNIVERSITY OF OTAGO
Te Whare Wānanga o Otāgo

About the Division of Health Sciences

The Division of Health Sciences at the University of Otago is a leading New Zealand provider of undergraduate and postgraduate education and training in Dentistry, Medical Laboratory Science, Medicine, Pharmacy and Physiotherapy. It also leads in teaching and research in the related medical, biological and social sciences.

The Division's programmes include those offered by New Zealand's first Medical School, its only School of Dentistry, and the School of Physiotherapy. The School of Pharmacy is New Zealand's oldest pharmacy and education research establishment.

The Division of Health Sciences has campuses in Dunedin, Christchurch and Wellington. Teaching in the Faculty of Dentistry, School of Pharmacy, School of Physiotherapy, Otago School of Medical Sciences and the Dunedin School of Medicine is overseen from the Dunedin campus. The University of Otago, Christchurch, and the University of Otago, Wellington, campuses are home to the Christchurch School of Medicine and Health Sciences and the Wellington School of Medicine and Health Sciences respectively. The administrative centre for the Division is based in Dunedin.

The Division delivers undergraduate programmes in Dentistry, Medical Laboratory Science, Medicine, Pharmacy and Physiotherapy based on a common Health Sciences First Year. Other undergraduate programmes in the Division include the Bachelor of Oral Health, Bachelor of Dental Technology, Bachelor of Health Sciences endorsed in Medical Radiation Therapy, Bachelor of Biomedical Sciences and Bachelor of Biomedical Sciences with Honours. There are very strong basic science departments within the Division and strong linkages with the Division of Sciences.

Research is a key component of the activities of the Division of Health Sciences and the Division has an international reputation for the strength of its research. The research environment of the Division supports a large number of research masters and doctoral students. The Division also has strong involvement in the continuing education of health professionals and offers a wide range of postgraduate certificates, diplomas and degrees, many of which are available by distance learning.

The balance of research, teaching, community service and clinical duties is a special characteristic of many of the staff of the Division.

The Division acknowledges its obligations under the Treaty of Waitangi and is committed to developing strategies to attract, recruit and retain Māori staff and students, educate students in Māori health needs and to provide appropriate clinical experience of Māori health care provision.

Mission Statement: Health Sciences

The Division of Health Sciences will provide New Zealand society and other communities with a highly qualified workforce in the health professions. The Division will promote health and health care through basic and applied research and academic and professional leadership. This will be achieved through research-based undergraduate, postgraduate and professional academic programmes of international standard in the health sciences and related sciences.

Strategic Imperatives: An Overview

The University's Strategic Direction to 2012 provides six strategic imperatives and each imperative addresses an area regarded as vital to the future of the University:

1. Achieving Research Excellence
2. Achieving Excellence in Research - Informed Teaching
3. Ensuring Outstanding Campus Environments and Student Experience
4. Contributing to the National Good and to International Progress
5. Strengthening External Engagement
6. Building and Sustaining Capability

These imperatives provide the framework for the Division of Health Sciences' Strategic Plan.

Strategic Goals

1. achieving research excellence

- To be a research-led Division, promoting excellence in research.
- To recruit and retain quality research staff.
- To increase our research capacity and research reputation.
- To provide a quality learning environment for postgraduate research students and to promote research-based learning.
- To increase our numbers of postgraduate students.
- To provide strong support for our areas of research strength.
- To develop and maintain an infrastructure that sustains and promotes high quality research.
- To effectively position the Division to respond to new opportunities.

2. achieving excellence in research-informed teaching

- To foster a stimulating learning environment that promotes intellectual curiosity and a thirst for knowledge.
- To foster innovative approaches in the delivery of research-informed teaching.
- To foster research-active academic staff in an environment that supports their development and excellence in teaching.
- To attract and retain high calibre, committed and motivated students.
- To ensure that Health Sciences First Year provides students with a sound academic platform for future study.
- To provide high quality undergraduate degree programmes that meet international standards of scholarship.
- To provide high quality postgraduate programmes in areas where we have special expertise primarily in the health and health related professions.
- To promote methods of programme delivery which enhance understanding of concepts, development of skills and enthusiasm for life-long learning.
- To foster the internationalisation of learning through the incorporation of international perspectives in the curriculum and setting of clear quotas and targets for international students in our undergraduate professional programmes.

3. ensuring outstanding campus environments and student experience

- To ensure that students enrolled in Health Sciences programmes are fully able to take advantage of the educational opportunities available to them.
- To ensure the provision of adequate teaching and research facilities and other physical resources at all three campuses.
- To ensure that all staff and students have appropriate access to library and information technology services to meet their educational and research needs.

- To provide appropriate support for students from a wide variety of ethnic and cultural backgrounds.
- To communicate with our students effectively and seek their input in our planning.

4. CONTRIBUTING TO THE NATIONAL GOOD AND TO INTERNATIONAL PROGRESS

- To strengthen the Division's commitment to Maori and the principles of the Treaty of Waitangi.
- To promote and support the inclusion of Pacific peoples in the research and academic environment of the Division.
- To foster the development of distance learning programmes, especially at the postgraduate level in areas where we have special knowledge and expertise.
- To support, where appropriate, the community service of staff in providing advisory or expert consultancy services to local, national and international institutions or agencies.

5. STRENGTHENING EXTERNAL ENGAGEMENT

- To strengthen relationships with the key external bodies with whom each of the Schools within the Division interact.
- To foster and maintain effective links with District Health Boards and other health providers for the provision of education and clinical training opportunities for students in the professional undergraduate and postgraduate programmes.
- To promote and sustain relationships with key research groups and research funding agencies nationally and internationally.
- To effectively promote the interests and profile of the Division and its constituent Schools to central and local government, the health community, alumni and the wider public nationally and internationally.

6. BUILDING AND SUSTAINING CAPACITY

- To ensure the Division remains financially healthy through priority setting, pursuing funding sources, fostering links with funders and donors and sound management.
- To ensure the Division has the resources to recruit, develop, retain and reward staff who pursue excellence in research, teaching, administration and service.
- To provide an appropriate physical environment for effective research, teaching, clinical training and quality learning.
- To ensure that all staff receive the support required to equip them with the skills needed to effectively meet their responsibilities and to advance their careers.
- To increase a sense of participation in University affairs by all staff.

