**The Power of Self Control:**

**A Qualitative Analysis of the Influence of Industry on Dental Education Using**

**Grounded Theory Methodology**

By

Martin R. Gillis

A thesis submitted to the Department of Education

in partial fulfillment of the requirements for the degree

of Master of Arts in Education (Curriculum Studies)

at

Mount Saint Vincent University, Halifax, NS

March 10, 2008

DEDICATION

To my wife Shelley and our children Jane, Peter, Claire and Emma.

*Vision is the art of seeing what is invisible to others.*

*Jonathan Swift*

ABSTRACT

University based dental education experiences financial strain in its efforts to deliver curriculum relevant to current dental practice. University-industry relationships are becoming increasingly common to incorporate innovation and technology into curriculum to enrich students learning experience. Such relationships may be problematic as curriculum control is exposed to external influence. Thirteen dental faculty from Dalhousie University participated in semi-structured interviews for a qualitative study using constructivist grounded theory methodology to develop substantive theory. Thematic analysis uncovered two primary themes related to 1. tension between authoritarianism and entrepreneurialism and 2. influence of industry on pre-existing educational dichotomies. Academe as stewards of the profession was the category central to the theory The Power of Self Control and explained using a symbolic interactionist perspective.

ACKNOWLEDGEMENTS

When I reflect upon my initial thoughts and intentions for pursuing this topic I feel naïve in thinking that I would actually arrive at an answer to my research question. In the end, I think I've created more questions which were not apparent when I began this qualitative study. I come from a quantitative science background and practice in a quantitative profession so the realm of qualitative research is very new to me. But it has enlightened me with regard to the fact that I am a true pragmatist. Pragmatic in the sense that you have to do whatever it takes, whether it is qualitative, quantitative or mixed methodology to gain a greater understanding of the issues which are close to your heart. I must thank Dr Blye Frank for introducing me to qualitative methodology, which has and will continue to influence my approach to examining issues.

In many ways this thesis has been a process of transformation, where in the beginning I thought I could create a neat, tidy and easily packaged dissertation; but now I feel that it is impossible to package Pandora's Box. This dissertation was at times difficult to compose knowing that there is a heavy burden of responsibility in telling the participant's story through your own voice. I must thank the participants for their trust and giving of their time to provide honest commentary on this topic. I also must thank my thesis committee, Drs Mary McNally, Joe Murphy and Bill MacInnis, for giving me the freedom to research and compose this dissertation, yet all the while knowing they were there when I needed them.

Introspection is fundamental to the constructivist element of qualitative inquiry. Through this process of soul searching I realize that my view of the dental profession has been shaped by the dental educators who taught me through my years as a student in

dental school, and will continue long after this thesis is completed as colleagues in this profession. There are three individuals, the late Dr Noel Andrews, Dr Robert MacDonald and Dr Bill MacInnis who I owe special thanks, not only in terms of my own personal and professional development by serving as mentors and role models; but also for their greater roles as stewards of the dental profession.

And finally I must thank my wife Shelley for her patience and understanding while I researched and composed this thesis. She sometimes has asked, "Why can't you be like other men and buy a red sports car in your mid-life crisis?" A good question for which I do not know the answer, but what I do know is that at the end of the day, when the ink has finally dried on this thesis, she deserves the sports car.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

CHAPTER ONE- INTRODUCTION

In 2003 the Nova Scotia Dental Association (NSDA) encountered the issue of corporate sponsorship of its education website, HealthyTeeth.org. This website is an interactive educational tool used by elementary school children to address several oral health issues related to young people such as diet and dental caries and the hazards of tobacco use. This website gained not only local appeal, but also attracted international interest as children worldwide used this website. It was noted in the document *HealthyTeeth.org Our Case for Support*, prepared for the Nova Scotia Dental Association (2003) by Compass Communications, that within one year of its launch HealthyTeeth.org was one of the top oral health education websites in the world and in 2003 was awarded the Oral Health Promotion Award by the Canadian Dental Association.

The development and maintenance of HealthyTeeth.org was financed by the NSDA which was becoming increasingly burdensome because as the website's growth and popularity grew so did the costs of operation. The NSDA did not want to rest the mounting financial responsibility entirely upon the shoulders of its membership so a non-dues revenue source was proposed. The Association viewed external funding through corporate sponsorship as a possible solution to ease the Association's financial commitments to HealthyTeeth.org. This approach, although seen as positive from a financial standpoint, was a point of concern to the NSDA as elements of uncertainty could arise when partnering with industry. As a member of NSDA's Governing Council and Communications Committee, it was noted that industry partnership would need to proceed with caution so as not to enter partnerships which would diminish the integrity of the Association. Investigation of industry partnerships would have to be explored before

embarking upon such high stakes ventures since the Association had no policy on corporate sponsorship.

The perils of corporate partnership within organized dentistry were brought to light in a newspaper article "Dental academy's $1m deal with Coca –Cola hits nerve" by Lindsey Tanner in the March 3, 2003 edition of *The Chronicle-Herald*. The article reported that the Coca-Cola Foundation provided a one million dollar grant to the American Academy of Pediatric Dentistry (AAPD) to support research, education and health promotion in children. This was perceived as a blatant conflict of interest and described by Shenkin (2003) as "an embarrassment to the dental profession and to everyone who has strived for the past 60 years to make prevention and health promotion the cornerstone of modern dental practice." Coca-Cola was seen as "buying" a health professional organization for one million dollars and if it could happen to the AAPD, could it happen to any dental organization?

The need for relevant policy on corporate sponsorship was now seen by the NSDA as a necessity in the wake of the AAPD's corporate partnership with Coca-Cola. I, like many members of the dental profession, felt somewhat uncomfortable with market influences in dentistry. The source of unease centered on the principle that a business focus could undermine the profession's purpose in serving society's oral health care needs. As part of my role on Governing Council I was tasked with researching and developing the *Nova Scotia Dental Association Policy on Corporate Sponsorship* (2003). The purpose of the policy was to provide a document the NSDA could reference when building corporate partnerships. The criteria for the selection of appropriate corporate partners were based on the premise that control of the partnership and resources were

held in the hands of the NSDA. It was integral for any corporate partnership to be consistent with the mission of the NSDA so as to reflect the high standards and public reputation of the NSDA. In essence the document served as a guide to develop solid corporate partnerships which were congruent with the core values of the Association.

The integrity of an institution's mission and core values need to be upheld in the face of challenges which may undermine these principles. When facing such situations, institutions require mechanisms to recognize, assess, reflect and act in appropriate ways. As a part-time clinical instructor in the Faculty of Dentistry at Dalhousie University I recognized that dental education could also encounter challenges with university-industry relationships. The dentists who forged the development of the dental profession recognized the pursuit of higher learning in dental schools as the foundation on which to build the profession. Historically economic, political and societal pressures have challenged the faculty's resources to deliver dental education to grow the profession and treat the public's oral health needs. When there is human interaction involving elements of power and money things become quite complicated and not easily understood. The influence of industry on dental education is merely one aspect of the commercialization of the dental profession; and this phenomenon is laced with power and money. It is a socioeconomic phenomenon which requires understanding at the individual, organizational and societal levels.

Using guidelines as the exclusive mechanism for control of the curriculum would likely be ineffective. In order to gain insight into this complex issue one must first gain insight into the human condition. I feel this understanding is intrinsic to upholding the core values of the dental profession and maintaining stewardship of the profession in the

realm of academe. My motivation for this study was not merely to uncover the concepts related to industry's influence on dental education, but to arrive at a substantive theory which describes the underlying sociologic processes behind this phenomenon. A qualitative research study involving semi-structured interviews of faculty members from the Faculty of Dentistry at Dalhousie University was performed to uncover themes central to my research question: What is industry's influence on dental education? The human condition, the process of what is happening relies on symbolic interactionism to give meaning to the social phenomenon which underlies the influence of industry on dental education. A constructivist grounded theory theoretical framework was used in this study to uncover concepts and themes to a build substantive theory in response to the research question.

In this study the paradigm of inquiry for the grounded theoretical framework is a post-positivist approach with the recognition that reflexivity plays a substantial role in data collection and data analysis. Constructivist grounded theory methodology gives structure and process to the research method, yet the role of the researcher's personal experience has bearing on the narrative of the thesis. Therefore constructivist and post modern influences are taken into account so that the reader can make sense of the conclusions drawn from the study. The reader must understand the path of logic the author will guide them along through the discourse of the thesis.

The results of this study should provide valuable insight into the academic culture surrounding the influence of industry in dental education as this is an area of study which has not been explored in dental education. The substantive theory generated by this study may serve as the basis for principals in the development of guidelines for university

industry relationships. The purpose of guidelines might serve to promote the development of action plans to enhance the positive and limit the negative aspects of university- industry relationships.

This dissertation will progress through a series of chapters, which in Chapter 2: Review of Literature, provides background in the progressive definition of curriculum, sets the landscape with a history of dental education in Atlantic Canada and an overview of University-Industry Relationships. Chapter 3: Methodology and Methods details the paradigm of inquiry, methods for data collection, the grounded theory theoretical construct for data analysis, and rigour in qualitative research. Chapter 4: Results is a narrative which describes faculty perspectives on the research question, what is the influence of industry on dental education? Macro and micro structural categories are linked through categories of process around the central category of stewardship. Chapter 5: Discussion portrays the substantive theory, The Power of Self Control, through the sociology framework of symbolic interactionism in order to derive meaning from the phenomenon and develop praxis through this substantive theory. Chapter 6: Conclusion ends with general commentary and recommendations related to the discourse.

CHAPTER TWO: REVIEW OF THE LITERATURE

Introduction

Review of the literature pertaining to the issue of industry influence on dental education resulted primarily in literature that was limited to opinions or reflections by authors giving their point of view on this topic. There has been limited research, both qualitative and quantitative on this subject, and the research that has been done tends to focus on medical education with respect to the pharmaceutical industry. In this literature review I will describe aspects of curriculum relevant to this study, reviewing the history of dental education in Atlantic Canada and review university- industry relationships (UIR's).

Curriculum: The Progressive Model

Curriculum has several definitions ranging from the traditional definition with emphasis on the core foundational subjects and planned learning experiences to the progressive definition reflecting all the experiences of learners (Marsh & Willis, 2007) This dissertation will focus on the latter by addressing the influence of industry as an external force upon the curriculum and described by Slaughter (1997) as an "increasing concern about post-secondary curricula by groups external to the academy" (p. 1).

The progressive or experiential model of curriculum can be traced back to Dewey (1938) who described education as a social process, "…education is based upon experience and educative experience is seen to be a social process" (p. 59). Dewey (1916) describes education as a community and the importance society plays in the learning

environment is rich with reference to a hidden curriculum: "By various agencies, unintentional and designed, a society transforms uninitiated and seemingly alien beings into robust trustees of its own resources and ideals" (Ch 2, p. 1). Dewey (1916) recognized the intrinsic quality of education as a passive social experience:

> *By means of the action of the environment in calling out certain responses. The required beliefs cannot be hammered in; the needed attitudes cannot be plastered on... But the particular medium in which an individual exists leads him to see and feel one thing rather than another; it leads him have certain plans in order that he may act successfully with others: it strengthens some beliefs and weakens others as a condition of winning the approval of others. Thus it gradually produces in him a certain system of behavior, a certain disposition of action* (Ch 2, 2-3).

The progressive definition reflects the dynamism of curriculum and describes the difficulties in planning curriculum due to implicit phenomena such as the hidden curriculum which exerts a subtle yet powerful influence in what students learn, "the unacknowledged attitudes, beliefs, codes of conduct, and conventions for social relationships that form the overall, but constantly shifting, milieu of the school" (Marsh & Willis, 2007, p.13).

Portelli (1993) notes that the term "hidden curriculum" was coined in the 1960's and credited to various sources such as Jackson and Friedenberg. The concept of the hidden curriculum, however goes back much further with Waller's work in the 1930's and Dewey's attitudes surrounding collateral learning in the late 1930's. Portelli (1993) describes the hidden curriculum as being elusive because it takes on many forms; definitions therefore vary from specific learning experiences to a perspective or world view.

Beyer & Apple (1998) note that education needs to be thought of relationally, "…as being integrally connected to the cultural, political and economic institutions of the

larger society, institutions that may be strikingly unequal by race, gender, and class" (p. 4). Curriculum issues are complex and dilemmas are not easily solved; analyses of curriculum questions needs to be framed from multiple perspectives: epistemological, political, economic, ideological, technical, aesthetic, ethical and historical, to draw meaningful conclusions (Beyer & Apple, 1998). Sensitivity to curriculum inquiry precedes thoughtful practice for the objective of praxis, "this involves not only the justifiable concern for reflective action, but thought and action combined and enlivened by a sense of power and politics" (Beyer & Apple, 1998, p.4).

Curriculum design is not a matter of simply making choices about, but must also consider how choices are made (Marsh & Willis, 2007). There are many influences in curriculum design based on the expectations and beliefs of society, "…curriculum planning and development is as much a political process as it is a theoretical or practical process" (Marsh & Willis, 2007, p.306). It is important to have a clear understanding of the hidden curriculum to ensure that educational objectives and planned outcomes are within a formal curriculum.

*Hidden Curriculum*

The concepts surrounding the hidden curriculum in medical and dental education raise a series of dichotomous questions focusing on: unintentional versus the intentional; hidden versus the exposed; implicit versus explicit and desirable versus undesirable: "Although one usually refers to *the* hidden curriculum, which may give the impression that there is some universal essence of the concept…[there are] different kinds of hidden-

ness which arise from different contexts involving different relationships between at least the teacher, students, and what is learnt" (Portelli, 1993, p.183).

The hidden curriculum represents the cultural milieu of academe and encompasses many different domains which make up the organizational, political and sociological realms of education. Hafferty (1998) notes that the hidden curriculum can be located in many domains, four of which educators should play close attention to are: (1) policy development, (2) evaluation, (3) resource allocation, and (4) institutional "slang" or nomenclature. Lempp & Seale (2004) describe the hidden curriculum as the inarticulated or unexplored processes, pressures and constraints which fall outside of the formal curriculum. With reference to medical education, Lempp & Seale note learning processes such as loss of idealism, adoption of a ritualized professional identity , emotional neutralization, change of ethical integrity, acceptance of hierarchy and the learning of less formal aspects of good doctoring; work to achieve the encultration of the medical professional. The authors state, for example that few doctors in medical education have received formal training in teaching methods, educational theories or modes of assessment. This supports the position that within the culture of medicine teaching is considered a lesser activity with less rigour than more valued aspects of the profession such as research or clinical practice.

Metaphor is commonly used to describe the hidden curriculum, possibly because it can be difficult to define. Marinker (1997) describes the hidden curriculum as the memories written in the bricks and mortar of the medical school. It is how doctors actually set about the tasks of medicine; it is "education with attitude" (p. 297). Masella (2006) views the hidden curriculum in dental education not as the mortar that binds the

bricks of formal learning, but states "externally derived professional attributes in reality are the basic building blocks of professionalism, and internally learned tradecraft fills in the gaps" (p. 280).