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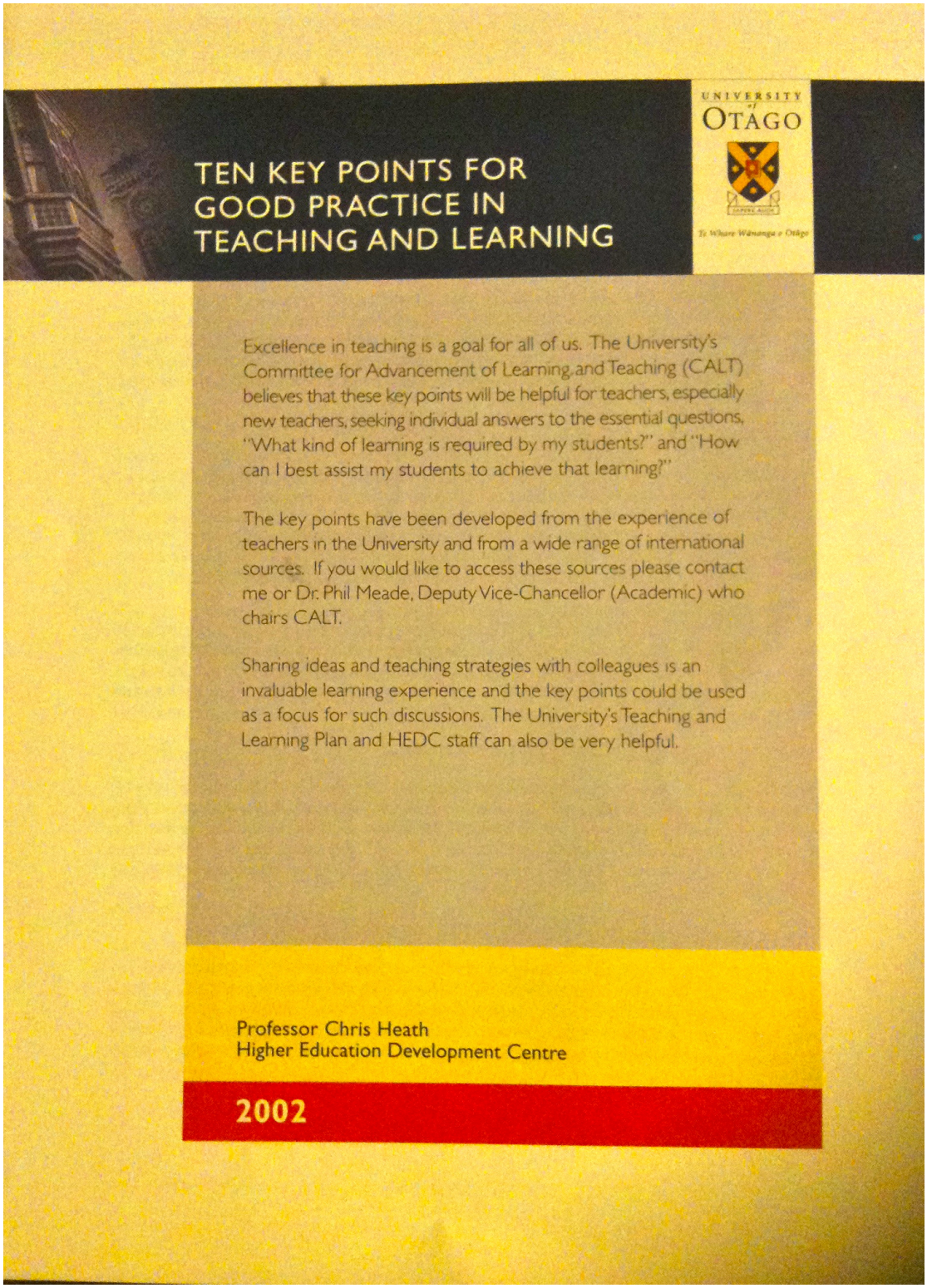
Strategic Plan 2006 - 2012

Achieving Excellence



Appendix D: University of Otago Committee for Advancement of Learning and Teaching (CALT) guide (2002)



TEN KEY POINTS FOR GOOD PRACTICE IN TEACHING AND LEARNING

BUILDING RELATIONSHIPS

Having frequent staff-student contact in and out of class is important for student motivation, participation, and commitment. We remember teachers who took the time to know us as individuals. A personal word of explanation can stimulate a wealth of further learning; a personal word of encouragement can be of great importance to a struggling student. This is just as important, although more difficult, at first year level where classes are large, as at upper levels.

THINKING ABOUT YOURSELF AS A TEACHER

Good practice sees teachers modelling scholarly values by being knowledgeable, enthusiastic, self-directed, and reflective. These qualities are shown in the scholarly activities of teaching and research. Good practice also provides opportunities and encourages students to become self-directed, reflective, and enthusiastic. Good practice allows teachers to demonstrate that they are knowledgeable and scholarly with respect to the process of teaching and reflective of their own teaching practices.

ENCOURAGING COOPERATION

For the majority of people, learning is made enjoyable and is improved when the learner feels part of a team, rather than being isolated. Sharing ideas and interacting with others develops understanding of the subject and of the perspectives of others. Such learning is a model for collegiality.

ENCOURAGING ACTIVE LEARNING

Significant learning is much more likely to be achieved when students are actively engaged in talking and writing about their learning experiences, relating these to past experience, to their daily lives, and to their present or prospective careers. Active learning can be further enhanced if students have a significant input into what they are to learn and how they are to learn. Active learning commonly enhances conceptual understanding and lifelong learning.

MATCHING TEACHING METHODS TO LEARNING OBJECTIVES

Objectives for teaching and learning are outlined in the University's Teaching and Learning Plan. It is extremely unlikely that these can be taught by any one method. Good practice means appropriate methods are used for each learning objective. This has supported the growth of flexible learning; development of multi-media materials; development of alternative teaching strategies. Learning is enhanced and reinforced by multiple opportunities to apply what is learned.

MATCHING ASSESSMENT METHODS TO LEARNING OBJECTIVES

It is also unlikely that differing objectives for teaching and learning can be assessed by any one method. However, careful account should be taken of the student's workload when a range of assessment strategies are used. Good practice demonstrates the design of appropriate assessment tasks for differing learning objectives. Students should also be given opportunities to develop their experience and skills in self-assessment.

PROVIDING PROMPT AND HELPFUL FEEDBACK

Students need feedback as they learn. Delay in receiving feedback minimises its effect. Feedback needs to have concrete examples and information in order to help students improve. Much useful feedback can be given without marks and grades. Students can also give helpful feedback to each other. Guidance can be found in the brochure *Key Points for Good Feedback on Student Work* available from HEDC.

ENCOURAGING PRODUCTIVE USE OF TIME

The amount of time spent on a learning task can be crucial to success. But of equal importance is the effectiveness of learning time, and students need to be encouraged to be reflective of their learning styles and strategies. Good teaching practice sets realistic time and workload expectations for students, and encourages the effective use of time in meeting goals. Students also need good study guidelines in order to help them focus their learning.

COMMUNICATING HIGH EXPECTATIONS

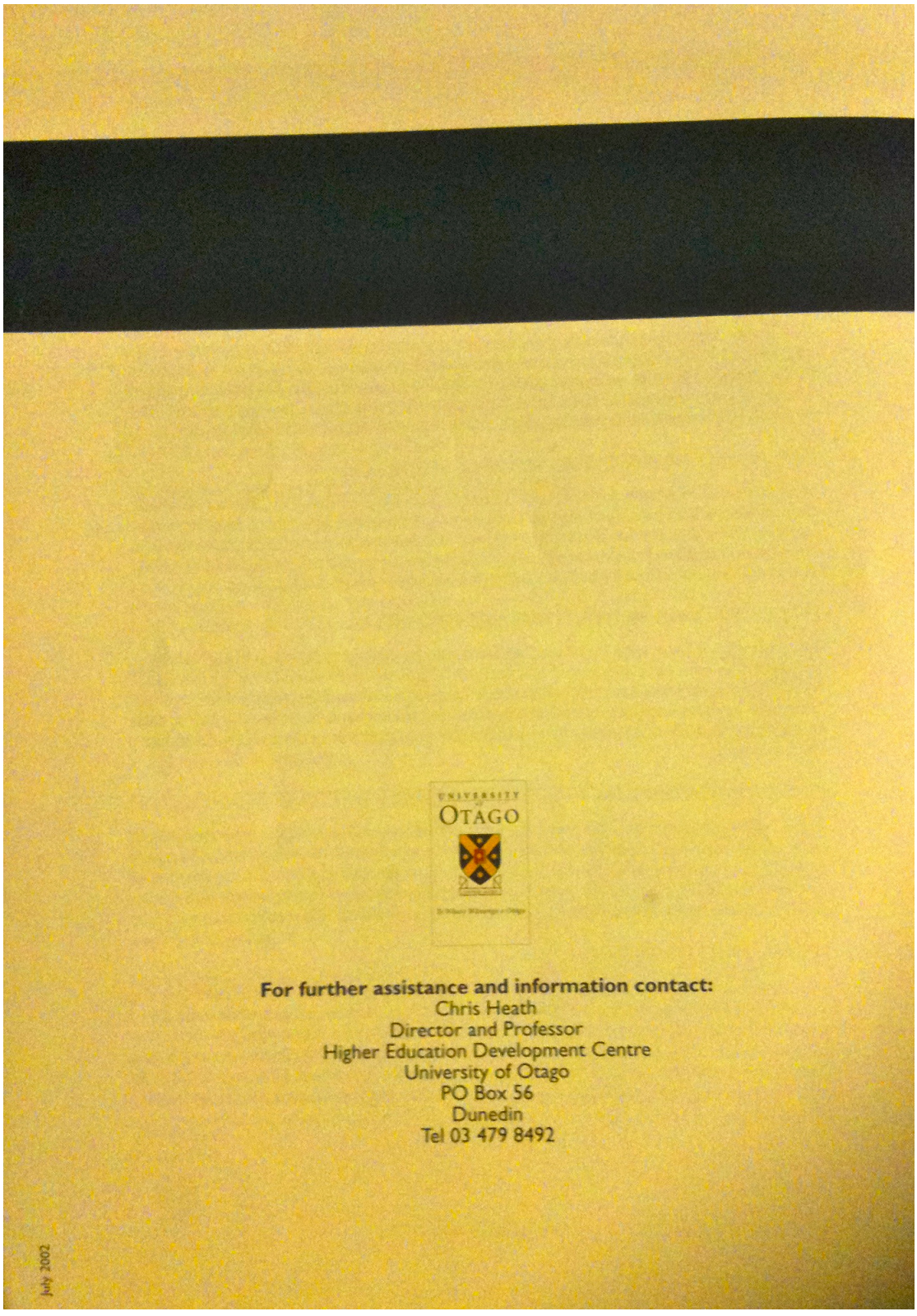
Expecting students to do well becomes a self-fulfilling prophecy. Both the institutional climate and individual teachers should have high expectations that students will acquire a deep understanding of the subject and the skills of their discipline. This applies to all students, including the poorly prepared, those who show little enthusiasm, and the bright and well motivated. All should be challenged to have high expectations.

RESPECTING DIVERSITY

Nowadays with the shift to "mass" higher education there is great diversity among the student body with students coming from a wide range of educational, cultural, and social backgrounds. Good practice respects this diversity and acknowledges the background and experience of students and builds a climate of trust, cooperation, and respect in the classroom. Making mistakes is part of the process of learning and it is far easier to challenge students with new material, views, or approaches, when they feel part of a secure learning environment.

UNIVERSITY OF OTAGO

Committee for Advancement of Learning and Teaching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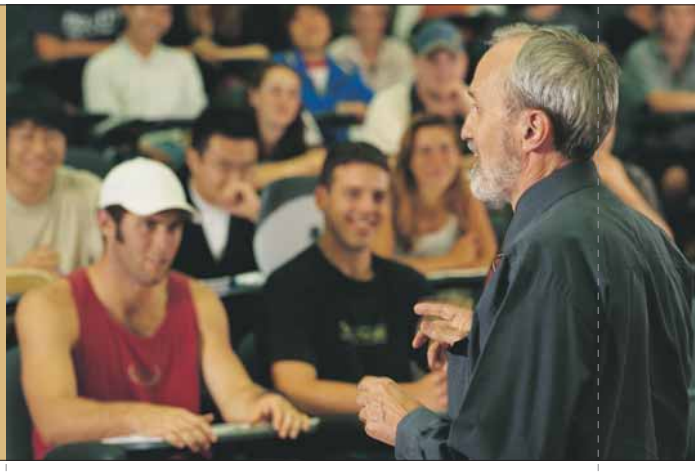
July 2002

Appendix E: The University of Otago Teaching and Learning Plan 2005-2010

THE TEACHING AND LEARNING PLAN

2005–2010

UNIVERSITY OF OTAGO



UNIVERSITY of OTAGO

Te Whare Wānanga o Otāgo



THE TEACHING AND LEARNING PLAN

2005 – 2010

CONTENTS

A Introduction: the Vice-Chancellor

B Background to the Teaching and Learning Plan

C The goals, objectives and strategies

To foster learning through research-informed teaching and assessment of high international standing.

1. Mastery of knowledge
2. Intellectual independence
3. Lifelong learning
4. Excellence in teaching
5. Teaching, research and professional practice
6. Ethical and social implications
7. International learning experience
8. Employment prospects and contribution to society

To maintain and where necessary improve the quality of the university experience and the supportive environment in which students live and work.

9. Learning environment

D Six dimensions of quality learning at the University of Otago

E The University of Otago Graduate (inside back cover)

A INTRODUCTION: THE VICE-CHANCELLOR

The first University of Otago Teaching and Learning Plan was adopted by Senate in February 1996. It was completely re-written in 2002 but retained the purpose of the 1996 Plan, namely "to provide guidance for academic Divisions, Schools and Departments as they undertake the planning of teaching and learning activities."

The 2002 Teaching and Learning Plan was developed by a group of academic staff experienced and active in teaching and a similar group has reviewed the Plan for this updated version. The 2005 update continues to provide teaching staff with a bridge between the all-important goals of the University and the practice of teaching, learning and assessment. Advice on specific teaching methods which can be used to implement the strategies are available online as link from the site http://www.otago.ac.nz/hedc. The six Dimensions and the attributes of the University of Otago Graduate are keys to the design of curricula which lead to quality learning in the University and to the learning outcomes we expect for our students.

I commend the Plan as a guide and a helpful tool for staff and students.

Professor David Skegg
Vice-Chancellor
University of Otago

B BACKGROUND TO THE TEACHING AND LEARNING PLAN

The Teaching and Learning Plan emphasises what is expected in teaching and learning and points to ways in which these expectations might be achieved. The Plan is focused on the "inputs" to the process of achieving quality learning - graduate profiles are concerned with the end-result. The six "Dimensions of Quality Learning" (Section D) provide a synthesis of the nine objectives and link the expectations expressed in the Teaching and Learning Plan to the achievements defined for the University of Otago Graduate (Section E). The Teaching and Learning Plan applies to all levels of undergraduate and postgraduate teaching in the University.

The Teaching and Learning Plan, as well as drawing on relevant policy statements of the University, is strongly influenced by the opinions and values of experienced teachers and by informal input through discussions at committees such as the Committee for the Advancement of Learning and Teaching, the Board of Undergraduate Studies and the Board of Graduate Studies. A few years ago HEDC organised a series of working parties to identify the key features of effective teaching in eight modes of teaching (large class lecturing, practical based teaching, performance teaching etc). The findings from the discussions among about 80 respected teachers from across the University were primarily used to develop a new system for evaluating teaching performance but have also been a most valuable source of strategies and useful teaching ideas for the Teaching and Learning Plan. A group of Otago winners of National Tertiary Teaching Excellence awards was consulted for the 2005 update.

The University's first Teaching and Learning Plan was adopted in 1996. It was entirely rewritten for the 2002 version in order to be based on the goals and objectives of Strategic Direction to 2005 to ensure that the two policy statements are consistent with each other. The nine objectives are unchanged in the 2005 update, apart from minor editing, but the objectives are now linked to the University's Profile 2004-6. Each objective is supported by a series of strategy statements and a link on the webpage at <http://www.otago.ac.nz/hedc> extends each strategy with lists of practical suggestions intended to help individual teachers and planners who seek to implement the objectives in their teaching. Only some of the practical suggestions will be relevant to individual circumstances and users of the Plan are encouraged to add their own ideas derived from experience in their teaching and to forward them to HEDC for inclusion on the website.