Hundert (1996) comments that the hidden curriculum is neutral and can be a positive or negative influence on stated educational goals. In order to deal with the hidden curriculum it first has to be understood. This understanding is crucial in determining how it acts upon the formal curriculum. The hidden curriculum is functioning at all levels of the academic institution from student to student interactions to university boardrooms. The hidden curriculum should not be perceived as a student based phenomenon, with organizational powers immune to scrutiny: "…while students' peer contacts play a critical role in the transmission of medical cultural values, the locus of power lies elsewhere in medicine's training organizations and in the actions of administrators and faculty." (p. 629)

Hafferty & Franks (1994) liken the education of medical school students to a metamorphosis of identity:

> *As such medical training involves considerably more than the acquisition of a new knowledge base. It also involves learning new rules about feelings and about mistakes and the management of failure…once in school they learn to value detachment, cope with uncertainty, develop strategies and rationales for ameliorating ambiguity, and structure issues of clinical responsibility…..Medical training is not just learning about becoming a physician, it involves learning how to cease to be a lay person. Medical training is not just about the acquisition of new knowledge and skills; it is about the acquisition of a physician identity and character* (p 865).

The hidden curriculum in dental education can either add to the relevance of the formal curriculum or make it a gross hypocrisy depending on how it is perceived by the student (DeSchepper, 1987). If the hidden curriculum is congruent with the explicit

curriculum then the student develops a positive version of the educational experience.

If the explicit and hidden curricula are inconsistent then a negative educational experience occurs. DeSchepper (1987) also states negative factors such as the authoritarian teacher-centered environment in which students perceive a lack of control in their education experience and the narrow definition of scholarship by administration and peers whereby the primary emphasis is on research and not teaching: "If students should perceive themselves as less important than research in the minds of faculty, they could develop negative attitudes (p. 577)." It is vital that dental educators recognize that the hidden curriculum exists in every dental school and the positive and negative effects need to be understood before initiating change.

*Enculturation*

Bloom (1989) in his sociological viewpoint on the culture of medical education over the past fifty years notes that the learning experience of medical students is similar despite international and temporal differences. There has been continual reform of medical education over the years through advances in technology and knowledge yet the learning experience held by students is essentially the same. Bloom expresses that the culture of medical education is resistant to change because scientific academic medicine has crowded out the humanistic, social responsibilities of medicine; the modern medical school is like any large, complex social organization of industrial society:

> *The demands of the corporate structure conflict with the medical school's educational values; the clash is between ideology and social structure. The corporate bureaucracy of the medical school has become an ever-expanding institution, requiring a flow of resources that overreach income that is available from education itself; ie tuition, competitive training programmes, or subsidies.*

*Thus, the medical school is forced to maintain itself indirectly on resources that are allocated to support the goals of either research or the technology of the specialized tertiary care typical of teaching hospitals. By the very definition of this situation, educational values become subordinate to the requisites of the organizational structure of the medical school, and therefore to policy that is determined by external groups who provide the means and regulate the activities of the major actors in the institution... Whether the social control is vested in authority that is external to the educational institution or to the theoretical, knowledge-focused, academic medical scientists, the educational values oriented toward teaching humanistic and competent doctor behavior are subordinated to the bureaucratic requirements of the modern medical center's corporate structure... The current pattern of corporatization and privatization of the delivery of medical care by the profession, combined with the withdrawal of government financial support for medical education, has caused a shift toward managerial, cost-control policies in medical schools... The dehumanization of medical care, critics claim, is the result* (p. 233-234).

Dharamsi (2007) notes that dental faculties need to develop curricula which are socially responsive in the way dentistry deals with the economic, professional, and political realities of the day. This will enable students to critically reflect on the past and develop capacity to address the social determinants of health, identify health disparities and treat the underserved. Ultimately this will result in the formation of a new professional identity:

*How we educate the next generation of health care workers will determine the potential impact health and human service endeavors will have in addressing health disparities. Educators are challenged to be creative and innovative, to develop, implement and evaluate experiential community based educational approaches that provide students the opportunity to engage in transformative educative experiences that can facilitate a new prospective professional identity formation* (p. 73).

*Organizational Hierarchy*

Greenwood & Levin (2005) compare the organizational structure of academe to social class differences which from a Marxist perspective is described as, "a complex mix

of elements that involve both promoting and demoting the claims of aspirants to social mobility" (p. 44). The authors note that academic management philosophies are modeled after the private sector which stress cost effectiveness and entrepreneurial activity in university operations, securing research funding and alumni gifts. Universities receive resources from external sources such as industry to fund research, yet remain publicly funded institutions benefiting from government monies and therefore viewed as subordinate to the state: "Ideologically, universities claim to serve the 'public good' by educating the young for good jobs and conducting research that is in society's interest or that directly creates value for society" (p. 45). Universities have strong hierarchal relationships within faculty, between faculty and administration, and among faculty, administration and staff which dismisses the notion of "egalitarian collegiality among peers" whereby "Most people involved in the workings of universities - faculty, students, administrators, and staff - experience them as profoundly authoritarian workplaces" (Greenwood & Levin, 2005, p. 45).

The university is not so much a single ivory tower as it is a collection of ivory gazebos which are, "generally run as professional disciplinary conclaves whose control over their intellectual agendas and organizational autonomy is jealously defended (Greenwood & Morten, 2001, p. 436). A fundamental feature of universities is the compartmentalization of academe based on professional identities whereby the "departments coincide with the 'disciplines' and that anything that crosses a department boundary is multidisciplinary, interdisciplinary, or simply incompetent, no matter how arbitrary the boundaries or how capricious their history" (Greenwood & Levin, 2001, p.436). The hierarchal divisions within universities complement the

compartmentalization of academe, "the sharp set of hierarchal divisions between university administrations, college administrations, and, within the departments, between the full, associate, and assistant professors, and between all of the above and the graduate and undergraduate students, with the staff occupying the lowest rank of all. For those who like hierarchy, universities are wonderful places (Greenwood & Levin, 2001, p.436-437).

Dugger & Sherman (1997) define class as a group of people who share similar relationships with respect to their role in society and may have a similar consciousness in their values. Contemporary Marxists define classes not by quantitative differences, but by their relationship to each other especially in terms of exploitation (Dugger & Sherman 1997). Class conflict arises when there is a clash of interests between those in dominant and subservient class positions thereby creating a contradiction or cultural lag between production and the class relations of production:

> *In the Marxian view, technological change enters the cultural sequence of cumulative causation through this crucible of class structure and class conflict and always involves the social question of whose incomes and whose jobs will be affected by the new technology and how will that affect be promoted or resisted. Who gains and how? Who loses and how? Whose voice will be heard? Whose economic interests will be made to count through successful class conflict…For example medical technology tells us that tobacco is bad for health, but corporate greed keeps producing, advertising, and getting government subsidies for tobacco* (Dugger & Sherman, 1997, p. 1001).

Any explanation of evolution must have two elements: 1. the element of tension between institutions and technology represented by cultural lag, and 2. an analysis of why some groups fight for institutional progress while others resist change: "Theories analyzing this issue have been called the power of vested interests or the class conflict (Dugger & Sherman, 1997, p.1007)" Researchers must analyze class conflict within the

context of the institution and its culture (Dugger & Sherman, 1997). Slaughter (1993) notes that post-Marxist theory:

> *…points to the continued and complex interaction between the military, federal mission agencies, civilian technology policy and large corporations in sustaining high prestige science and engineering curricula in the university. On the other hand, post-Marxist theory underscores the connections between low prestige fields and the class, race and gender of their faculty and students as well as the relation of these curricula to (perceived) social welfare functions of the state (p. 4).*

Therefore, resources from industry could act as a trigger for a cascade of sociopolitical issues within the hidden curriculum resulting in territorial struggles within the hierarchal structure of academe and ultimately the formal curriculum:

> *When the general mission of medical education is subordinated to the operational requirements of the social organization, the protection of territorial domains supersedes the achievement of educational goals as the driving force of the institution. This is what we refer to as the dominance of structure over ideology… Therefore the medical school strives to maintain the integrity of its basic educational (or socialization) function, even as, in the background, the territorial struggles among its separate domains use up most of the energies of its teachers and staff* (Bloom, 1989, p 236-237).

## *Curriculum History*

In order to approach a research question situated in curriculum there must be an understanding of the history surrounding the curriculum in the institute being studied. Developing a sense of the landscape and the players involved is needed before any rational approach to curriculum study is undertaken. Without an awareness of the past history of the academic culture, the ability of the researcher to uncover the themes behind contentious curricular issues is inhibited:

> *Thus the final conclusion to emerge is that any debate about the present condition or future development of the curriculum must be partially constituted by an*

*understanding of its past. Indeed a key requirement of any serious debate is that it does not assume that the contemporary curriculum is necessarily superior to its predecessors but instead regards it as just one more episode in a still continuing historical narrative of cultural transformation and change* (Carr, 1993, p.7)

Popkewitz as cited in Baker (1996) notes that history's role in curriculum studies is to use history as a lens on the present in order to gain an understanding of curriculum thereby serving as a resource to facilitate curriculum change:

*The problem of study is to subject the traditions and customs of everyday life to scrutiny. It is to make problematic the everyday language and practices of schooling in order to consider how schooling is possible as a social reality… To recognize that the present as a moment of tradition is a reversal of much of our logic about social life and schooling. Our efforts to improve the quality of schooling cannot resist the residues of our past values, remnants in the very patterns that we institute as school change* (Popkewitz 1987, cited in Baker, 1996, p.106).

Knowledge of the history of curriculum debate which has confronted faculty in the past has educative value in order to understand society's impact upon curriculum. The dominant groups in society hold political, social and economic power which is wielded to shape their view of what is good in curriculum. If curriculum is at odds with the dominant views in society then the tension created in opposing ideologies stimulates debate and facilitates a change to curriculum of greater context:

*…the process of curriculum change – is essentially a process of contestation and struggles between individuals and social groups whose different views about curriculum reflect their different views about the good society and how it was created… Thus it is that the curriculum dominant in a society at any given time always bear the marks of past ideological struggles between competing conceptions of the good society. In so far as ideology continues to shape the process of contestation through which the curriculum is formed, so the contemporary curriculum is – like contemporary society – a product of history* (Carr, 1993, p.7).

The historical and sociological aspects of curriculum therefore bear great importance in curriculum studies in order to design curriculum which reflects the culture of the society it serves.

History of Dental Education in Atlantic Canada

In order to study today's issues in dental education it is important to have a basic understanding of the history and development of dental education, which in the case of this thesis is situated at Dalhousie University's Faculty of Dentistry. Sykora (1991) in his book *Maritime Dental College and Dalhousie Faculty of Dentistry: A History* wrote a detailed description of the evolution of dental care in Atlantic Canada.

*From the Itinerant to the Resident : A Profession Evolves*

In the second half of 18th and first half of the 19th century the oral health needs of Atlantic Canadians were served by itinerant dentists who traveled from the New England states to Maritime towns advertising their arrival to the local citizens and delivering dental care in town squares and hotel rooms (Sykora, 1991). The itinerant dentist possessed dental instruments often designed by the dentist himself, some of which "were showpieces, ostentatiously displayed to impress the curious and credulous" (Sykora, 1991, p. 5). Dentistry during this time was a commercial enterprise with self made practitioners who were not held to any professional standard (Sykora, 1991). Itinerant dentists did however deliver emergency treatment to many people who otherwise would not have access to care (Sykora, 1991).

The second half of the 19th century ushered in the beginning of formalized dental education in North America with the opening of the Baltimore College of Dental Surgery in 1840 and Harvard University's Dental School in 1868 (Spalding & Bradley, 2006). The first dental school in Canada was administered by the Royal College of Dental Surgeons of Ontario in Toronto and graduated its first class in 1879 (Sykora, 1991). Itinerant dentists were slowly being replaced by resident dentists and as result the method of delivery of dental care was changing. This period of the industrial age saw innovation influencing the practice of dentistry as many scientific discoveries such as local anesthetic and advancements in dental material science such as vulcanite and improved porcelains for use in prosthetics, benefited the profession (Sykora, 1991).

As the 19th century drew to a close there was a movement by some dentists in Nova Scotia to create organized barriers to prevent the entrance of unqualified persons into the profession (Sykora, 1991). In 1891, the Dental Act saw passage and on June 2, 1891 the first meeting of the Nova Scotia Dental Association saw the election of its first slate of officers and the formation of the seven-member Provincial Dental Board of Nova Scotia:

> *Some had the idea that establishing dentistry as a profession would add dignity to the dentist…. The legislation for the creation of organized dentistry did not as many dentists seemed to expect, become the real basis for the newly emerging dental profession in the Maritimes. As elsewhere it would be education and the formation of a school of higher dental learning that became the real basis for the dental profession (p.25, Sykora, 1991).*

A century ago professional stewardship was viewed to reside in the halls of academe, a responsibility which is germane for today's profession. Masella (2007) notes that professionalism needs to be at the heart of dental education and lifelong practice:

*In the words of William Sullivan "Professional education is above all a shaping of the person. While dental schools exist in large part to increase[student] knowledge and hone skills their most important mission is ensuring student acquisition and consistent demonstration of the 'attributes of professionalism' These attributes provide the binding elements for creation of a unique person, the dentist (p. 205).*

The champion of the dental profession in Atlantic Canada during the formative years of organized dentistry and dental education was Dr Frank Woodbury. While maintaining a dental practice in Halifax he was actively involved with the formation of the NSDA serving as its first secretary and also held the position of secretary-registrar of the Provincial Dental Board of Nova Scotia in 1891. Dr Woodbury was at the forefront of establishing a dental school in Nova Scotia and as Dalhousie President Dr A. Stanley MacKenzie noted would not have been possible without him (Sykora, 1991). In his address to the NSDA membership as retiring president in 1899, Dr Woodbury's passion to uphold the dignity and integrity of the profession through professional education was noted:

*A number of Dental Colleges are of very injurious character, and seem to be catering to the commercial side of their work without due regard for the qualification of their students. This state of affairs demands that this association shall well guard the entrance to professional privileges in Nova Scotia. We welcome all properly qualified men – but the shyster who tries to crawl through loopholes and 'climb up some other way' except by the door must be stopped (p.68, Woodbury, 1899, cited in Sykora, 1991).*

*Formalized Professional Dental Education*

During the past century the Faculty of Dentistry at Dalhousie University has educated dentists under the constant pressures of limited faculty members and financial resources. Through the vision and leadership of senior faculty and the unselfish support of part-time faculty, the dental school has weathered turbulent times to uphold the

Mission of the faculty: "to promote health in a caring and compassionate way through oral and maxillofacial health-based education, research and service" (Dalhousie University, 2004).