Up-to-date performance indicators for the teaching and learning objectives can be found in the University's Profile 2004-6 and in the teaching and research plans of the academic divisions and departments.

C THE GOALS AND OBJECTIVES OF THE TEACHING AND LEARNING PLAN

GOAL To foster learning through research-informed teaching and assessment of high international standing. (Charter 7.0, Profile 2004-6 6.1)

C1: MASTERY OF KNOWLEDGE

Objective 1: **To develop in each student a mastery of a coherent body of knowledge through systematic, disciplined study.**

Context

The challenge for the teachers of the University is to guide our students as they acquire the high level learning skills and expertise which characterise university study. Current interest in the development of generic learning skills can distract attention from the central role of the mastery of a coherent body of knowledge on which the generic learning skills can be built. Advice the University takes from the employers of our graduates tells us that employers assume mastery of subject matter as they begin their search for the special skills and attributes which they need.

Nevertheless, mastery of knowledge cannot be considered in isolation: the high order learning skills have little meaning without a sound knowledge and understanding of the discipline. Mastery of knowledge will not be achieved by the simple acquisition of facts using passive learning methods. Moreover, knowledge is best mastered by application of the many high order learning skills which are identified in this Plan. To be an effective learner at university the skills of critical reasoning, conceptualisation, analysis, synthesis, creativity, evaluation, problem identification and problem solving must be available. Knowledge mastery will require that the student is familiar with relevant research methods and with the handling of evidence. The student will, of course, need to be an effective communicator and have the ability to apply the knowledge they have acquired or it cannot be said that they have mastered the body of knowledge they have studied.

Strategies

Teaching strategies which can assist in realising this objective include:

1a Lead students to understand the major conceptual paradigms, frameworks and theories that relate to the subject matter studied.

1b Provide students with a suitable knowledge of the subject content, developed through a programme of study characterised by coherence, depth, and progression.

1b Develop in students an ability to practice the appropriate methods and practical techniques associated with the subject being studied.

1d Instill in students a sense of the limitations, the provisional nature and the constraints of knowledge gained within a particular sphere.

1e Equip students with a sense of the interconnectedness between different fields of knowledge, and with the ability to integrate and synthesise perspectives gained from a range of fields.

Practical examples of how the strategies listed here might be put into practice in the papers and programmes of the University are provided at http://www.otago.ac.nz/hedc.

C2: INTELLECTUAL INDEPENDENCE

Objective 2: **To foster intellectual independence in students.**
(Profile 2004-6, Objective 22)

Context

Fostering intellectual independence is linked to developing lifelong learning skills (C3) and to the interdependence between teaching, research and professional practice (C5) which defines university study. In the university context, intellectual independence is commonly associated with the experience of advanced learning in the disciplines especially postgraduate study. Most experienced and reflective university teachers can define the traits which comprise intellectual independence in their own discipline. If advanced students are to be intellectually independent they need to be encouraged from the start of university study. The University recognises that employers place a high value on intellectual independence (C8).

Strategies

Teaching strategies which can assist in realising this objective include:

2a: Develop learning environments which encourage intellectual independence.

2b: Motivate students to develop intellectual independence.

2c: Ensure students are equipped with the necessary skills to be intellectually independent.

2d: Develop assessment practices which reward demonstrations of intellectual independence.

2e: Encourage teachers to develop their understanding of the special attributes of intellectual independence in the particular discipline.

Practical examples of how the strategies listed here might be put into practice in the papers and programmes of the University are provided at http://www.otago.ac.nz/hedc.

C3: LIFELONG LEARNING

Objective 3: **To develop the lifelong learning skills of students.**
(Profile 2004-6, Objective 23)

Context

The Mission of the University, the graduate profiles of all programmes and most, if not all, departmental Teaching and Research Plans stipulate that the skills of lifelong learning are key attributes of the successful Otago student. The skills of lifelong learning include the ability to adapt to rapid change, to tolerate uncertainty, to be open to new ideas, as well as willingness to invest time and energy in keeping current in one's own and other fields of knowledge, and concern for social, ethical and environmental implications. Success can be measured by the extent to which skills learned in the University are transferred to the unpredictable environment of the wider world.

Accepting responsibility for personal development is essential to success since university education takes for granted that knowledge is not static and that change is inevitable. Developing the skills of lifelong learning occupies all stages of university education, from first year to final year. Probably the most powerful influence on students is the example set by the lifelong learners who guide them in their study.

Strategies

Teaching strategies which can assist in realising this objective include:

3a: Ensure students have the basic learning skills for study at tertiary level.

3b: Encourage the use of appropriate resources which support lifelong learning.

3c: Ensure students develop understanding at a conceptual level.

3d: Instill in students a love of learning:

3e: Empower students to own their learning.

Practical examples of how the strategies listed here might be put into practice in the papers and programmes of the University are provided at http://www.otago.ac.nz/hedc.

C4: EXCELLENCE IN TEACHING

Objective 4: **To promote, encourage and support excellence in teaching.**
(Profile 2004-6, Objective 2)

Context

It is a prime task of teachers in the University of Otago to help their students along the path towards intellectual independence through developing the skills of life-long learning and expertise in disciplinary knowledge, skills and attitudes. Effective teachers are willing to share their own learning skills, their ability to use and apply evidence and their passion for their subject.

In a university it is possible for sophisticated learners to succeed more or less independently of the quality of teaching, providing they have ready access to appropriate facilities such as libraries and electronic information technology. However, the majority of students enter university less well equipped to exercise significant independence from their teachers. The path is not easy for many students and they can benefit from teachers who empathise with their struggles and recognize that students gain significant learning skills when they make a successful transition from one stage to the next.

Strategies

Teaching strategies which can assist in realising this objective include:

4a: Encourage academic staff to recognise the importance of the objectives relating to intellectual independence and lifelong learning skills of students.

4b: Provide a comprehensive system of opportunities for teaching staff to improve their teaching by gaining a greater understanding of their role in enhancing student learning and a rational appreciation of the opportunities provided by effective use of educational technologies especially information and communication technology.

4c: Provide a comprehensive system for evaluating the quality of teaching in programmes, courses and by individual teachers which emphasises development and fosters a desire to improve.

4d: Encourage academic staff to reflect on their teaching experiences.

4e: Provide a rational system of rewards for high quality teaching (including assessment) based on success in developing the learning skills valued by the University.

4f: Ensure that teaching staff with responsibility for course design and delivery are fully aware of the importance of current educational theory, best practice and the agreed policies of the University.

4g: Ensure that effectiveness in teaching is a significant factor in selection of new academic staff.

4h: Ensure that teaching methods make learning accessible to Mäori and Pacific Island students, students with impairments and students with a first language other than English.

Practical examples of how the strategies listed here might be put into practice in the papers and programmes of the University are provided at http://www.otago.ac.nz/hedc.

C5: TEACHING, RESEARCH AND PROFESSIONAL PRACTICE

Objective 5: **To recognise, reinforce and promote interdependence between teaching, research and professional practice.**
(Profile 2004-6, Objective 27)

Context

University teachers who reflect on the task of teaching know how to draw on the learning and understanding stored in their own and others' research activities and in relevant professional practice. Teaching, research and professional practice all depend on continuing interaction with knowledge, and all are processes where critical analysis, synthesis, action and self-development are essential. The values of university based research parallel the values of university teaching and both inform the values of professional practice.