In August 1907 the NSDA passed resolutions authorizing the Board to establish the Maritime Dental College affiliated with the Halifax Medical College and Dalhousie University which established a Faculty of Dentistry to confer the degree Doctor of Dental Surgery (Sykora, 1991). On September 1, 1908 the Maritime Dental College was established with its leadership and guidance placed in the hands of its first dean, Dr Frank Woodbury (Sykora, 1991). The faculty of the college consisted entirely of part-time members who received no salary for their teaching, "Had it not been for the contribution of time and effort of the members of the NSDA, dental education in this area would not have been possible at this time (p. 49, Sykora, 1991). The stewardship of dental education was in the hands of the NSDA during these early formative years:

> *It was the part-time faculty who were responsible for maintaining the high standard of the teaching programme of the Maritime Dental College. Likewise it was the Nova Scotia Dental Association which was responsible for maintaining the College's financial viability (p. 54, Sykora, 1991).*

Dean Woodbury saw the need for continued growth and advancement of dental education in order to maintain the public's trust in the importance of dentistry for the preservation of health; however the educational course was affected by limited resources (Sykora, 1991). The dental school functioned entirely as an endowed institution depending entirely on student tuition, endowments and gifts until 1940 when it received a government grant from the province of Nova Scotia (Sykora, 1991). It was not until 1947

that all of the Atlantic Provinces recognized their responsibility for funding dental education (Sykora, 1991).

In the 1950's faculty shortages were a concern due to the difficulty in luring potential faculty away from lucrative private practice: "There was a perpetual shortage of funds with which to attract full time teachers and there was the shortage of career teachers trained in a particular specialty" (Sykora, 1991, p. 86). "…the greatest concern in the development of the Faculty of Dentistry  was to recruit full-time staff well qualified to teach the various disciplines, to review and expand the curriculum, and to take advantage of the clinic space  to provide the best clinical experience for students" (Sykora, 1991, p. 99). The faculty continued to depend heavily upon local practitioners to serve as part-time instructors and teachers.

In 1953 the dental school was housed in the south end of the Forrest Building with the exception of the extraction clinic at the Public Health clinic, now known as the Clinical Research Centre which made for cramped and crowded conditions (Sykora, 1991). There was a need for expanded facilities to meet the growing demands of dental education:

> *At this time Dalhousie University President A.E. Kerr and Dean J.S. Bagnall struggled with the same issues that we do today-financing and faculty recruitment. In the end, they made two of the most important decisions in our history - the selection of Dr J.D. McLean as Dean and a commitment to a dedicated dentistry building. Under Dr McLean's guidance and leadership our building was completed, funding was developed and core specialist faculty were recruited. For the first time in our history we had a home and academic legitimacy* (MacInnis, 1999, p. 2).

Construction of the new dental school began in 1956 under the deanship of Dr J.D. Maclean and was completed in 1958, however, the facilities offered by the new

dental school were quickly outgrown (Sykora, 1991). The 1972 report by the Task Force on Dental Care was presented to the Nova Scotia Council of Health which recommended an expansion of training facilities to increase the class size of graduating dentists to bring the Atlantic region in line with the national average (Sykora, 1991). The expanded facilities would also allow for additional continuing education programs, more research activity, and the development of graduate programs for specialists. The decade of effort to secure funding for the expansion achieved success in 1978 and the expanded school opened in June 1982 (Sykora, 1991).

The 1980's were difficult years at the Faculty of Dentistry due to faculty shortages and economic constraints. Five consecutive years of budget cuts due to decreased government funding resulted in several full time faculty members leaving without replacement (Sykora, 1991).  The days when faculty members were "employed to teach, do research or simply 'do his job' were lost forever in the maze of criteria, work loads, feasibility studies, and a variety of profiles" (Sykora, 1991, p.143). In 1986 the two major objectives of Dean K. Zakariasen's  five year academic plan were to increase research activity of the full time faculty and to revitalize the continuing education program. Continuing dental education (CDE) programs benefited faculty and participating dentists in that the dentists utilized course content in their practices and faculty used CDE material in their undergraduate teaching (Sykora, 1991) These courses also provided a mechanism to maintain contact between alumni and the University (Sykora, 1991)

During Dr W. MacInnis's tenure (1994-2003) as Dean, the faculty's clinical education philosophy was 'patient centered, patient first" which recognized that

education and research are inter-related activities to advance health: "Keeping abreast of ground breaking advances requires that our curriculum embraces technological change and ensures that students have the appropriate basic science knowledge so that they are prepared for the increased breadth, complexity and scope of the evolving dental profession" ( MacInnis, 2001, p. 2).  It is necessary to acquire and apply knowledge through critical thinking to foster the concept of lifelong learning in our students. "…the two major challenges that will determine the future will be our abilities to accommodate change and to manage information" (MacInnis, 1994, p. 2)

In 1997 the merging of Dalhousie University and the Technical University of Nova Scotia encouraged the pursuit of linkages and partnerships for interdisciplinary initiatives. The Institute for Biomedical Engineering was established through the Department of Applied Oral Sciences linking the educational and research objectives of the faculties of Dentistry, Medicine, Science, Engineering and Management (MacInnis, 1997). In 1999 the Faculty of Dentistry saw the opening of The Dr J.D. McLean Continuing Dental Education Centre, a state of the art facility funded through the support of alumni and industry partners to be used for student electives, CDE programs, and demonstrations by industry partners (MacInnis, 1999).

MacInnis (2000) notes four important requirements for dental education in the future "1.to develop curricula that will accommodate technological change and evidence based decision making, 2. to ensure that student debt loads do not restrict access to the profession, 3. to continue to attract highly qualified students, and 4. to recruit  and retain future faculty" (p. 2).

Dr D. Precious (2003- present), the current Dean of the dental faculty notes that academic dentistry needs to be innovative in its ways to attract individuals to pursue academic careers, which in part is "to narrow the difference between dental academic compensation and earnings in the market place of private practice" (Precious, 2003, p. 2). Innovation will also be needed to remove barriers to improve access to oral health care to groups such as the unemployed and working poor, the isolated, populations with disabilities and the those who are institutionalized (Precious, 2003). Organized dentistry needs to promote to government and society the fact that oral health is a core component of overall health.

Precious (2006) notes that the faculty has experienced great success in obtaining research funding for basic science and clinical research. It is through efforts such as this that Dalhousie's faculty gains national respect, "Dal Dentistry is becoming known, particularly among students, as the premier clinical undergraduate clinical experience in Canada" (Precious, 2007, p. 2). Precious (2007) notes that dental education in Canada has made great strides during the $20^{th}$ century characterized by programs which are research intensive and scientifically based to create a strong foundation for diagnosis, therapeutics, prevention and health promotion. One of the current challenges dental education faces is the conflict between market forces and social justice, "…we all must strive to prevent market driven forces from erecting barriers to access for those who need, but cannot pay for oral health care."  The underlying message must be to foster industry relationships, but not at the expense of social justice.

Sykora (1991) notes that education is the key to better dental care in the future with the educational philosophy of the dental school being, "to educate young people to

serve society and be ready to adapt to society's greater expectation and demand for expanded dental service in the future" (p. 233). The dental curriculum will require flexibility so as to quickly adapt to the changing needs in dental treatment; incorporating innovation and technology through teaching and research while maintaining the spirit of compassion and public service our society deserves.

## University - Industry Relationships

### *Economic versus Social Construct*

Dharamsi (2006) notes Canada's healthcare system is built on the principles of universality, comprehensiveness and accessibility; however this system does not include oral health which makes for a restrictive oral health care system resulting in the socio-economically disadvantaged carrying a disproportionate burden of disease. This raises concerns surrounding the ethic of social responsibility in dental practice and dental education. Dharamsi (2006) examines how the dental profession views oral health policy through three constructs of social responsibility: an economic construct, a professional construct, and an individual choice construct. I will argue that it is through these constructs that the underlying principles which underlie academic–industry relationships emerge.

The economic construct views dentistry as a commercial enterprise and sees the dentist as an entrepreneur focused on the business success of providing dental service to the public:

*…proponents of this system tend to give priority to free enterprise over compulsory service to society. They see the market as a place for the development of individual capacity, self determination and meritocracy. And although proponents of the market system do not deny the importance of issues of access and equity, they challenge the locus of responsibility for addressing these matters. They refer to welfare and other public mechanisms established through the taxes generated from market activities* ( Dharamsi, 2006, p.64-65).

Dharamsi (2006) notes that as long as oral health care is situated in the market there will be tension between the patient first principle versus the free enterprise for profit principle; "a moral conflict that remains yet unresolved in professional practice" (p. 67).

The professional construct of social responsibility on the other hand, suggests that dentists, because of the privileges of autonomy, need to use their knowledge and skills to serve the public good (Dharamsi, 2006). The dental profession has the obligation to serve the health needs of society regardless of economic factors; a principle the profession should choose to do, not be forced to do:

*The concept of professionalism , it is argued , has evolved to include the principled acceptance of certain obligations: a commitment to society to achieve a specified level of education, training and expertise, to agree to abide by stated principles and codes of conduct, and to place a high priority on society's welfare* (p.68).

<center>*Benefit versus Harm*</center>

*Power Shift*

Lewis and others (2001) recount the recent history of university-industry relationships focusing mainly on the pharmaceutical industry in Canada during the 1980's and 1990's. At this time, government policy sought to utilize the economic benefit of drug research by the private sector through corporate friendly patent protection legislation in return for industry investment into Canadian based research. This was a

response to government's inability to increase funding and provided a mechanism which enabled government to reduce its share of research funding. This left universities with little choice but to look to industry for support and ushered in an era of academe's reliance on corporate money for research. With the advent of corporate funding came corporate exploitation of the intellectual talent and credibility of universities for corporate gain. Corporate funding brought corporate power into academia:

> *The duty of universities is to seek the truth. The duty of pharmaceutical companies is to make money for their shareholders…If either abandons its fundamental mission, it ultimately fails. At times, institutional imperatives are bound to conflict* (Lewis et al, 2001, p. 783).

The authors propose that rules for governing university-industry relationships need to be formulated in a way which would serve as a framework of principles to protect academic inquiry, "Dance carefully with the porcupine, and know in advance the price of intimacy" (Lewis et al, 2001, p.785).

The dental faculty at Marquette University has recognized certain aspects of the formal curriculum are better served through instruction by non-faculty members (Lobb, 2005). The university has developed an arrangement with industry to teach the practice management segment of the curriculum. The underlying concern in this situation is the loss of curriculum control to external influences:

> *Given the limited resources with respect to faculty, time and expertise within dental schools today, it will be necessary for us to begin to find corporate partners for curricular, infrastructure and other concerns to continue to raise the level of the profession of dentistry into the future* (p 16).

*Industry Resources Enrich Educational Experience*

Campbell and others (2004) note that academic industry relationships in the health sciences are beneficial in that educational experiences are created which otherwise wouldn't exist, yet suggest caution to ensure conflict of interest does not compromise the academic mission  The authors note that academic institutions require mechanisms such as organizational culture, disclosure forms, informal consultations with superiors, relationship specific contracts and committees to ensure the proper management of these relationships.

Barnett (2002) views university-industry relationships as synergistic whereby industry benefits by developing new technologies and assessment of product effectiveness, while dental schools benefit through funding of research and scholarly activities. The prime concern is conflict of interest which can be either financial or intellectual and in many cases is not easily identified because of its subtle influence on decisions:

> *From an institution's perspective, conflicts of interest can have an impact on its educational and research activities. If faculty become too heavily involved in and committed to extramural activities, such involvement may come at the expense of their academic responsibilities* (Barnett, 2002, p. 167).

Uchin (2005) notes that technology and innovation place great strain on faculties ability to implement new developments into the curriculum. Also contributing to the financial dilemma is faculty's inability to attract new faculty members due to the disparity between faculty salaries high private practice earnings. The economic trends of dental education will require arrangements with industry to help facilitate partnerships in order to acquire the resources needed to deliver a rich educational experience:

> *There is tremendous economic pressure on some dental colleges caused by the rapid technological advancement in the equipment and environment of dentistry.*

*The need for laboratory modernization and clinical facility replacement brings great pressures to bear on the administration… with the clinical practitioners now in a high economic earning capacity, there is a widening differential of earning power, making it increasingly difficult to attract potential faculty members* (Uchin, 2005, p.19).

*Conflict of Interest*

Campbell and others (2004) undertook a qualitative research study where faculties from four American universities renowned for research were interviewed. The aim of the study was to discover the nature, consequences and management of institutional academic industry relationships (IAIR's) in the life and health sciences. The purpose of the study was threefold: (1) understand the types of IAIR's, (2) understand the management of IAIR's, and (3) determine the extent to which IAIR's create actual or perceived conflicts of interest (COI's). The types of relationships between academia and industry at the institutional level involves large research relationships, investments through separately managed endowments, direct investment in faculty owned firms or firms sponsoring research, gifts from industry (research equipment, endowed chairs, funds for buildings, and donations to universities or their affiliated foundations. The management of IAIR's was found to occur by annual disclosure and review, establishment of relationship specific committees, institutional culture and organizational separation. The institutional COI's were identified as departmental level financial COI, research money from companies, and improper supervision and evaluation of faculty.

Korn (2002) describes two basic categories of conflict of interest: individual and institutional. Individual COI, consisting of                ,has been well studied and therefore well understood. The institutional COI is more difficult to understand and is related to the

ecology of technology transfer between academia and industry. Universities walk a fine line between society's expectations and local engines of economic development. Society is hungry for academic research to translate research into products for public benefit and the principle means of accomplishing this is often dependent on private sector funds. In circumstances where financial resources are limited, the translation is driven by venture capital or small business investment. The structure of technology transfer agreements is framed around equity rather than dollars. This is the prime motivator behind university faculty entrepreneurship. Korn (2002) notes that the relationship between university and industry is a 'community responsibility' for lapses or transgressions by any single member inevitably results both in communal punishment and shaken public confidence and trust in the entire enterprise" (p. 1094).

Graham (2004) expresses concern regarding the erosion of the dental profession's public stature. He notes that dentistry is both a business and a profession, which at times can be viewed as a conflict of interest. Co-existing market and social values must be kept in balance when maintaining the dual roles of business person and healthcare provider. An imbalance toward the market paradigm creates tension which may undermine the public's trust in the profession. The realm of esthetic dentistry is an example of this shift to the marketing paradigm. It has become a contentious issue as it demeans the profession through the implicit and explicit messages it sends the public:

> *It seems that 'Bright Smiles' and 'White Teeth' are the predominant public face of dentistry today….The loudest message being received today by North American society is that dentistry is an elective cosmetics service which can help you look younger and sexier* (Graham, 2004, p.8-9).

These are dangerous messages because the public receives commercial content at the expense of oral health content. Such commercial themes do nothing to link the importance of oral health and overall health and may serve to undermine the profession:

> *The public - that is, society – affords us the privilege of being a profession on the basis of its trust that dentists put the oral health care needs of our patients ahead of our own desires to make money…But I believe that this privileged status is in dire jeopardy. I believe that we are in danger of convincing society that we no longer deserve professional status, because we have crossed over the line between oral health professional and dental businessperson, crossed over* the *line to become full-fledged businessmen and women, as dental cosmetologists.* (Graham, 2004, p. 9)

### *Individual Choice Construct*

Dharamsi (2006) notes that a healthy society is one which is able to maintain a balance between the pursuit of individual achievement while maintaining an environment which advances the public good.  The individual choice construct sees social responsibility situated in the community in which the dentist and the patient reside. This creates a collective responsibility for dealing with society's health issues such as access to care. Education can play a leadership role in defining what practices and principles have context in their communities:

> *If the delivery of dental care is to balance between the focus on the individual patient in the dental chair and a wider commitment to the oral health of society, then dental education should reflect that. However, the currency to graduate in most dental schools is not community service but to do well in a credit-based curriculum with an emphasis on the surgical art and science of dentistry.* (Dharamsi, 2006, p. 69).