The links between teaching, research and professional practice are most easily demonstrated at advanced levels of study. However, the links can be made from the first day of each student's university study. Effective university teachers select what they teach from their understanding of current research and contemporary professional practice. They model the values and thought processes of active researchers and those of professionals in practice and they are ever alert to the insights their teaching gives them for their research and professional practice. Researchers in many disciplines find that their teaching feeds their research directly, for example when their students are involved in their projects either as co-investigators or as participants.

Strategies

Teaching strategies which can assist in realising this objective include:

5a: Encourage academic staff to give value to the importance of the interdependence between teaching, research and professional practice.

5b: Seek every possible means to make students at all levels of study aware that research, teaching and professional practice are interdependent.

5c: Ensure that the teaching and research plans of all departments, schools and divisions make explicit the importance of the interdependence between teaching, research and professional practice.

Practical examples of how the strategies listed here might be put into practice in the papers and programmes of the University are provided at http://www.otago.ac.nz/hedc.

C6: ETHICAL AND SOCIAL IMPLICATIONS

Objective 6: **To encourage students to reflect upon and evaluate the ethical and social implications of their knowledge.**

Context

The universities of New Zealand are charged with the role of 'a critic and conscience of society' (Education Act, 1989). Teachers can help students to identify, from a critical perspective, the important ethical and social issues of their subject and equip them with the means of responding now and in the future.

The University seeks to produce graduates who are able to reflect upon and evaluate the ethical and social implications of their knowledge and who are willing to act upon that awareness whatever the ethos of their ultimate employment. The ethical and social values of a university education should transcend the pragmatism of the workplace.

Strategies

Teaching strategies which can assist in realising this objective include:

6a: Include consideration of ethical and social issues in course design.

6b: Promote awareness of formal ethical procedures and standards within the University.

6c: Encourage students to share the University's role as a critic and conscience of society.

6d: Use staff awareness of their influence as role models to lead by example.

Practical examples of how the strategies listed here might be put into practice in the papers and programmes of the University are provided at http://www.otago.ac.nz/hedc.

C7: INTERNATIONAL LEARNING EXPERIENCE

Objective 7: **To develop further international content, context and vision in the learning experience of students.**
(Profile 2004-6, Objectives 6&7)

Context

Internationalisation of the teaching and learning environment at the University of Otago may take many forms. Whatever the forms may be, internationalisation seeks to encourage students to incorporate into their learning a variety of perspectives which transcend the boundaries of a single nation, society or culture. Crucially, this process involves recognition both of cultural diversity and common humanity, especially with respect to the quest for knowledge across time and space.

The successful integration of international dimensions into the University's teaching and learning activities will assist in preparing students for participation in an increasingly globalised world as active citizens and producers of knowledge. Internationalisation will thereby constitute a key element in the graduate profiles of many University of Otago programmes.

Strategies

Teaching strategies which can assist in realising this objective include:

7a: Enhance the international dimension of undergraduate and postgraduate programmes by facilitating the appropriate internationalisation of curricula. (see Internationalisation Management Plan, 2003-6 (IMP) 4.1-4.4)

7b: Institute and maintain systems which ensure that the University benefits fully from participation in the global internationalisation of tertiary education. (see IMP 1.1-1.4)

7c: Develop and support student exchange programmes which enable University of Otago students and their overseas counterparts to participate in an international learning experience for credit towards their degree. (see IMP 3.1)

7d: Enrol undergraduate and postgraduate international students in each Division of the University, drawn from a diverse range of countries. (see IMP 2.5-2.7)

Practical examples of how the strategies listed here might be put into practice in the papers and programmes of the University are provided at http://www.otago.ac.nz/hedc.

C8: EMPLOYMENT PROSPECTS AND CONTRIBUTION TO SOCIETY

Objective 8: **To develop in students skills, attributes and knowledge which enhance their employment prospects and their capacity to make a positive contribution to society.**
(Profile 2004-6, Objective 4)

Context

In the many reports which identify the skills employers seek in university graduates there is a high level of consistency with respect to the most valued skills. When the University of Otago surveyed the employers of its graduates the main findings were entirely consistent with those of most other studies. To ensure that the University continues to understand the issues, senior staff of the University meet each year with selected employers to discuss their expectations of our graduates.

High among the skills which employers regard as important are effective communication skills, the ability to learn new skills, the capacity for cooperation and working effectively in teams. These particular generic skills are also valued by university staff but have not been ranked so highly in several studies. On the other hand, employers take for granted that graduates of the University will have acquired such generic attributes as disciplinary (and interdisciplinary) knowledge, skills and attitudes, problem-solving skills, facility with information technology and the ability to work independently.

The capacity to make a positive contribution to society draws on many generic skills. However, the ability of graduates to adapt their University experience to new needs, to respond to change and to be flexible about how and where tasks are undertaken are especially important. In general, society expects graduates to be capable of acting as "critic and conscience" and to evaluate the ethical and social implications of their knowledge. Our society also expects graduates to be leaders of change and visionaries, to see the big picture and its implications for the present and the future.

Strategies

Teaching strategies which can assist in realising this objective include:

8a: Ensure that graduate profiles, and the curricula of programmes and papers address the development of relevant skills and attributes along with disciplinary and interdisciplinary knowledge.
8b: Provide a safe environment for students which allows relevant generic skills and attributes to be acquired and practised.
8c: Continue to seek feedback and input from employers, graduates and other stakeholder groups on the skills and attributes which are currently relevant to them, those which they anticipate being relevant in the future, and the extent to which they are demonstrated by graduates of the University of Otago.

Practical examples of how the strategies listed here might be put into practice in the papers and programmes of the University are provided at http://www.otago.ac.nz/hedc.

C9: LEARNING ENVIRONMENT

Context

Extensive research into student learning at university has shown that the quality of the learning achieved is related to the way that the students perceive the context in which they are learning and the way they approach their learning. Some students will see learning as gathering knowledge, some as memorising while others will be seeking to extract meaning and to gain understanding so they can apply what they learn. Still others will be reinterpreting the knowledge to better understand the wider meaning of their learning and may ultimately find that they themselves have changed in a profound way. To achieve the six dimensions of quality learning described below (see D), especially those of lifelong learning and intellectual independence, it is necessary to sustain an environment which accommodates all learners, whatever their perception of the learning task, while challenging them to embrace all levels of learning from memorising to personal transformation.

The task of providing a safe, healthy and suitably resourced learning environment is complex and calls for understanding by teachers and by all those who have a role in student learning. The learning environment is a result of the quality of space for teaching and for study, the appropriateness of methods of teaching and assessment and includes protection from abuse including the inappropriate use of power. Ultimately, a successful learning environment equips each individual learner with an optimistic view of their future and confidence in the learning experiences of their past.

GOAL To maintain and improve the quality of the university experience and the supportive environment in which students live and work. (Charter 7.2, Profile 2004-6 6.1)

Objective 9i: **To provide a safe and healthy learning environment for students.** (Profile 2004-6, Objective 24)

Objective 9ii: **To provide a suitably resourced study environment.**

Objective 9iii: **To recognise the rights and responsibilities of students as participants in their own educational experience.**

Strategies

Teaching strategies which can assist in realising this objective include:

9a: Ensure that students are provided with the best quality space for teaching and study which resources permit and which current learning theory indicates will be effective.

9b: Plan courses and programmes which respond to the diversity of learning strategies of the students while challenging them to expand their perceptions of learning.

9c: Establish the standards for interaction between teachers and students, and between students.

9d: Encourage the development of a culture where all interactions between teachers and students are marked by an expectation of shared commitment to learning and by optimism for success in the chosen field of study.

Practical examples of how the strategies listed here might be put into practice in the papers and programmes of the University are provided at http://www.otago.ac.nz/hedc.

D SIX DIMENSIONS OF QUALITY LEARNING AT THE UNIVERSITY OF OTAGO

A summary of the University's goals and objectives for teaching and learning

- Disciplinary and interdisciplinary knowledge, skills and attitudes

  The University of Otago promotes quality learning through the acquisition of knowledge, the development of skills and the building of attitudes. Quality learning within specific disciplines and across traditional disciplinary boundaries assists learners to apply what they have learned to practical situations now and in the future. Oral and written communication skills and the ability to collaborate effectively are vital.

- Understanding

  Effective learners at the University of Otago demonstrate conceptual understanding as well as subject knowledge. Conceptual understanding enables learners to engage in rigorous intellectual analysis, criticism and problem-solving and to apply knowledge and skills creatively in current and new contexts.

- Research informed learning

  Learners at the University of Otago are informed by research and scholarship; they are encouraged to recognise the insights offered by current research and to value the example set by their research-informed teachers.

- International perspectives

  The University of Otago encourages learners to develop international awareness and understanding, to recognise what is common across diverse cultures and to participate in globalisation of study, research and employment.

- Ethical and social awareness

  The University of Otago expects learners to evaluate and debate the ethical, social and community implications of the knowledge, skills and attitudes they have acquired so that they are informed in their opinions and in their ethical values.

- Lifelong learning

  Quality learning at the University of Otago emphasises lifelong learning. Lifelong learning is central to the Mission of the University. Lifelong learners are independent learners able to adapt to rapid change, to tolerate uncertainty and to be open to new ideas. Lifelong learners love learning, are eager to invest time and energy in continuing study and to apply their knowledge, skills and attitudes in the interests of society.

E THE UNIVERSITY OF OTAGO GRADUATE

The following attributes are to be fostered at the University of Otago:

- COMMUNICATION: the ability to communicate information, arguments and analyses effectively
- CRITICAL THINKING: the ability to analyse issues logically, consider different options and viewpoints, and make informed decisions
- CULTURAL UNDERSTANDING: an understanding of cultural diversity within the framework of the Treaty of Waitangi, and biculturalism and multiculturalism in New Zealand
- ETHICS: a knowledge of ethics, ethical standards and social responsibility
- GLOBAL PERSPECTIVE: an appreciation of the global perspective in their chosen discipline(s), and an informed sense of the impact of the international environment on New Zealand and New Zealand's contribution to the international environment
- IN-DEPTH KNOWLEDGE: a deep, coherent and extensive knowledge of at least one discipline coupled with an understanding of the fundamental contribution of research
- INFORMATION LITERACY: a basic understanding of information literacy and specific skills in acquiring, organising and presenting information, in particular through computer-based activity
- INTERDISCIPLINARY PERSPECTIVE: intellectual openness and curiosity, and the awareness of the limits of current knowledge and of the links between disciplines
- LIFELONG LEARNING: a commitment to lifelong learning, with the ability to apply knowledge, develop existing skills, adapt to a changing environment, and acquire new skills
- RESEARCH: the ability to conduct research by recognising when information is needed, and locating, retrieving, evaluating and using it effectively
- SCHOLARSHIP: a commitment to the fundamental importance of the acquisition and development of knowledge and understanding
- SELF-MOTIVATION: the capacity for self-directed activity and the ability to work independently
- TEAMWORK: the ability to work effectively as both a team leader and a team member
- WORKPLACE-RELATED SKILLS: enterprise, self-confidence and a sense of personal responsibility within the workplace and community

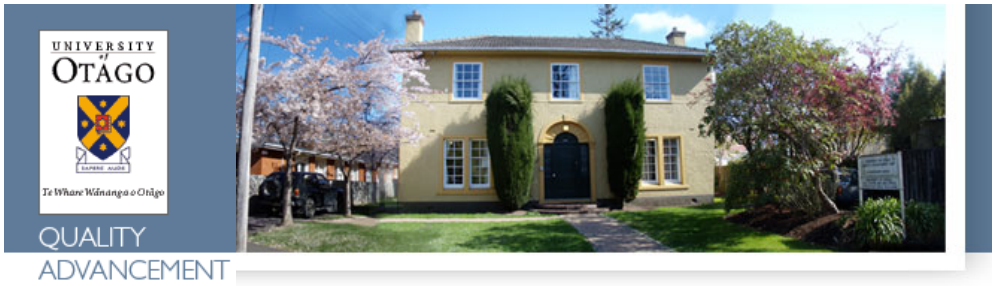
(Adopted by Senate March 2003)

THE TEACHING AND LEARNING PLAN

2005–2010



Appendix F: Key Points for Good Feedback



Key Points for Good Feedback

In consultation with staff and after conducting a literature search the working party has developed these *Key Points for Good Feedback*. You can request a hard copy by visiting the HEDC website

Feedback can have a major impact on the achievement of our students. Studies in the education literature describe feedback as a teacher's best tool for helping students learn.
These *Key Points for Good Feedback* highlight the importance of feedback in learning and are intended to be a quick reference for teachers. They should be considered as a companion to the *Senate Policy on Assessment of Student Learning* (1997) and *Ten Key Points for Good Practice in Teaching and Learning* (HEDC 1999). It is hoped that the *Key Points for Good Feedback* and the database of feedback examples will encourage teachers to share feedback ideas and strategies.
Establish learning goals that are understood and shared by you and your students
Goals are meant to energise and direct behaviour. They also provide a framework for feedback and simplify the task. To succeed, goals need to be clear, specific, and challenging. Further learning benefits can be achieved if the goals are defined collaboratively by students and their teacher. Students who participate in setting goals are more likely to internalise them and, as a result, become more highly motivated. The goals will be credible and useful only if teaching arrangements and assessment tasks are appropriate to the stated goals.
Help students to understand and recognise the desired standards
Students need to know what level of achievement is expectedof them. Clear guidelines, which some teachers may choose to formalise into a learning contract, are very important. One consistent student complaint is that the criteria for assessment do not communicate clearly how their work is ultimately assessed. Guidelines should serve to clarify the learning task, communicate performance expectations, offer milestones from which students gauge their progress, and provide benchmarks linking task achievement with grade achievement. Clear guidelines also provide a helpful framework for providing feedback.
Encourage student reflection
Self-assessment is a vital component in learning. Feedback on assessment will be much more effective when students recognise that they can improve and identify what aspects of their work to address. To help accomplish this, teachers should go beyond making corrections and express feedback in a way that challenges students to think critically, perhaps by encouraging them to view their work from a different perspective; or assessment might incorporate formative feedback before final submission. If students are encouraged to critically examine and comment on their work, assessment can become more dialogue than monologue and can contribute powerfully to their educational development.
Help students to recognise how they can improve
Quality feedback comprises more than commenting on how well a student is doing at a particular point in time. It also provides advice on the next set of steps that the student will need to take. This guidance might include identifying specific issues that the student should work on, providing a list of references for the student to read, or posing a question that challenges the student's current way of thinking. Feedback becomes especially powerful if the marker can refer to feedback that has previously been given to the student.
Build student confidence
A balance needs to be struck between criticism and support. All feedback should be useful and constructive. Negative, overly

critical, condescending or dismissive feedback will have a self-devaluing effect. Furthermore, students are likely to disregard such feedback. It is important to identify weaknesses in a way that suggests how they might be addressed. Nurturing student learning by reinforcing strengths will make students more receptive to the feedback they receive.
Provide prompt feedback
Feedback is most effective when the work it assesses is fresh in the learner's mind. At a minimum, feedback must be given in sufficient time to benefit students' subsequent work. Prompt feedback increases sment in their learning.