 Dental faculties are working towards a more socially responsive curriculum thereby creating a new professional identity for the practitioner (Dharamsi, 2006).  The

prospective identity orientation looks toward what the profession's place in society will look like from an economic, professional, and political reality:

> *How we educate the next generation of health care workers will determine the potential impact health and human service endeavors will have in addressing health disparities. Educators are challenged to be creative and innovative, to develop, implement and evaluate experiential community-based educational approaches that provide students the opportunity to engage in transformative educative experiences that can facilitate a prospective professional identity formation, leading ultimately to a new and different community of practitioners* (Dharamsi, 2006, p. 74).

Spalding & Bradley (2006) note that the ideology of academe is incongruent with the ideology of industry and therefore in conflict with the professional construct of social responsibility. The influence of industry will therefore create challenges for university's ability to create socially responsive curricula:

> *Academics strive to develop a more comprehensive base of knowledge and to publish to enhance the common good, while businesses typically profit from keeping secrets from their competitors. Academic research has typically been characterized by curiosity-driven investigation that is viewed as superfluous in the corporate environment, where measurable productivity is what matters* (Spalding & Bradley, 2006, p 31).

Academe must exercise due diligence when partnering with industry to ensure the relationship does not conflict with the academic mission. Universities cannot make a knee jerk response in accepting industry support in order to safeguard against a loss of integrity:

> *A simple risk- benefit analysis to determine the prudence of corporate funding for dental schools is a challenge, particularly due to the greater difficulty in quantifying the ethical risks against the more measurable financial benefits. Revenue is immediate, tangible and useful to meet pressing needs. Values such as integrity and public trust are more tangible and their compromises accumulate over time so that they often are not obvious until much later* (Spalding & Bradley, 2006, p 31).

The dental profession needs to reflect upon academe's interaction with industry to ensure these ventures are consistent with the core values and mission of dental faculties:

> *Dental practitioners as well as dental educators and researchers should work together to develop ethical parameters for establishing corporate-academic partnerships that maintain the essential traditional academic values and the independence of our dental schools from excessive commercialism* (Spalding & Bradley, 2006, p 31).

### *Industry Influence on Continuing Dental Education*

Liberto (2005) notes the realm of Continuing Dental Education (CDE) has traditionally been taught in dental schools, but over the last decade the thrust of CDE has occurred outside of dental faculties. There are 337 providers of the American Dental Association's Continuing Dental Education Program (ADA CERP) with 20% of these programs offered by Canadian and American universities; the remainder are offered by hospitals, specialty dental organizations, federal agencies, study clubs, education companies, dental laboratories, dental supply companies, pharmaceutical companies, and entrepreneurial "for profit" institutes. Demand for CDE has increased over this time as Dental Regulatory Authorities require members to maintain a set number of CDE hours so as to maintain licensure. Liberto (2005) notes that industry resources are called upon to enable relevant, cost effective CDE to take place:

> *As our profession evolves, it is incumbent upon our schools to be at the cutting edge of change. This occurs through careful research that has clinical significance and by offering hands-on courses to enhance teaching techniques. The cost of producing this type of CE program has escalated, and sometimes it is beneficial to receive financial support from industry in the form of unrestricted educational grants to make these courses affordable* (p. 11).

Donovan (2007) expresses concern regarding the CDE programs practitioners pursue in esthetic and restorative dentistry. He is of the view that these courses should primarily be taught within the domain of the accredited dental school. This generally is not the case in most academic institutions, thereby creating a void in CDE which has given rise to the dental institute:

> *The failure of many dental schools to provide hands-on, multidisciplinary programs of continuing dental education when they already had faculty and facilities in place has given rise to numerous dental institutes that have filled the void* (p. 67).

Donovan (2007) notes that the mission of many of these institutes contradicts the mission of academe by following a dictum which potentially favors expensive irreversible treatment plans at the peril of the public good. This is especially disconcerting when practitioners fall prey to the aggressive marketing approaches and the granting of bogus credentials unsupported by licensing authorities awarded by some of these institutes. Donovan lays responsibility for the rise of commercialism in CDE at the feet of academe because of its failure to recognize practitioners thirst for knowledge and professional development.

The 2006 American College of Dentists (ACD) Ethics Summit on Commercialism recognized that commercial influence is damaging the dental profession because of unhealthy financial concerns whereby the financial purpose of practice is overtaking purpose of patient care (Chambers, 2006). The "near profession" courses in practice management are an aspect of CDE rich in commercialism consisting of, "continuing education gurus with a strong commercial tone, professional meetings with heavy emphasis on commercial exhibits, and lack of enforcement of professional codes"

(Chambers, 2006, p.1). The summit identified four domains to direct attention for addressing commercialism in dentistry: societal attitudes, dental education, organized dentistry, and dental regulation (Chambers, 2006).Working groups were tasked to address the primary issues of access to comprehensive care, treating underserved communities, mentorship and education of young professionals, and public health messaging so as to counteract the negative aspect of commercialism which works to damage the public's oral health and the profession of dentistry (Chambers, 2006). Ethically sound education in dental schools was viewed as a positive influence to counteract commercial interests (Chambers, 2006).

The dental profession continually struggles with balancing social and market influences; a situation not unique to dentistry as the healthcare system in America experiences similar tensions:

> *The growth of for-profit health care corporations evokes questions about ways in which concerns for communities and populations collide with stockholder interests* (Drevdahl, 2002, p. 161).

Recent trends involving the commercialization of the profession along with fiscal restraint in academe has opened the door to increased industry influence in dental education. Dharamsi suggests that in order to influence individual choice in the direction of the public good that balance between the economic and professional social constructs needs to take place in academe by creating a more socially relevant curriculum. The influence of commercialism extends beyond undergraduate and graduate dental education programs into the realm of continuing dental education. Dental faculties need to assume a greater presence in CDE to protect dentistry from biased, market oriented programs which work to undermine the integrity of the dental profession.

CHAPTER THREE – METHODOLOGY AND METHODS

Introduction

Qualitative research is value laden inquiry which positions the researcher within the frame of the study and makes the world visible through interpretive practice of the representations collected in natural settings (Denzin & Lincoln, 2005). Qualitative inquiry allows for a flexible and interpretive approach to study those questions which require abstraction to search for meaning," In the past decade, qualitative methods have been increasingly accepted as providing valuable information for health researchers… qualitative data analysis is particularly essential when researchers have little knowledge about an area of investigation" (Rice & Ezzy, 1999, p.4-5).

The primary challenge in qualitative research is to have an open mind regarding the influence of the personal self in the study. Grounded theory methodology utilizes an ordered protocol of constant comparison and research tools to question the data giving rich interpretation with density and rigour. Reflexivity needs to be addressed in qualitative inquiry as a failure to do so create interpretations with unrecognized bias lacking rigour. Qualitative researchers have control of their narratives so it is vital to the study that the researcher fully explains their position in terms of the development of the research question, the methodology for addressing this question and the theoretical framework used discover themes. This is necessary to obtain meaningful data and to make rational sense of the data.

Mills, Bonner & Francis (2006) note grounded theory methodology has popularity in a broad scope of disciplines due to its explanatory power which enables people to

identify with the theory and apply it to their personal context. Medical education research commonly uses grounded theory as a methodology in qualitative studies as it provides a systematic approach to data analysis, therefore addressing the reliability and validity principles intrinsic to empirical research (Kennedy & Lingard, 2006; Tavakol, Torabi & Zeinaloo, 2006).

Paradigm of Inquiry

Denzin & Lincoln (2005) describe qualitative researchers as philosophers whose beliefs regarding ontology, epistemology and methodology shape how they see the world and act in it. Researchers need to state their paradigm of inquiry by addressing their ontological, epistemological and methodological views, "Logically, the answer to the epistemological question is constrained by the reply to the ontological question, and the answer to the methodological question is always dependent on the answers to the preceding questions" (Annells, 1996, p. 384). In other words, the methodology must be appropriate to the research question asked, and is limited by the context of the study environment. There are four different paradigms or knowledge claim positions which represent the researchers assumptions regarding how they will learn and what they will learn through the inquiry: post-positivism, constructivism, advocacy/ participatory and pragmatism (Cresswell, 2003).

Grounded theory was co-founded by Glazer and Strauss in an era characterized by a post-positivist interpretive paradigm where researchers held the belief "that the whole truth is never fully apprehendable, but is approached progressively through the process of research. The post-positivist paradigm lends itself to research questions involving

complex social and cultural phenomena, while maintaining the positivist adherence to objectivity and rigour" (Kennedy & Lingard, 2006, p.102). In socially constructed knowledge claims the goal of the researcher is to make sense of the world by generating or inductively developing a theory or pattern of meaning (Cresswell, 2003). The founding of grounded theory was viewed as a turning point where the emphasis of sociological research turned from theory testing to theory generation (Kennedy & Lingard, 2006). Variations in ontology and epistemology between subjectivity and objectivity created tension with grounded theorists resulting in two schools of thought in grounded theory methodology whereby Strauss's methodology held a constructivist paradigm of inquiry versus Glazer's model rooted in the more classical sense which he and Strauss founded (Mills, Bonner & Francis, 2006).

Juliet Corbin in an interview with Cisneros-Puebla (2004) remarked that she and Strauss came from an interactionist and Deweyan [pragmatism] philosophical tradition with a little constuctivism and post-modernism thrown in. Her research perspective today has changed from her earlier experiences in the 1970's:

>*…the emphasis was on objectivity, a distancing between the researcher and the research. Now we know certainly know better and I think that the recognition of what we as persons bring to the research and our involvement in the data collection and analysis processes are some of the better ideas to have come about in  qualitative research in recent years* (Cisneros-Puebla, 2004).

Mills, Chapman, Bonner & Francis (2007) note that constructivist grounded theory methodology is suited to research situations which discover issues of importance in people's lives, but in a manner which reflects the reciprocal relationship between the researcher and participant.

Charmaz (2005) notes that the development of grounded theory by Glazer and Strauss had strong objective foundations in positivist ideals, but today grounded theory is moving away from its positivist past, one of those departures is towards a constructivist grounded theory:

> *It does not assume that data simply await discovery in an external world or that methodological procedures will correct limited views of the studied world. Nor does it assume that impartial observers enter the research scene without an interpretive frame of reference. Instead, what observers see and hear depends upon their prior interpretive frames, biographies, and interests as well as the research context, their relationships with research participants, concrete field experiences, and modes of generating and recording empirical materials. No qualitative method rests on pure induction – the questions we ask of the empirical world frame what we know of it…Thus, our theoretical analyses are interpretive renderings of a reality, not objective reporting of it* (p. 509-510).

Grounded theory "results in an analytic interpretation of participants worlds and of the processes constituting how these worlds are constructed" (Charmaz, 2005). Grounded theory seeks not to impose theoretical constructs upon situations but to inductively create a substantive theory so as to give insight and understanding to the scene:

> *Similarly, learning what things mean to people makes what they do with them comprehensible- at least from their worldview. Conversely, how people act toward things in their worlds indicates their relative significance. Such considerations prompt the researcher to construct an inductive analysis rather than, say, impose structural concepts on the scene* (Charmaz, 2005, p. 521).

Grounded theory studies situate the phenomenon into a broader context by understanding the social and historical evolution of the current situation. This enables further study the ability to reveal how the substantive theory relates to a broader context:

> *Studying social justice issues means paying greater attention to inequality and its social and historical contexts. Too much of qualitative research today minimizes current social context, much less historical evolution* (Charmaz, 2005, p. 529).

A symbolic interactionist perspective was used to guide the thematic analysis to construct theory. Charmaz (2005) notes that "Symbolic interactionism provides an open-ended theoretical perspective from which grounded theory researchers can start" (p. 530). Symbolic interactionism seeks to, "Respect the nature of empirical world and organize a methodological stance to reflect that aspect" (Blumer, 1967, p. 60).  Blumer (1967) notes that symbolic interactionism is an approach to study human group life which is based on three simple premises: 1. people act toward things in their everyday world based on the meanings they have for them; 2. the meanings are derived out of the social interaction with others; and 3. the meanings are handled by individuals through an interpretive practice. The meanings are social products formed through interaction and are expressions of the constituent elements of a person's psyche: sensations, feelings, ideas, memories, motives and attitudes (Blumer, 1967). Symbolic interactionism is a process of interpretation whereby one interacts with oneself to reconcile meaning; a formative process where meanings are devised to be used as instruments of action. People act on the basis of the meanings situations have for them, a behavior is interpreted based on the symbolic significance situations hold for the individual:

> *The term 'symbolic interactionism' refers, of course, to the peculiar and distinctive character of interaction as it takes place between human beings. The peculiarity consists in the fact that human beings interpret or 'define' each other's actions instead of merely reacting to each other's actions. Their 'response' is not made directly to the actions of one another but instead is based on the meaning which they attach to such actions. Thus, human interaction is mediated by the use of symbols, by interpretation, or by ascertaining the meaning of one another's actions. This mediation is equivalent to inserting a process of interpretation between stimulus and response in the case of human behavior* (Blumer, 1969, p.79).

Methodology

Ethics approval (File #: 2005-69) was granted by the University Review Ethics Board at Mount Saint Vincent University to undertake this study. Participants were invited to participate in one-on-one, semi-structured interviews using open-ended questions (Appendix C) in which they received no payment or reward for participation in the study. Individuals with experience in teaching, research and administration were purposefully selected from Dalhousie University's Faculty of Dentistry and snowball sampling was used to augment the sample size in order to achieve data saturation. Atkinson & Flint (2001) note snowball sampling as a technique which assists researchers and policy makers in accessing difficult to reach or hidden populations.

Eight prospective interviewees were mailed a Letter to Participants (Appendix A) and the Consent to Participate Form (Appendix B). Snowball sampling was conducted by asking the faculty members who agreed to participate if they were aware of other faculty colleagues who would have experience with this research topic and be an asset to the study. The snowball sample faculty members were invited to participate in the same manner as the original invitees with the exception that there was no further snowball sampling. One invitee declined to participate in the study due to work commitments. The interview guide (Appendix C) was e-mailed to the participants at least one week prior to the interview to allow the participant reflection on the research topic so as to give focus to the conversation. The interviews took place at a location of the participant's choice and took 45-90 minutes to complete. The interviews were audio recorded and transcribed by the interviewer.

Britten (1995) notes that semi-structured interviews have a loose structure based on open ended questions in which the interviewer or interviewee can diverge in order to gain insight into the areas being explored. The interviewer needs to be open to the fact that through the course of the interview a variety of concepts and themes are likely to emerge from the various interviewees. Fontana and Frey (2005) describe interviewing not as a neutral process of questions and answers but an active, interactive process:

> *Interviewers are increasingly seen as active participants in an interaction with respondents, and interviews are seen as negotiated accomplishments of both interviewers and respondents that are shaped by the contexts and situations in which they take place…We are beginning to realize that we cannot lift the results of interviews out of the contexts in which they were gathered and claim them as objective data with no strings attached* (p.716).

Chew-Graham, May, & Perry (2002) studied the ways in which physician interviewees conceptualize the physician interviewer so as to give insight as to whether these interviews would be more restricted and selective or more fruitful and expansive based on the status of the interviewer. The authors interpreted three types of bias emerging from peer interviews: 1.the tacit atmosphere of shared understanding restricts the development of rich concepts; 2.the interviewer may be viewed as a threat if the participant considers the researcher's personal and professional behavior contrary to their own; and 3.the participant may exercise more caution in their commentaries if the researcher is viewed as moral judge restricting the collection of rich data. The authors concluded that the identity of the interviewer does play an important role in data collection and must be taken into account in the overall analysis, "…it is important to see the interviewer as someone who is actively involved in constructing those meanings,

rather than someone who is present to 'collect' them passively…that research conducted in such settings is, increasingly, not professionally or politically neutral" (p.289). Interviews involving sensitive subject matter require strict attention to participant confidentiality using measures such as pseudonyms and note taking instead of audio recording so as to minimize respondents underreporting of certain events and activities (Campbell et al. 2004).

Theoretical saturation occurs when no new themes emerge from the data analysis (Chiovitti & Piran, 2003) and was reached in this study with thirteen participants.

Data Analysis

Thematic analysis of the data was performed using grounded theory analytic techniques and procedures developed by Strauss & Corbin (1998). The authors note that grounded theory is interpretation based on systematically carried out inquiry and "…the driving force always should be the evolving theory…the methods represent the means of achieving that end." (p. 34). In grounded theory the researcher does not begin with theory but allows for theory to emerge from the data, yet at the same time ensuring that the themes are grounded in the data. Strauss & Corbin advocate that the purpose of grounded theory inquiry is not to "know it all" but provide some meaningful insights through the voices of participants:

> *Although we do not create data, we create theory out of data. If we do it correctly, then we are not speaking for our participants but rather are enabling them to speak in voices that are clearly understood and representative* (p.56).

Microanalysis of the transcribed interviews through open coding generated concepts with properties and dimensions (Strauss & Corbin, 1997). Coding is an iterative,

inductive and reductive process which transports the research from transcript to theory

(Walker & Meyrick, 2006). Data collection and analysis were performed simultaneously

by constant comparison and theoretical sampling creating a path for reconstruction by

linkage of concepts into categories. Analysis used a careful approach to mine the data so

as not to force the data but allow the data to speak through thoughtful theoretical

comparison. The objective of the analyst is, "…to build creative, grounded, and dense

theory… requires sensitivity to what the data are saying and the ability to recognize when

our own biases, or those of our participants, are intruding into our analysis" (Strauss &

Corbin, 1997, p. 99).

Axial coding is the process of relating and linking categories by asking the

questions why, where, how come, when, and what consequences in order to give context

to phenomena through process and structure (Strauss & Corbin, 1997).  Phenomena are

categories in which we are looking for, "repeated patterns of happenings, events or

actions and interactions that represent what people do or say, alone or together, in

response to the problems and situations in which they find themselves" (Strauss &

Corbin, 1997, p.130). The paradigm of process and structure is the organizational scheme

used to sort conditions (structure) and actions/ interactions (process).  Through the use of

axial coding and the coding paradigm researchers draw on their existing knowledge and

experience to understand, describe and explain social phenomena (Kelle, 2005).

Strauss & Corbin (1997) define selective coding as, "the process of integrating

and refining the theory" (p.143). Scott (2004), however, noted the method of identifying

the emerging theory from categories was vague and lacked specificity. To create

systematization two analytic tools were devised to increase traceability in the selective

coding process. The conditional relationship guide and the reflective coding matrix are tools which, "effectively form relational linkages that bridge from analysis to interpretation and theory generation in grounded theory research" (Scott, 2004, p.113). Analytic comparisons are made both within interviews and between interviews to look for patterns using a conditional relationship guide. To understand the relationships among categories and to identify the core category a reflective coding matrix is used. The matrix gives hierarchy to the categories creating a context of how the subcategories relate to the core category, therefore enabling the researcher to base a storyline (Table 1). The conditional matrix is a graphical depiction of the abstractions contained in the storyline which represents the theoretical construct formed through selective coding (Figure 1).

A pointillist painting can be used as a metaphor for the theoretical construct created in grounded theory methodology:

> *In such painting, the quality of each of the dots, as well as their quantity, must be sufficient for their purpose. Moreover the relationship between the dots is essential to facilitating our view of the whole picture (Schuwirth, et al., 2002, p. 927).*

The dots represent structure; the pattern of the dots represents process. The meaning of the composition is achieved only when structure is linked with process. The same can be said in constructing theory in that the substantive theory is the interpretive outcome of the how the researcher builds theory by linking categories through structure and process.

The objective of grounded theory is to create theory from data which is based on the researcher telling stories through the voices of the participants in the study:

> *…once an analyst explains in detail how he or she arrived at a conceptualization, other researchers, regardless of their perspective, should be able to follow the analyst's path of logic and agree that it is one plausible explanation for what is going on* (Strauss & Corbin, 1997, p. 146).

Rigour

Denzin & Lincoln (2005) describe tensions which exist between quantitative and qualitative research as, "…the positivist science attack on qualitative research is regarded as an attempt to legislate one version of truth over another." (p. 8). The positivist language of quantitative research is not spoken in the qualitative realm, "Terms such as credibility, transferability, dependability and confirmability replace the usual positivist criteria of internal and external validity, reliability and objectivity" (Denzin & Lincoln, 2005, p. 24). Postmodern influences on qualitative research have resulted in a broad scope of research methodologies, "Researchers have never before had so many paradigms, strategies of inquiry and methods of analysis to draw upon and utilize" (Denzin & Lincoln, 2005, p.24.)

Division is noted within qualitative research modalities by Angen (2000) as occurring between the positivist camp and the interpretivist camp. Positivists view methodological criteria as a valuable way of assessing validity whereas interpretivists take a post modern approach with a non-foundational epistemology which creates a need to reformulate validity:

> *We want to claim that because we have made all the right moves we have procured the truth. However, life as we live it is not static enough to allow for this type of certainty: It is much more fluid, contextual and relational…Instead, what we require is an interpretive approach to social inquiry that will enlarge and deepen our understanding of what it means to be human in this more than human realm (p. 380).*

Angen (2000) notes that instead of demarcating truth from falsehood from a methodological perspective, rigour must be intrinsic to the discourse of the research,

"How carefully the research question is pondered and framed, how respectfully the inquiry is carried out, how persuasively the arguments are developed in the written account, and how widely the results are disseminated become much more important issues than any criteria-based process of accounting that occurs after the research is completed." (p. 387) It is not about attaining an objectivist, positivist truth, but finding a subjective, human understanding which fosters the development of ongoing dialogue pertaining to the research topic.

Cresswell (2002) notes qualitative research is fundamentally interpretive in that the researcher makes the interpretation of the data, "the researcher filters the data through a personal lens that is situated in a specific sociopolitical and historical moment." (p.182). Therefore the qualitative researcher must be aware of their identity in the study and acknowledge biases values and interests through reflexivity. The researcher must be honest in the inquiry realizing that the "personal-self becomes inseparable from the researcher-self" (Cresswell, 2002, p. 182). Qualitative research enables the researcher to study complex phenomena in a natural setting where the researcher is working with the participants and therefore has little distance from the data (Cote & Turgeon, 2005). It is imperative for the researcher to fully describe the context of the study and their role in the study in order for the reader to make sense of the researcher's authority in their description of the phenomena (Cote & Turgeon, 2005).

Eakin & Mykhalovsky (2003) describe a substantive approach for judging qualitative research whereby reflexivity would be viewed as an aspect of the study in which the readers should understand the relationship between the research and the data. It is this relationship which drives the interpretation of analyzed data, "a substantive

approach would be based on an understanding of researcher subjectivity not as a problem of bias to be eliminated or reduced (or at least confessed) but as something to be used actively and creatively throughout the research process" (p. 191).

Glaser, (1992) cited in Walker & Meyrick (2006) notes that grounded theory's method of constant comparison, if completed faithfully, possesses verification within it and for the researcher to go back and check  is a somewhat moot point. In studies utilizing grounded theory methodology Chiovitti & Piran (2003) define rigour as fulfilling the standards of credibility, auditability and fittingness. Credibility is enhanced by allowing participants to guide the inquiry process, performing diligent analysis through constant comparison technique, using participant's voices to describe theory, and enabling the reader to clearly see where the researcher is positioned in the study. Auditability is achieved by specifying the criteria built into the researcher's thinking and describing the selection process for participants in the study. Fittingness is enhanced by defining the scope of the research in terms of its context and the level of theory generated, be it grand or substantive, "Reporting the theory, without stating the level of theory generated, leaves the reader insufficiently informed about the scope of the theory and impedes the assessment of fittingness." (Chiovitti & Piran, 2003, p.433).

Charmaz (2005) states that grounded theory studies involving social justice research should exhibit credibility, originality, resonance and usefulness in order to give value to the contribution. Writing style should be intuitive, inventive and interpretive and not merely the act of reporting facts, but to narrate deeper meaning.

Guba & Lincoln (2005) note that we need to be interpretively rigourous in our research method in order to affirm, "Can our co-created constructions be trusted to provide some purchase on some important human phenomenon?" (p. 205).

CHAPTER FOUR: RESULTS

Introduction

This narrative uses specific quotes describing dental faculty perspectives to portray the substantive theoretical construct built around the core category and sub categories through grounded theory analysis. The thirteen participants in the study were active or retired Dalhousie dental faculty with either full time or part time experience in the senior administrative, teaching and research capacities of dental education. The participants had an average of twenty-four years and a range of six to forty-three years of experience in dental education.

Grounded theory analysis uncovered thirty-seven elemental categories as found in the reflective coding matrix (Table 1) and depicted in the in the conditional coding matrix (Figure 1) to create the story line upon which the substantive theory, The Power of Self Control, is based. Stewardship was identified as the core category of the phenomenon and used to build theory through linkage of the categories of structure and process. Data analysis revealed two macro structural categories described as the properties of Academe and Industry (Two Solitudes) and Educational Dichotomies. The themes were defined using micro categories in terms of context, dimension and consequence in order to describe the range and scope of the environment and the primary meaning at the heart of these conditions. The categories of process, which underlie the action and interaction of the phenomenon, were: Power, Awareness, Advocacy, Balance, Accountability and Growth.

Stewardship

Stewardship was identified as the central category to form the basis of the paradigm linking structure and process; a conceptualization in which process is woven through structure to uncover the underlying meaning of the phenomenon. It is the ultimate hierarchal category where structure meets process and holds the explanatory power needed to build theory surrounding the influence of industry on dental education.

The central category of stewardship is underscored by the comment that dental education must be "mission sensitive and market savvy" (Interviewee 6); the central theme upon which the substantive theory The Power of Self Control was built. The research results suggest that the stewardship theme is common to the two macro structural properties of academe and industry and educational dichotomies. The structural categories represent why this phenomenon occurs, but it is through uncovering process which determines how the phenomenon occurs. By linking categories of process and structure, greater meaning and understanding is derived from the data in order to reach higher levels of abstraction leading to theory development.

Stewardship is the common thread which ties the participant's stories together forming the fabric of the theory. University based dental education has a significant responsibility, or stewardship, as it where enculturation of laymen into professionals takes place. Academe is the site of cultural determinism and its faculty uses curriculum as the mechanism to develop the student's professional identity. It is through the structure and processes of academic stewardship which enables faculty to exercise the power of

self control – a role and a responsibility which faculty must understand to withstand external influence such as industry.

## Academe and Industry – Two Solitudes

Academe and Industry - Two Solitudes is the first of the two properties of the Stewardship theme which describes these two entities in terms of their polarized ideologies and the tension created when these worlds interact. Academe defines itself as a totally separate entity from industry whereby its mission and core values embody the noble pursuit of truth and knowledge whereas industry's motives are viewed as an unwavering pursuit of monetary gain. Academe subscribes to authoritarianism with its hierarchal organizational structure governed by heavy academic policy, rules and regulations. Historically, academe is a public institution funded by government money and tuition and by in large holds the reins of power behind the walls of its ivory towers. In recent years however, universities have begun to feel economic strains due to decreased government funding. Escalating university tuitions jeopardize the ability for some students to afford higher education resulting in fewer university applicants and ultimately decreased enrollment into programs.

In order to offset the shortfall of government funding academe looks to alternative revenue sources to sustain its research and education programs. University-industry relationships (UIR's) are a means by which academe alleviates budgetary constraints to support its programs; a meeting of two solitudes in which industry influence stimulates change in the dynamics of power in academe and risks the commercialization of education. Industry influence in dental education is a phenomenon which can amplify

already existing educational dichotomies by incorporating another variable which changes the dynamics of the pursuit of knowledge, methods of curriculum delivery and the determinants of oral health.

*Authoritarianism*

The responsibility of dental education is to educate competent and ethical professionals to join the profession. The responsibility of the dental profession is to earn and maintain the public trust. Influences which tarnish these responsibilities undermine the professional autonomy of dental education and the profession of dentistry. Therefore control of the curriculum must be placed firmly in the hands of faculty. In order to maintain this control it is important to maintain the integrity of the organizational structure and maintain or design policy which protects this control. The control of the dental curriculum lies within the organizational structure of the dental school. Its department heads, division heads, course directors, committee chairs, assistant deans, and director of clinics all play important roles in curriculum policy and curriculum development through their administrative and research roles. In their role as teachers, the faculty also has a keen sense of how to deliver the curriculum and how the curriculum is experienced.