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Web Office

Appendix G: The University of Otago ethical approval letter

Jayaram Subramanian
DClinDent Student
Department of Oral Sciences
University of Otago

10 May 2010

Dear Jayaram

Re: Student and graduate perceptions of the DClinDent programme - a qualitative research project

This letter is to inform you that your Category B Human Ethics application for the research project entitled *Student and graduate perceptions of the DClinDent programme - a qualitative research project*, has been approved at the Departmental level.

I wish you success in your research.

Sincerely

RD Cannon

Professor Richard Cannon MA PhD

Head, Department of Oral Sciences

Department of Oral Sciences
School of Dentistry, PO Box 647, Dunedin 9054, New Zealand
Tel +64 3 479 7070 or 479 7078 • Fax +64 3 479 7070 or 479 7078 • Email oralsciences@otago.ac.nz
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Appendix H: Ngai Tahu Research Consultation Committee letter



NGĀI TAHU RESEARCH CONSULTATION COMMITTEE
TE KOMITI RAKAHAU KI KĀI TAHU

30/03/2010 - 63
Wednesday, 19 May 2010

Dr Anderson
Oral Sciences
Dunedin

Tēnā koe Dr Anderson

Title: Student and graduate perceptions of the DClinDent programme - a qualitative research project.

The Ngāi Tahu Research Consultation Committee (The Committee) met on Tuesday, 18 May 2010 to discuss your research proposition.

By way of introduction, this response from the Committee is provided as part of the Memorandum of Understanding between Te Rūnanga o Ngāi Tahu and the University. In the statement of principles of the memorandum, it states "Ngāi Tahu acknowledges that the consultation process outlined in this policy provides no power of veto by Ngāi Tahu to research undertaken at the University of Otago". As such, this response is not "approval" or "mandate" for the research, rather it is a mandated response from a Ngāi Tahu appointed committee. This process is part of a number of requirements for researchers to undertake and does not cover other issues relating to ethics, including methodology; they are separate requirements with other committees, for example the Human Ethics Committee, etc.

Within the context of the Policy for Research Consultation with Māori, The Committee base consultation on that defined by Justice McGechan:

> *"Consultation does not mean negotiation or agreement. It means: setting out a proposal not fully decided upon; adequately informing a party about relevant information upon which the proposal is based; listening to what the others have to say with an open mind (in that there is room to be persuaded against the proposal); undertaking that task in a genuine and not cosmetic manner. Reaching a decision that may or may not alter the original proposal."*

The Committee considers the research to be of importance to Māori health.

As this study involves human participants, the Committee strongly encourage that ethnicity data be collected as part of the research project. That is the questions on self-identified ethnicity and descent, these questions are contained in the 2006 census.

The Committee suggests dissemination of the findings to relevant Māori health organisations, for example the National Māori Organisation for Dental Health, Oranga Niho and to Associate Professor John Broughton, who is involved in Māori Dental Health, University of Otago.

NGĀI TAHU RESEARCH CONSULTATION COMMITTEE
TE KOMITI RAKAHAU KI KĀI TAHU

We wish you every success in your research and the Committee also requests a copy of the research findings.

This letter of suggestion, recommendation and advice is current for an 18 month period from Tuesday, 18 May 2010 to 18 November 2011.

The recommendations and suggestions above are provided on your proposal submitted through the consultation website process. These recommendations and suggestions do not necessarily relate to ethical issues with the research, including methodology. Other committees may also provide feedback in these areas.

Nāhaku noa, nā

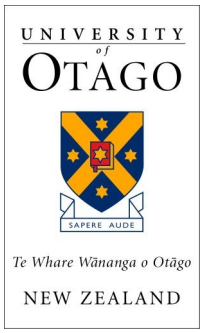
pp NTRCC

Mark Brunton
Kaitakawaenga Rangahau Māori
Facilitator Research Māori
Research Division
Te Whare Wānanga o Otāgo
Ph: +64 3 479 8738
email: mark.brunton@otago.ac.nz
Web: www.otago.ac.nz

The Ngāi Tahu Research Consultation Committee has membership from:

Te Rūnanga o Ōtākou Incorporated
Kāti Huirapa Rūnaka ki Puketeraki
Te Rūnanga o Moeraki

Appendix I: Information sheet for participants



INFORMATION SHEET FOR PARTICIPANTS

Title of the project: Student and graduate perceptions of the DClinDent programme - a qualitative research project.

Thank you for showing an interest in this project. Please read this information sheet carefully before deciding whether or not to participate. If you decide to participate we thank you. If you decide not to take part, there will be no disadvantage to you of any kind, and we thank you for considering our request.

What are the aims of this project?

The aims of this study are to investigate the characteristics of effective and ineffective learning experiences in clinical and research settings, as identified by the 2010 final-year DClinDent students and the first cohort of DClinDent graduates who graduated in 2009.

What type of participant is being sought?

All 2010 final-year postgraduate students currently enrolled for the Doctor of Clinical Dentistry programme (across all disciplines) and 2009 DClinDent graduates are invited to participate.

What will participants be asked to do?

We are inviting you to take part in a research project examining student and recent graduate perspectives of the DClinDent programme. The findings from this research may produce recommendations for improvements in existing educational practice in the DClinDent programme, and will be shared with the Dean of the Faculty of Dentistry, the members of the Postgraduate Studies Committee and all the DClinDent programme co-ordinators for possible action, where appropriate.

Should you agree to participate in this project, you will be asked to take part in an interview that will be audiotaped if possible. In the case of final-year DClinDent students, interviews will take place at a time and place convenient for you. In the case of graduates, interviews will be conducted either in person where possible or by telephone/video-conferencing at a time convenient for you. Specifically you will be asked to recall a positive and a negative learning experience that occurred during your postgraduate programme in the dental school in any educational setting and any year. The educational setting could include clinical settings such as patient treatment sessions in the postgraduate clinic/operating theatres; or didactic settings such as case presentations, seminars, assignments, journal clubs, or research settings including interaction with supervisors or other research staff. You will be given the questions before hand, but the interview will also likely include some informal discussion relating to your comments so that all questions cannot be determined in advance. The interview will be audiotaped (however the recording will be stopped any time at your request), and transcribed. Where recording is not possible, notes will be taken and summarised. All recorded audiotapes would be permanently destroyed immediately after transcription.

Personal information gathered will include your name, age, gender, place of undergraduate education, ethnicity, country of citizenship, place of employment, contact email, and telephone number. Personal information is for tracking purposes and to provide demographic information only. All personal information will be deleted from transcripts and stored separately from the interview transcripts. It will not be used in any presentation or publication about the project or in any way that is likely to make you identifiable.

This study will give you the opportunity to provide feedback on the DClinDent curriculum in an anonymous way. Please be assured that your personal identity will be fully protected. You may decide not to take part in the project or to withdraw your participation at any time without any disadvantage to yourself of any kind.

If you wish to take part in the interview you will be sent a basic interview schedule beforehand to give you adequate time to reflect on your educational experience. However, an open-ended questioning technique will be used during interviews, so some of the questions to be asked cannot be predicted in advance. Following the interview, your transcript or interview summary will be sent to you for comments, clarification or modification.