*Hierarchal Organizational Structure*

Universities are hierarchal organizations with a well defined structure of power whereby junior faculty learn the mechanics of the rites, rituals and regulations of the administrations of academe from senior faculty:

Interviewee 1:...*during the process in education, in dental education, the responsibilities start to increase and you become more seasoned from part time to full time and full time to as far as responsibilities in the curriculum...So, it's more of a maturation process and you go through that. As you mature you become more experienced.*

Interviewee 7: *So I think that's the safeguard and that means junior faculty coming on learn how decisions are made and learn how they are trying to be above board first of all and to be fair to again... do the best for patients, best education system for students, and to accommodate industry knowing that they are helping us.*

Senior faculty upholds the academic mission through its organizational mechanisms. Individual philosophies are advanced only if they are consistent with the philosophy of the group. This dynamic builds immunity from external influence which in order to facilitate change has to navigate the organizational waters of the power hierarchy and be accepted by senior leadership to create change:

Interviewer: *Who would be responsible for reviewing industry proposals to the faculty for joint projects; would there be committees involved or key faculty?*
Interviewee 2: *... you would have people who deliver the program, in charge of the program along with the department chair of that particular department. Clinic people. They would sort out with the company, an appropriate type of arrangement that they feel is fair and reasonable. It would be carried on up through the dean and possibly the curriculum committee as well if it amounted to a major change; a curriculum change in how we teach. So there are a number of mechanisms internally that we go through and ultimately the dean has to say yes or no. Beyond that central administration in upper campus would have to okay it; legal department would have to okay it as well.*

*University Policy*

All faculties must follow broad based university policy such as the Conflict of Interest Policy designed to protect the University from nefarious activity which would damage its reputation and taint public opinion of the university:

Interviewer: *…Dalhousie University itself has a policy, a conflict of interest policy and in that conflict of interest policy an employee of the university cannot hold financial interests in a company that does business with the university. And I think even family members of the employees are also held under that umbrella, so that is a policy that is there. Do you feel faculty is constantly cognizant of these types of relationships? Sometimes they may not be explicit, but maybe implicit, a hidden thing that happens with industry. Do you think these things are thought of by faculty or do you think its something…?*

Interviewee 7: *I think faculty is very cognizant and sensitive to that issue… a couple of times I had faculty say, 'well so and so is willing to provide us with this material… have you used it in clinic?' I always say well what if all the companies… what do we do with all the other companies? We have to make the decision on research that has shown that either it is the best material or it is the best material for students to learn with, but we have to have a reason for it. So I think faculty were fairly good, a couple of times that I remember they said, 'Oh yes, I never thought of that, but I knew I had to talk to somebody.' So it was almost as if they felt there was something that they had to check on; but they weren't sure what it was. But they did check and I don't think, I never knew of a faculty member who put his or her foot in it badly by saying 'we're going to use this because they are offering it to us at a better rate' or that sort of thing.*

Mechanisms are designed to safeguard the curriculum to ensure it is supported by evidence and is feasible from financial and human resource perspectives. The process involves thorough investigation whereby rapid progress is forsaken for reflective progress:

Interviewer: *There are a lot of checks and balances in the system.*

Interviewee 2*: Probably not enough, but at the same time it's pretty cumbersome. Nothing can be changed quickly and that's probably a good thing. It requires a lot of thought to make any changes and that is why change occurs slowly at the school. Hopefully, we're thinking ahead making sure that everybody has got the information to think about and contribute to whether or not we should make the change.*

Interviewee 2*: …any simple decision that we make that affects our student body, affects our curriculum, the didactic, the pre-clinical. When you make a change in the clinic you have to think about what the students coming through that change need; to be incorporated into all four years, so any change in the faculty is extremely complex and requires a whole lot of planning.*

Interviewer: *A change in philosophy would be very expensive to undertake.*

Interviewee 2: *Absolutely. If you are talking about a dental material or a piece of equipment there is not a single thing that one person can make a decision on.*

*When we have a product change we got a form that actually requires about ten different signatures of levels of approval before we get through this. Part of our decision relates to how much of this other stuff that we have in stock now that we are not using it. How are we going to… the transition is always difficult because we cannot afford to waste money here and at the same time if there is something significantly better we want to change to we have to be reasonably cost effective.*

The dental faculty has autonomy in making curriculum decisions. This power comes with responsibility of constant awareness of how curriculum decisions may affect the school's ability to maintain accreditation. Adopting academic philosophies which are controversial and not evidence based may place the faculty in a position where the school's accreditation status is challenged:

> Interviewer: *And you're not aware of any policies on upper campus that deal solely with curriculum?*
> Interviewee 4: *Upper campus gives the faculty autonomy on curriculum. The only time that they look is when they are putting a program in… or doing a change in the number of courses or the number of years you can add or subtract. Then you have to go through the senate. If you are just doing curriculum change to a course or a couple of courses its done within the department and advisory on curriculum committee.*
> Interviewer: *So the faculty doesn't have policy, but the accreditation commission they have…*
> Interviewee 4: *I wouldn't say they have a policy, but they have criteria to ask to see if in their opinion there is a problem. But, it's not saying thou shall not do this and thou shall not do that; what it is saying is, describe your relationships with industry, do any of these relationships affect curriculum, and you have to do a written and an oral thing… if there was something untoward where a company, a commercial interest was really influencing curriculum in a way that was reprehensible, that would get a very strong recommendation.*
> Interviewer: *So that would be something that would have quite a bearing on an institution?*
> Interviewee 4: *If you lose accreditation… you're dead.*

*Government Institution*

Universities are government funded public institutions which are responsible for the wise use of taxpayer's dollars. In the current era of decreased government spending

on education, faculties must be considerate of forming partnerships which not only are

consistent with university policy but are congruent with the moraes of society.

Controversial UIR's will raise the public's eye and stir the political waters making

government question their trust in academe:

> Interviewee 13: *…the federal government cuts back funding for research. Up until recently we had very little support in dentistry from our province for research. It has been a big blank… We have used in the absence of that support, industry support to help us grow our research laboratories.*

> Interviewee 5: *And I think… in terms of exclusivity, I think the university is very careful about having those kinds of relationships develop. You can't… because you know in a way a university is still a federal, publicly funded institution…You still have when all is said and done the university as a whole has a responsibility to the general public, to it's funding partners, in this case the government and so that would prevent any kind of, I think it is any kind of overtly and hopefully covertly exclusive industrial link that's going to bias potentially the kind of educational experience that the students have.*

*Public Trust*

Dental education must ensure that their academic policies and the decisions made

based on these policies support the mission of the faculty and reflects the greater mission

of the dental profession. Academe is a source which organized dentistry and regulatory

authorities seek wise counsel on issues pertaining to public health, ethics and practice

standards. A failure by academe to serve the profession in this capacity may compromise

the ability of professional organizations to formulate evidence based policy placing the

public's trust in the profession in jeopardy:

> *Interviewee 1: That was because we're a health care provider and we look at who we're providing our services to…That's one of their missions this year is to look at underserved populations, and has been part of everyone's mission forever and always will be until it's solved. And will never go away I assume, and we know*

*it's there and I think it's ingrained in our profession. That's what we do is to alleviate pain and suffering. That's what we're after…It makes us a profession.*

*Autonomy*

Faculty members are aware of the benefits and pitfalls of UIR's and dental education's increasing reliance upon industry during times of fiscal restraint:

Interviewee 2: *We are always in negotiations with industry and at the same time it can affect our ability to choose what we want to teach when it's just becoming more and more complex and difficult as we move along as funding becomes less.*

Interviewer: *Do you think that these types of relationships are necessary for dental education… industry-academic relationships? Do you have an opinion on this?*
Interviewee 7: *I think they are necessary, but I was always leery that industry would dictate what we teach.*

It is important that the integrity of academic institutions be maintained when associating with industry:

Interviewee 2: *I know what industry wants. Industry wants to make money. They are not in the business of being a charitable organization. So if they provide something to us we cannot compromise our integrity for any amount of money. That is really what it comes down to.*

Control must be held firmly in the hands of academe to ensure its institutions maintain independence. Industry influence is a source for concern; however the authoritarian structure of academe protects its autonomy:

Interviewee 9*: Industry should be seen as a guest in the temple of education and they are not on an equal footing. I think the university should control totally what the industry can do for them, not the other way around… That's the philosophy I think faculty should take…control.…I would not like to see an environment whereby industry owns the faculty…*

Interviewee 10: *…it's probably getting to become a problem say in the last ten years. From my point of view, a hundred years ago we had commercial dental schools and that wasn't very good. What's happening is things are turning commercial once again now. So once you start going the commercial route you*

*lose the independence in education you had. It doesn't mean you can't cooperate with industry. Are they contributing to our program or are we buying their program?... So I think it is a concern, but the administration of the dental faculties is driven by the institution.*

## Entrepreneurialism

The universal comment of all participants was industry's quest for profit. Industry uses a variety of techniques fueled by financially driven motives to achieve this end. Industry embraces innovation not for the pursuit of knowledge, but to stay abreast or move ahead of its competitors. Industry seeks exclusivity agreements to showcase and market products and equipment to a captive audience without the presence of its rivals. Dental schools are thus becoming the theatre where the actors and players of industry audition for faculty and students in the hope of landing the leading role.

### Exclusivity

Industry is market oriented with the primary objective of generating profit and growing its market share. It seeks to rise above its competitors and shut them out whenever and wherever possible through exclusivity arrangements. Industry does not approach such agreements for the greater good by enhancing the educational experiences of students or improving patient care, but to bolster their place in the market:

> Interviewee 6: *For example, some supply companies say we would like to help you finance a clinical area, clinical care, clinical teaching, but in return we want exclusivity with the use of our product. This is, as you know, this is clearly not in the spirit of the educational experience that we're trying to provide for our students. We want our students to have the broadest possible experience, and we want them to choose on the basis of scientific and clinical facts…what materials, what instruments and so on.*

Interviewee 9: *because I've given you $500,000 this year you can only use my product and my product only and this is how you are going to do it. That's not the environment you want.*

Interviewer: *So exclusivity is something that you see as being a negative side of industry's relationship with dental education?*

Interviewee 9: *Very negative. I think that the product should be used in the university based on its reputation and quality and not because of an exclusivity clause. I'd like to see industry involved based on its merits, but not because they are willing to pay the most amount of money… Because I can see some potential there that students are denied learning other products and the benefits of other products.*

Interviewee 6: *Industry will try to develop a product that includes gains for the patient… no question. But they will not be attempting to put the interests of the patient above all else because they have to make money, they have to sell a product and they have to have a market.*

Interviewee 2: *Without talking about any companies in particular, what companies will want is to use their product exclusively which creates some problem in that if you are not allowed to talk about other products in lectures. That is a huge, huge problem and I don't think any of us would ever agree to.*

Interviewer: *That's a loss of control there.*

Interviewee 2: *That's a loss of control and that's unacceptable. If the faculty have to agree that there is only one product that and all of the other competitors are not only not as good, but not recommended; you can teach that. But, when there is money tied to it, the audience can view that as… the students can view that as possibly a conflict of interest.*

Exclusivity arrangements pose many risks to academe such as a loss control of the curriculum by faculty, creating dependence on industry by faculty to deliver curriculum, and denying students educational opportunities by restricting curriculum content which would limit their exposure to other techniques and materials. Exclusivity needs to be approached with caution and avoided whenever possible.

*Marketing: Financially Driven*

Society's respect and high regard for academe drives industry's pursuit of academic validation and endorsement gained through research and education

partnerships. Industry recognizes that it is in its own best interest for control to remain

in the domain of academe so as not to risk tarnishing academe's image thereby

jeopardizing the competitive advantage their products receive in the marketplace:

> Interviewee 3: *I think that yes it certainly does... having the seal of approval from the university if you have a reasonable reputation as a school and faculty. Then having that favorable opinion or favorable study certainly would help their cause and that's what they look for.*

> Interviewee 11: *The ultimate motivation for industry is they want to sell their product and they want to make money. So they are looking for studies that say their product is better than another product…It has a lot more weight behind it if they can say that they have product tested at the University of "XYZ" and a paper was published in such and such a journal and their product was better than another product. So industry needs universities looking for independent validation of their product.*

Reciprocity of benefit occurs in UIR's whereby academe receives resources from

industry for education and research which may otherwise be unavailable due to budgetary

constraints. In return industry has access to the knowledge and expertise academe

provides:

> Interviewee 13: *Industry has a tremendous interest in the university. We have a tremendous collection of abilities to provide new information. We are knowledge seekers. Industry needs that. Industry can get that knowledge on its own in its own private in house research. But that's very expensive, so industry is taking advantage of the existing infrastructure in universities which is supported by the taxpayer and a lot of other sources of funding. So industry is seeing a savings, a financial savings by using what is in the university already. It is a very high expertise in the university as well. So in terms of finances it gets a little fuzzy who is benefiting the most at times. So, industry has a real stake looking into researchers in universities. And they also have a stake in looking at teachers too because if industry doesn't properly approach the teachers certainly the dental school where the teachers influence the material which will be used in the dental school and influence the students about what materials they will use when they get into practice. So industry of course wants to get in here as well as we would like to have them.*

Academe also benefits through industry supplied educational materials and resources. This exercise, however, can facilitate branding whereby students associate a procedure or a material with a particular product, narrowing their scope of knowledge:

Interviewee 8: *…and I think increasing awareness by the learners so that it increases their future market share, because as I said before people will use what they are familiar with, technically as well as cognitively. Branding I guess.*

Industry views dental students as potential clients making the dental school the best possible venue to lure these clients with the hope and expectation that they will purchase their product and services once they enter private practice:

Interviewee 5: *I think in dentistry we are very unique in that we have dentists are consumers, dental faculty being clinicians as well in private practice and so on are consumers of these products. And so I think you tend to see more solicitation by industry to faculties you know…trying to get their products into the clinic for example. And you know because the obvious presumption being if you have students who are trained with said products that in all likelihood they will carry their experiences with those products out to their private practice. So they have captured more new consumers.*

Industry's intentions are quite transparent to faculty members, fully aware of the importance industry places on interaction with students. Faculty has a sense of responsibility and assumes the role of guardians or protectors of student's dealings with industry:

Interviewee 12: *I know insurance is an ongoing problem. Insurance guys and investment guys are constantly taking students out to lunch and dinner and things like that. I guess you can't control much what they do outside the school, but I don't think that we should be encouraging that type of activity inside the school.*

Interviewee 3: *When I look back, one of the things that always bothered me and I don't know whether it was in existence when you were a student there, but these industry reps would come into the school and talk to the students and try to sell them some equipment prior to their graduation…*

Interviewee 12: *So I think from that standpoint, from the student's academic standpoint, yes I think the faculty are certainly subject to being influenced by*

*manufacturers and have manufacturers coming into the school doing presentations to faculty and a wrapped sandwich and a bowl of soup and then they promote their products and theories and I think as long as faculty sit there and listen in an objective fashion and say thanks very much for coming, but we're going to make our own minds up and I don't see there is any harm in that. Where there is harm I think is when the manufacturers are given direct access to the students.*

The relationships which students develop with industry in dental school can transition into private practice whereby dentists increasingly look towards industry as a resource for the delivery of patient care:

Interviewee 12: *It was largely a service industry. It was there to service the profession. And it's not anymore, it's there to feed off the profession and it's not there to service the university, it's there to feed off it. They want to sell their product, make money that way. They want exposure to the students so the students buy their product when they graduate and they want to be exposed in there as personalities so that when the students are seeking advice, they go to those people and the corporation makes further inroads. So, the university, they have great interest in being in there and I think as I said earlier their impact can be very, very subtle.*

Historically, dentists refrained from advertising and self promotion activities as such practices were deemed derogatory to the profession as it portrayed the individual needs of the dentist ahead of the greater needs of society. Such behavior would betray the public's trust and harm the integrity of the profession. These principles held great significance to the profession and were protected by regulations enforced by provincial dental regulatory authorities. Some practitioners, however, viewed such regulation as violating individual rights and sought court action to eliminate advertising regulations. Without regulation practitioners could set aside professionalism and adopt a business approach to oral health care utilizing industry marketing strategies such as advertising:

Interviewee 3: *He challenged the standards of advertising. When we took him to task, the "ABC Dental Association" tried to enforce the standards so he took*

*them to court and he won. So now the standards were thrown out and the sky's the limit as to what you can do to promote yourself. The only thing you can't do is promote as a specialist. But, you could promote that you do cosmetic dentistry.*

*Innovation*

Knowledge translation and technology transfer reflect the language used to describe the paradigm shift from the traditional knowledge seeking, empirically motivated approach to research to the rationale of applied research for the benefit of society.  Universities deliberately seek mechanisms to facilitate technology transfer by connecting industry and academics to foster innovation:

> Interviewee 5:*…there has been more of a shift even in the university setting for basic science type research to make those connections and to be potentially seeking out technology transfer in what we call knowledge translation. To be able to take information that you learn at the bench top so to speak and have it be meaningful at some point. So that whole paradigm has shifted… Because in some ways that term knowledge translation does capture more of the spirit I guess of taking those innovations and those discoveries and engaging them to have an impact on some aspect of society.*

> Interviewee 3: *So you adapt your teaching as the materials come in and go. If you look back at the old curriculums you see the changes which have occurred over the years much of it influenced by private industry developing new techniques. So in that way they are influencing curriculum because you are forced to teach that material and method and ways of handling it, otherwise you are sending out graduates who really aren't up to date.*

Academe seeks industry sponsored research contracts as a result of decreased government funding for research. Industry views contract research in academic settings as a method of product endorsement which provides an advantage over its competitors in the marketplace. Contract research can be problematic in the circumstance of unfavorable research results as questions concerning intellectual property and suppression of results

come to light. Therefore, before embarking on contract research, thorough

investigation is required in order to avoid ethical dilemmas:

> Interviewee 4: *Certainly the other thing Dalhousie is very careful with and we are careful with is when we do our research contract if we're being just paid to do the research and we're not in control of the findings of the research that is where we get into ethical dilemmas. So if somebody is going to give us…wants a product evaluated, wants tests done on it, but wants a control on whether the results get published or not, we have to make a decision on whether that's something we want to do. Frankly if we're going to do contract research where it's just going to go straight back to the company with no chance of publications out of it… there is a different fee schedule for that because we're just doing stuff we don't really need to do, but if we get a generation out of it we're going to look at it.*
> Interviewer: *So that might be one of the negative types of relationships would be a situation where you don't have control of the results.*
> Interviewee 4: *It's not negative if… as long as you're up front… everybody is up front about it and you are careful and if a company comes in and says we'll give you some product and a thousand dollars to do this, but we want control…we're not going to do that. If they are actually saying we have something and we don't know if it's going to work or not we would like you to look at it not on patients , but in a lab and we want to keep control of it and we're willing to give you $300,000.00 to actually do contract research…so that's really contract research. That one I don't have any problem with.*
> Interviewer: *So, these arrangements, transparency would be something that's very important in development of these relationships?*
> Interviewee 4: *Absolutely, you've got to know up front. So, and I guess where we've had some difficulty in a negative way was when we had an idea for a research project. We went to a company and said this is what we're doing, we would like you to...a couple of companies to financially support it. It wasn't really their idea; it was our idea. We thought they might benefit from it as well and then they came back and wanted control of publication. We're not going to do that.*

Incorporating innovation into dental education is financially demanding making

industry support vital in times of fiscal restraint to allow students the opportunity to learn

techniques which otherwise may not occur if it was not for this industry support:

> Interviewee 4*: The problem of buying new technology in university is a very real problem. We don't have money to do that…I would say that we're one of the most advanced schools in undergraduate implant education in North America, if not the world, we started teaching undergraduates fifteen years ago and I think it is a really good program.  It wouldn't have happened without cooperation from*

*"Company X". We wouldn't have been able to afford to offer the treatment to patients at a price they could afford without 'Company X" subsidizing it and the agreement with "Company X" has changed over the years. But, especially at the start they didn't donate any money, they just said for every patient we will provide this amount of product and we were able to then offer implant care for less, so it was really the patients who benefited financially and the students benefited educationally.*

Interviewee 12: *So in that sense, certainly the corporations have a considerable interest in seeing to it that it's their product lines are used at the school. But I think at the end of the day, with an awful lot of things what makes a difference is the cost. There would be products, and systems, and materials that would be used in preference, but the faculty can't afford them within its budget, so they don't.*

Innovation and technology places strain upon faculty to allocate time and resources to teach new techniques in order to maintain a relevant curriculum. In such cases exclusivity arrangements garner attention due to the simple fact that faculties can only teach a single system due to these limitations, however such arrangements require thorough investigation to ensure the integrity of the curriculum is not compromised:

Interviewee 2: *That's right. That's something we have to be extremely careful with. On the other hand when you set up a system like implants or rotary endodontics because each of those systems is so expensive to set up and competitive systems use completely different parts and items that most faculties can't afford to have three different types of rotary endo in place. It's unaffordable, all of the widgets and screws and pieces for implant systems. You want to expose the students to more than just one thing, but on a practical level and on an experience level, when you are trying to teach students implants, you can't offer Companies A,B,C and on and on. There are lots of implant companies out there and I don't think any of them have parts that are interchangeable with one another. So from an educational standpoint and a practical way we normally deal with one company. If there was an ability in a graduate program to expose to another company we would want to have the ability to do that when we are talking about a great big grant from "Company A". So the signing of exclusive kinds of contracts is rare. You need to be very careful with what you are buying into and for how long.*
Interviewer: *So these exclusivity situations would have to be thoroughly investigated?*
Interviewee 2: *And they would have to be educationally sound and we would also have the ability to make changes when it is educationally sound, not because*

*there is a 5 year contract and you are tied to us even though through year four and five something else better is out there making you switch.*
Interviewer: *So there would be a timeframe?*
Interviewee 2: *Right, when those things are time framed it is absolutely critical that we maintain our integrity in the material that we present.*

There has to be a recognition by faculty of what industry's motives are and the dangers associated with certain types of industry partnerships; to be dynamic in striking partnerships which display synergy for faculty and industry and ultimately beneficial for students and patients:

> *Interviewee 12: The MacLean Centre and the Grad Clinic are two areas where industry stepped up and made major contributions, both fiscal and in kind. These two clinics would not be there if it wasn't for industry. The interesting thing about the MacLean Center though was that it was multi-industry because there was not an exclusive representation from any one of the major firms so that there is a spread and I suspect that the people on faculty made sure that that would in fact was the case. That no one supplier got exclusive access to it. So I think there certainly is a balance here. There is no question that faculties need industry and industry input. I just don't think that we should ever forget that by in large, industry's primary responsibility is to their stockholders and not faculties... It just has to be very careful when it ventures into them that it is not in fact selling its soul or compromising what it's presenting to its students.*

*Philanthropic paradox*

In terms of social justice, industry's actions may appear as well intentioned gestures to promote learning and enhance patient care. In reality it is a philanthropic paradox as their prime motivation is financially based with the goal of selling product and monetary reward:

> Interviewee 6: *It's a bit more complex in education because very often the companies that are successful commercially are the ones that are going to give to the university. So it's a bit of a paradox. They are successful because they are marketing high profit margin product.*

Industry's motivation is value oriented and will resist investing in ventures where there is no return on its investment. If their investment produces a socially just secondary benefit, it is merely an unexpected positive outcome:

> Interviewee 3: *I think that most dental industries that are involved, materials, equipment and so on, are more interested in the market side of dentistry. And I mean that is probably a natural progression for business… to try and sell your product. In some ways there may be a very small element of social justice there. In other words, they may feel that perhaps this will benefit the patient in some little way. But, their main, what they mainly want to do is to sell it to you so that you can make a profit and they make a return by selling the product to you.*

> Interviewee 2: *…there needs to be some payback in some way to the company for any funds that you get. Whether it's naming a clinic, whether it's some sort of high visibility and companies will generally not provide funding unless they see some value for them. So it makes it … some companies will be very specific about what they need to have in return for donations of equipment or supplies to the faculty whether it's naming a room, naming a clinic, naming a mobile lab. Things like that so if they don't see a project that's directly beneficial to them, in general companies are not interested in charity to dental schools this is my experience.*
> Interviewer: *So they would see a public relations value in such a donation?*
> Interviewee 2: *They would want to see a value back for what they've provided.*

Industry lacks external pressure to invest in socially just ventures for which there is no financial gain. Academe could assume the role of change agent by educating industry in open mindedness to alter its philosophical approach to investing in socially justice causes such as removing barriers to care:

> Interviewee 8: *Well certainly I think the insurance industry should be playing a role there, but they don't seem to be too interested in doing that because the pressure is not there for them to do it. From a moral standpoint they should…you know give something back to the community.*
> Interviewer: *So industry's motivation?*
> Interviewee 8: *Profit.*
> Interviewer: *So social justice and morality aren't that important.*
> Interviewee 8: *No, they're not. Not with any of the companies I'm familiar with.*

Interviewee 6: *There are many, many reasons why insurance companies might not find it as attractive as we do. But, that's the direction we're going right now and we're trying to point out to insurance companies why that's the avenue.*
Interviewer: *What type of response are they giving to this type of program?*
Interviewee 6: *They are…let me put it this way, they are used to insuring a person and I think it is going to take a little bit of dialogue on our part to make sure, not so much…*
Interviewer: *To insure them?*
Interviewee 6: *To insure the circumstance.*
Interviewer: *Circumstance. Because we don't know the group…so will insurance companies see this as a danger of opening up Pandora's Box? If it will work for this particular circumstance are they opening themselves up to multiple circumstances?*
Interviewee 6: *Well I don't think in the market they are. That's one of the advantages I think is that it is a very low risk venture; from a business point of view, a very high yield in terms of demonstrating their concern for social justice. So I think we will see how things go, but I'm very impressed with the idea.*

*Manipulation*

Academe is subject to industry tactics meant to manipulate individuals so as to create a social dynamic which optimizes industry's ability to reap financial gain. The industry relationships with academe which lack transparency are the most problematic:

Interviewee 4: *There's two ways that the relationships can influence. The first one is a very transparent marketing approach that a company has, will do or will offer. Where they are actually saying we want a relationship with your school which includes us working with you in a financial way, in a bunch of different kinds of things. But there is a real transparent tie into the curriculum…Actually I don't mind those as much. It's the ones that are the subtle ones where I don't even know who is being taken out for dinner or who has gone on a course at some company's expense.*

Marketing tactics such as kickbacks and incentive programs are used by industry to gain a foothold in the marketplace instead of giving the best possible price or promoting products based solely on their merits:

Interviewee 2*: There are a couple of companies that provide incentives to you the more you buy. So they provide refund cheques or supplies depending on the*

*amount of material that you get. Sometimes what you get in return for spending "x' amount is some material you don't use.*
Interviewer: *You're getting a rebate then?*
Interviewee 2: *There are all kinds of arrangements, but the ones that I like the least. I would rather have instead of having these kickbacks on free goods, is the lowest price they can possibly give us with no obligation on the other side…The arrangements I least like are companies will throw at you materials that you don't normally buy. There's a reason you don't buy some things. You have to limit the number of types of composite we have. I don't want something thrown at us either because it is not a great seller in industry or in the outside world or that they'll want us to change … we'll change when we're ready to change. So arrangements like that are not very good. I'd rather see the lowest price.*
Interviewer: *So again, the control is with faculty with these things whether it's the course or the materials that you would find.*
Interviewee 2: *We make the choice. There is real pressure from some companies where they will show you a breakdown of what you purchased and they have an incentive program where you just made a change from this hand piece from company X to ours, you will get this much back as a rebate it's not the kind of system that I want to deal with.*

Industry uses marketing tactics such as bonuses because these tactics are effective in selling product. What industry and the profession fail to realize is that they both lose something in the transaction. Industry's painstaking effort to gain credibility for its products through research and development is quickly lost through cheap marketing tactics. The evidence based curriculum to develop critical thinking in dentists so as to identify and use products for patient care based on merit is also lost by subscribing to these marketing techniques. Industry and the profession are best served by an evidence based approach of critical assessment of fairly priced products of merit:

Interviewee 13: *And I don't like industry, I think in a way, what's the correct word…lowering the bar, on its own product, by suggesting that to get you to buy this we have to give you the bonus; that this product is not good enough as far as you're concerned to buy on its own merits. We have to sweeten the pot and that bothers me. And I had a class some years ago and it was group work at the time and I put this very subject before this group and I remember one student as confident as ever saying, "I'll take the television," and it was in fact a television. It had nothing to do with dentistry at all. It wasn't even a dental product. I'll take the television because I know… I'll buy this product and take the television*

*because I will have checked out that this was the best material and there will be no doubts in my mind. The student couldn't see the potential bias that he might have with the television. In fact you have to assume that the student or professional would be biased because industry knows that technique works. That industry wouldn't be using it if it didn't work because it would be cost them money to buy* televisions. *And that's one thing I would like to see industry stop doing in dentistry and everywhere else. Make a better product.*

Generally, dentists are self motivated, high achievers who constantly strive to do what is best; searching for ways to improve their practice and ultimately the oral health of their patients. Industry recognizes this characteristic of the profession and tries to instill self doubt and insecurity by promoting competition and egotism under the guise of technology and practice management:

Interviewee 3: *I'm sure that there are some practitioners, the newer practitioners, out there who have bought into this cosmetic thing who look down upon the guys who still use some of the old materials that we had.*

Interviewee 12: *I think there was a mutual acknowledgement that they were a part of the club. You know… that we're "X" people and you're not. It was very much that sort of a rah-rah thing and I found it disturbing because the inference was that I have this machine and therefore I am a superior dentist than you. That's not what they were saying, that's not what the dentists in the room were saying. But the guy who was a dentist from the States who was there as the mouthpiece for "X", that's sure what he was saying.*
Interviewer: *So is that creating fragmentation and polarization in the profession do you think?*
Interviewee 12: *Oh very much so. I think they do and I think they've also caught onto… I mean dentists are like everybody else and everybody likes a little glitz in their life, everybody is basically insecure, so if somebody comes along and says boy you're just doing great, this is the right thing to do. It makes a lot of people feel good and if buying a $175,000 machine makes them a member of that club where they feel good… industry has discovered that we all share this thing, we all have these doubts in the back of our head… "Am I doing the best that I can?" And they play to that and they say you could do better if you have this and by the way your income is going to rocket, and the latest one of course is by the way you're going to steal patients from your colleagues because you've got this. So they play to this and they know that this works.*

Industry uses the tactic of using financial gain and profitability as the yardstick to define practice success. Industry promotes the notion that success can only be reached by incorporating cutting edge technology into dental practices, an ideology which ironically only guarantees industry profitability and success, and moreover, may not improve patient care. This creates a culture of competition within the profession at the expense of collegiality and jeopardizes access to care for patients who cannot afford escalating treatment costs.