The following steps will be taken to minimise any harm to you:

- Specific programme enrolment details will not be recorded during the interviews (in cases of accidental disclosure, the interviewer is responsible for removing them from transcripts).

- You will be advised not to name any Faculty member in your response (in cases of accidental disclosure, the interviewer is responsible for removing them from transcripts).

- Access to audiotapes will be restricted to the interviewer (and a transcription typist). He will permanently destroy these tapes after transcription. No staff in any discipline including the supervisors will have access to tapes. All personal identifying information will be erased from transcripts (if any). Name, age, gender, place of undergraduate education, ethnicity, country of citizenship, place of employment, contact email, and telephone number will be collected as they are needed for a limited time for practical purposes but will not be stored with research data and will be destroyed once the details are no longer needed. The interviewer will be responsible for removing all personal identifying information from the transcripts (with regards to both staff and students) and will allocate each transcript a unique code after removing all the participant's personal information.

- Your name/specific course enrolment details will not be reported in any presentations/publications arising from the study. Demographic data will not be

used other than in a general sense and will not be used in such a way as to make you identifiable.

Please note that you may decide not to take part in the project without any disadvantage to yourself of any kind, or to take part in some of the project but not all. Your participation will not in any way affect your final year assessments. If you decide to participate you may choose to ignore questions that you do not want to answer (including your personal information). Due to the open-ended questioning technique used in the interviews, the Department of Oral Sciences, University of Otago Ethics Committee is aware of the general areas to be explored, but has not been able to review all the precise questions to be used. If you choose to take part in the interview and the line of questioning develops in a way that makes you uncomfortable, you can withdraw from the interview at any stage, request to pause the recording or remain silent. We anticipate that if you participate, you will enjoy providing us with feedback on the DClinDent programme.

Can participants change their mind and withdraw from the project?

Yes, you may withdraw from participation in the project at any time and without any disadvantage to yourself of any kind.

What data or information will be collected and what use will be made of it?

If practicable, you will be audiotaped in this study. However the recording will be switched off at any time at your request. You will be asked to provide your name, age, gender, place of undergraduate education, country of citizenship, ethnicity, place of employment, contact email, and telephone number (these personal demographic data will not be matched with any participant for personal identification and it may not be possible to identify you from any presentation/publications arising from this study). All audiotapes will be permanently destroyed immediately after transcription.

If we present/publish the results of the study in a scientific journal or book, we will not identify you in any way. The results of the project may be published and will be available in the University of Otago Library (Dunedin, New Zealand) but every attempt will be made to preserve your anonymity. You are most welcome to request a copy of the results of the project should you wish.

All the data collected will be securely stored and will not be accessible to any staff related to any discipline. At the end of the project any personal information will be destroyed immediately except that, as required by the University's research policy, any raw data on which the results of the project depend (anonymous interview transcripts) will be retained in secure storage for five years, after which the Dental Education Support Officer will ensure that it is destroyed.

What if participants have any questions?

If you have any questions about our project, either now or in the future, please feel free to contact:

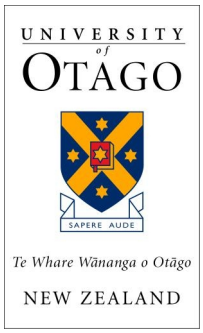
Mr. Jayaram Subramanian **(OR)** **Dr. Vivienne R. Anderson**

Department of Oral Sciences Supervisor and Dental Education Support Officer

jram.subramanian@gmail.com vivienne.anderson@otago.ac.nz

The Department of Oral Sciences, University of Otago Human Ethics Committee, has reviewed and approved this study.

Appendix J: Informed consent form for participants



CONSENT FORM FOR

PARTICIPANTS

Title of the project: Student and graduate perceptions of the DClinDent programme - a qualitative research project.

I have read the Information Sheet concerning this project and understand what it is about. All my questions have been answered to my satisfaction. I understand that I am free to request further information at any stage.

I know that:-

1. My participation in the project is entirely voluntary.

2. I am free to withdraw from the project or withhold information at any time without any disadvantage.

3. Only the interviewer and a transcription typist will have access to audiotapes and all audiotapes will be destroyed immediately after transcription.

4. All personal identifying information will be removed from the transcripts by the interviewer, and only the anonymous transcripts will be retained in secure storage for five years, after which the Dental Education Support Officer will destroy them.

5. The interviews will involve an open-ended questioning technique and will

examine my views of the DClinDent programme. However, the precise nature of the questions that will be asked cannot be determined in advance and will depend on the way in which the interview develops. I understand that if the line of questioning develops in such a way that I feel hesitant or uncomfortable I may decline to answer any particular question(s), request to stop the recording temporarily and/or may withdraw from the project without any disadvantage of any kind.

6. I will receive no payment for my involvement in this project, nor will any commercial use be made of the data.

7. The results of the project may be published and will be available in the University of Otago Library (Dunedin, New Zealand) but every attempt will be made to preserve my anonymity.

The Department of Oral Sciences, University of Otago Human Ethics Committee, has approved this study. If you have any concerns about the ethical conduct of the research you may contact the Committee through the Human Ethics Committee Administrator (ph 03 479 8256). Any issues you raise will be treated in confidence and investigated and you will be informed of the outcome.

I agree to take part in this project.

..... ……

(Signature of participant) (Date)

Appendix K: University of Otago Faculty of Dentistry Research Scholarship Award letter

UNIVERSITY of OTAGO
Te Whare Wānanga o Otāgo
NEW ZEALAND

21 October 2010

Jayaram Subramanian
Postgraduate Suite
School of Dentistry

Dear Jayaram

Congratulations on being awarded a Faculty Research Scholarship. That is a great achievement and will provide good impetus to your research.

I wish you well as you pursue your DClinDent research, and look forward to hearing of your results.

Kind regards

Yours sincerely

R D Cannon

Professor Richard Cannon
Head of Department

Department of Oral Sciences
School of Dentistry, PO Box 647, Dunedin 9054, New Zealand
Tel +64 3 479 7070 or 479 7078 • Fax +64 3 479 7070 or 479 7078 • Email oralsciences@otago.ac.nz
www.otago.ac.nz

Appendix L: Australian and New Zealand Association for Health Professional Educators (ANZAHPE) Conference 2012 Abstract acceptance letter



Ref: 28

12 April 2012

Mr Jayaram Subramanian
Faculty Of Dentistry
Postgraduate Suite, 310 Great King Street
North Dunedin
DUNEDIN OTAGO 9016

Dear Jayaram

Australian and New Zealand Association for Health Professional Educators (ANZAHPE) Conference 2012.
Millennium Hotel in Rotorua, New Zealand: Tuesday 26 - Friday 29 June 2012.

Thank you very much for submitting an abstract for consideration.

On behalf of the Organising Committee, I am pleased to advise you that the following abstract/s has been accepted;

Title:	**FACTORS THAT PROMOTE EFFECTIVE AND INEFFECTIVE LEARNING IN POSTGRADUATE DENTAL EDUCATION: STUDENT PERSPECTIVES AND IMPLICATIONS FOR PRACTICE**
Presentation Type:	**Oral presentation**

Attached are the Speakers Guidelines for your information. These provide information on preparing and saving your presentation for the conference.

All presenters are required to register for the conference. The online registration form can be found at:www.anzahpe2012.co.nz

If you have any questions please do not hesitate to contact me. Presentation related updates will be sent via email. Other updates will be provided on the conference website www.anzahpe2012.co.nz

Kind regards
Kathryn Hunter | Project Manager | ForumPoint2
T: +64 7 838 1098 | Email: kathryn@fp2.co.nz |www.anzahpe2012.co.nz