> Interviewee 12: *…a tremendous shift in recent years towards profit as being the motive for doing dentistry. That you evaluate yourself not on the basis of the quality of what you are doing and the care that you are giving patients, but whether you have "X" machine that sits in your office… if you don't then the promoters of "X", the dentists who are their promoters will quite comfortably say if you don't have a "X" machine you are in the stone age. And everybody who has a "X" machine applauds and everybody else sits there and says I don't buy into that. So there is a tremendous issue with that, that industry I think is having a significant negative impact on dentistry and I am not implying that everybody that has "X"  machine is a substandard dentist or has something wrong with there ethics. But I think there is something wrong when a material or technique is promoted in a fashion that denigrates an alternate system. I don't think as a science based process we can do that.*

> Interviewee 3: *It's dictating the therapy, but it's also trying to influence the student to buy a product you know. Saying this is how much money you can make from it. You can pay it off and it's all gravy from there. And it looks good because the student of course wants to go out to make a practice, wants to make a profit.*

> Interviewee 8: *Culture is important and I think one thing, maybe I'm wrong, I'm not sure if anybody has ever studied this but dentists like to have toys… I had a closet full of stuff that I tried…things that were new and especially that came with a machine. It was just so attractive thinking that you would be perceived by your patients as knowing more or being more up to date. You know if you had all the new fangled bells and whistles.*

Industry uses the media to further its marketing cause as is the case with magazines which appear to be evidence based publications. This information freely provided to dentists by industry is a framework for advertising, and because it has a look

and feel of an evidence based journal, has more credibility in the eyes of the readership. Material under this guise requires close scrutiny due to the potential of biased content.  Information from industry must be examined under the lens of evidence do determine whether the information possesses merit:

> Interviewer 8: … *I think that "Publication A" which I encourage the students not to go through...*
> Interviewer: *Is "Publication A" considered a journal or an industry publication?*
> Interviewee 8: *It is an industry publication because it's completely filled with advertisements.*
> Interviewer: *Because it is published by a newspaper company.*
> Interviewee 8: *Well it is and… but students get it for free and there are technique articles in it and they don't know how to distinguish if it's right or wrong or good or bad.*
> Interviewer: *But to the average dentist I tend to think that there may not be an ability to discriminate between one and the other as far as the content in these publications.*
> Interviewee 8: *No, I don't think there is.*

Educational Dichotomies

Educational Dichotomies is the second property of the Stewardship theme which describes how external influence such as industry changes the dynamics of the internal workings of academe. When the two solitudes of academe and industry meet, an interface is created in which these two very different philosophies attempt to come to an understanding whereby both industry and academe can work together to achieve their goals, while at the same time retaining the core principles of their missions. Attainment of this ideal is a work in progress which likely will never be fully achieved and therefore will never come to a conclusion. At or within the interface of industry and academe, educational dichotomies become enhanced. Dichotomies involving knowledge, curricula

and health have existed before industry influence, however once industry is introduced

into these dichotomies, tensions amplify.

*Knowledge: Evidence Based Versus Anecdotal*

The foundations of academe are based on the pursuit of knowledge grounded in

evidence. Evidence based knowledge should be the backbone which supports how

academe teaches students, performs research, and develops and implements policy.

Current times see industry partnering with academe in education, a situation which merits

caution in terms of knowledge, as industry's motive is not the pursuit of truth, but the

pursuit of profit and will set aside evidence for anecdote to achieve a profitable end.

*Critical thinking*

Academe holds dual roles of research which provides evidence and teaching

which uses evidence for curriculum design. Without research there is a lack of evidence

to make correct decisions. Instead judgment is compromised, especially in cases where

choices are made based on testimonials in non peer reviewed publications:

> Interviewee 11: *So it's good for us to evaluate products and techniques so that we can then improve the teaching of students. If we didn't evaluate anything and we relied upon throw away journals such as "Publication C" and "Publication D" where there is no scientific rigor in the procedures they are talking about, you really have no idea how good or how bad the material is or the procedure they are discussing. You need to have well controlled trials, you need to have randomized trials, you need to have unbiased evaluators, you need to set the data up properly and have a statistician to produce meaningful results.*

Rational choices are evidence based meaning the scientific literature backs these

decisions:

Interviewee 11: *…with regard to a good track record… now what does that mean? That means it has some science behind it. It's not just me saying go buy "Product Y" because it's the best product on the market. We can say well we've got three or four papers have been published, and they're peer reviewed, that show that this product is a good product. Most things that we try to use here at the school are American Dental Association accepted, ADA accepted, which means that they've gone through a testing protocol that is independent of the manufacturer and that's good. If you have a product that is virtually made in someone's garage then it would not be here.*

Decision makers are tasked with the responsibility of utilizing valid evidence and not biased opinion. A failure to perform a critical assessment leads to the buyer beware philosophy of acquiring unnecessary risk:

Interviewee 3: *I think a lot of materials that came on early on, particularly the bonding issue… the bonding stage… there was a lot of misinformation and I think the research was done in a hurry, not well done on these materials. So it was up to the practitioner to get the final say on the material as to whether it was workable or not…I'm sure there are dental offices that have drawers full of materials that have been used once and never been used again because they didn't work out and I think a part of that is due to the fact that industry has pushed it and convinced the dentists to buy it and then when they tried it clinically it didn't work.*

Interviewee 2: *You have to look at the results very carefully. You really wonder whether or not getting an independent, honest kind of evaluation when clinical research is being supported by one company. I have no regard for lectures or information that comes out of lecturers like that. Its not peer reviewed. Its one person doing this or that, its opinion and it's paid for.*

Critical thinking by educators will insure that curriculum is evidence based and fitting of an academic environment:

Interviewee 5: *I think from my perspective as one who teaches …and from colleagues who teach in a clinical setting it's our responsibility as well to be up on what industry is doing…we have to be proactive in terms of looking at what's coming down the pipeline in terms of new products, new innovations, new ways to do things and make sure that we are critiquing that in a scientific manner where it's basic material science property aspects or in terms of longitudinal studies of performance of these materials and being able to incorporate those into our curriculum…as, if only as information. It may not be to say… oh here is this new cement, this is what we should be using now…here is a cement that has these*

*properties, the evidence to this point would suggest it can do this. It would be presented in a manner that would be fitting an academic environment*

Interviewee 5: *I mean it comes down to show me the money, show me the evidence. Anecdotal takes you so far and after awhile to hear that's how I've always done it is not good enough and we know that's not good enough.*

One of the most important skills which dental educators need to develop in their students is an ability to think critically. This skill in large part is taught in evidence based dentistry courses, however in order to achieve this competence, critical thinking must span the curriculum:

Interviewee 7: *Although I think as the years go by the students ask more questions of them because as a dental student I was not told to assess that sort of thing. I did not know what the hierarchy of research was… So, students are getting more involved.*
Interviewer: *But that's a skill that tends to go across the whole curriculum I think. Being able to evaluate things in a critical way…*
Interviewee 7: *I think it's almost a life skill that goes beyond dental practice. You know if we are being prescribed something by a physician we might want to know what research is being done on this new medication; if you buy a car…I guess we don't want to make our students cynical, but we want to make them…*
Interviewer: Inquisitive?
Interviewee 7: *Inquisitive and critical of research…to have the students be able to sit back and say, 'just a minute your power point presentation was lovely, but what was the background, where is the evidence, why should I use this product over an older one that's tried and true?'*

Interviewee 7: *And I've said to students in their first year... we will teach you facts and we will teach you hand skills and in ten years time when you are in practice you may not use any of that. But what we have to teach you is to think, you have to be able to look at human problems, collect the facts, decide what the problem is, can you fix it or improve it, and do you have the skills to do that and if you haven't who else do you send them to? That is what we want you to provide at the end, but in the process we develop skills, but the materials that you learned to use may not be used in ten years time and some of the techniques might not be used in ten years time.*

Exposing students to industry influences can be used to develop their critical thinking skills which they will require throughout their practice careers:

Interviewee 7: *They don't come in to teach evidence based dentistry, they are coming in to promote a product. But we try to prime the students to listen to them with their evidence based dentistry…*

Interviewee 8: *…companies wanting to come in and lecture to the students about their particular materials, or instruments or techniques and they want to have a foothold in the school because of course graduating dentists will generally use what they're familiar with and I must say it makes me uncomfortable and I try to resist that… but I've also taken some I guess a positive direction in that by teaching students evidence based methodology they can judge some of these new techniques and materials and products as they come out with a few simple tools… not looking on the internet for evidence before they change the way they practice…to counteract the pressures from industry, the marketing pressure… So they can evaluate things based on their merits, not on some sales pitch.*

*Principles and Guidelines*

Faculty require understanding of the principles which influence curriculum in the sense that curriculum is the core of the educational experience constantly interacting with these dynamic influences:

Interviewee 7: *So I think if there were some principles of what influences the curriculum…It is information from practitioners, information from research on curriculum, information from industry, information on the impact of industry. All these things we have talked about could be included in the curriculum principles. I'm starting to sort of see the middle of a circle and curriculum and all these swirling things that are coming into it, but then the curriculum goes out again to the new generation of dentists who then bring stuff back in… so it's a reciprocity thing.*

Care must be taken to ensure that guidelines remain current and contextual with the issues of the day. Understanding the core principles of dental education and revisiting the guidelines for possible revision lends relevance to the guidelines:

Interviewee 6: *…that I think a set of very broad guiding principles is useful or can be useful… principles… guiding principles…but big issues, not a detailed set of twelve or fifteen guidelines. I'm talking about a few principles.*

The increasing frequency of UIR's creates a greater need for guidelines as a reference for faculty to properly structure these relationships:

> Interviewee 5: *I think if we run into much more critical funding situations in universities I think that issue is going to come up more and more perhaps we'll… there will have to be leadership from upper campus to establish these general guidelines.*

Guidelines should be created in a spirit which facilitates UIR's and not by placing unnecessary obstacles which are beyond the scope of these relationships:

> Interviewee 11: *Sure, guidelines are always helpful. You don't want to put roadblocks in the way of industry. You don't want to make it impossible for them to come into the dental school because they do serve a useful service. They provide teaching DVD's, they provide products at discount for us to use them, kits that we use today for students they were all created and gave to us, so they have a very valuable role in teaching students. In this time, the financial mood, we just can't afford to buy this, that's something where they can provide products to students.*

Input from industry during the process of UIR guideline development would be a positive approach to advance a positive working relationship between industry and academe:

> Interviewer: *So the development of guidelines, do you see this exclusively being under the umbrella or responsibility of the faculty or you're saying that if you're developing guidelines maybe you should entertain some outside feedback from industry in development?*
> Interviewee 13: *Oh you need both parties. It would be a mistake for example the university to come up with so called guidelines or guidelines that the university develops totally and industry should take umbrage and that procedure one thing it implies is that industry is incapable of working together with the university to develop guidelines, that sort of thing… For example in dental materials there are specifications that exist for materials... ISO is an example. They work with industry on their committees. They would never go ahead without industry participating. Not to have industry participation would set up terrible barriers for everybody.*

The primary purpose of guidelines is to create transparency which serves as a safeguard to protect the interests of all stakeholders:

Interviewee 1:… *you better have those because although we're all saying and singing the same song and we're all happy and its going to be win, win, win; when industry doesn't want to do it a certain way; that's the agreement… the guidelines. That's our recourse, who's going to lose when the grapes do get sour; who's going to suffer from it…the students, the patients, the faculty.*

It is important that guidelines serve as a control mechanism so that industry and academe are aware of their roles:

Interviewer: *Do you see parallels with how industry would influence education or curriculum? Do you have any viewpoints or examples there?*
Interviewee 13: *Yes they certainly do and I think that's healthy under certain controls. You just couldn't allow industry to come in here willy-nilly and do whatever they want so controls have to be applied.*

Their design written to ensure the control of dental education is not lost to industry:

Interviewee 2: *Developing a set of guidelines would probably be useful. I think people who are in academia tend to have this built into their heads already. But, it probably would be a good idea to get some of these things in writing. Our curriculum should not be dictated by private industry, we need to weigh very carefully what the costs are associated with accepting equipment donations from private industry.*

If the foundation of dental education rests upon evidence based rationale so should the guidelines which serve as the framework for decision making. Structure and process can be incorporated into guidelines through the use of decision making algorithms:

Interviewee 8: *I have had a conversation about developing some guidelines for introducing new curriculum from evidence based decision making algorithms… How we decide that we bring lasers into the curriculum, how we bring implants into the curriculum, rather than just because everybody is doing it and we better catch up. Is there evidence?...algorithms in that someone comes forward whether it is industry, or a part timer, or somebody that say's, why aren't you teaching the students lasers because everybody uses them? Well so what is the first step you need to take? I mean I haven't given this lots of thought, but one of the things you have to look at is safety, and toxicity and all of those things before looking at the next levels of evidence if there is any because often there isn't anything…you need to think of the currency and the safety and the cost, not just the cost of the*

*material, but the cost of implementing it and transparency, and funding for the implementation. You know those kinds of things there would have to be evidence.*

Partnerships would need to be fully investigated by administration before formally embarking on industry relationships. A principle to be followed in these investigations would be to ensure that industry dealings in no way diminish the integrity of the university or its public reputation:

> Interviewee 12: *Well "Association A", you see the "Association A" logo on various toothpastes and things like that. That doesn't happen just by accident. They do have guidelines and structures and to get that recognition is not an easy step. And "Association A" is well aware that when they put their seal of approval it may not sell a single tube of toothpaste and it may sell thousands because people look at one with and one without, maybe it makes a difference… I don't know the manufacturers obviously think it does. So they have to be careful and I think the same applies here. And the other thing too of course is that we have limited research resources in the school physically. And you don't necessarily want to tie up resources on bullshit research. When something worthwhile comes along… gee we can't handle this. So I think there has to be guidelines and there has to be a structure that monitors this activity.*
> Interviewer: *There is conflict of interest policy for individuals, but the greater conflict of interest would be an organizational conflict of interest and if your institution is partnered with an industry entity… it can fly in the face of rational decision making. I think those are the things that need to be examined.*
> Interviewee 12: *Oh you can imagine the impact for instance that would take place if it turned out that the University of "XYZ" Dental School it turned out had quietly been doing research on infant cells that had been taken from aborted fetuses. You know all hell would break loose in the US because it is against the law. But if some researcher had quietly went out thinking nobody would know and it did become public knowledge, who would take it on the nose? The university would…straight on. Nobody for a second would believe they didn't know about it. So if we had some researcher here doing research to show that soda pop was a good thing for caries, and all of a sudden it was published with "University A's" name was there and it didn't even say well University A" promoted it…I just did it at "University A"…that's all it would take. It would be like your son growing drugs in the house.*

The development of national guidelines for the universal use by dental faculties may be an approach as all faculties, large and small, face the same challenges with UIR's:

Interviewee 13: *In Canada we could start with ACFD, the Association of Canadian Faculties of Dentistry, put that idea on their plate.*

Interviewer: *Do you see different faculties may have different needs as far as those guidelines? Do you think there is a common thread that might be woven though all the faculties across the country?*

Interviewee 13:*There are many, many more ways we are alike than we are different. Larger faculties, there's a difference that applies, but in terms of education, educational objectives, in terms of financing education…big or small, we're all facing the same sort of problems.*

*Competency*

Dental schools are trusted with the responsibility of teaching students to become competent practitioners. Competency is knowing the principles and having the skills to practice dentistry. It is impossible for dental schools to provide an education experience which encompasses every aspect of the profession. Therefore the philosophy of curriculum is to provide students with the experiences needed to gain competency and have an understanding of the dynamism of the dental profession which instills the purpose of lifelong learning and self assessment:

Interviewee 3: *Well the philosophy has been I think over the years, the school was to teach you the basics, the basics of a cavity prep, the basics of prostho, and to go wherever you can to alter your approach as long as your basics…*
Interviewer: *Stick to your principles?*
Interviewee 3: *Stick to your principles, exactly.*

Interviewee 3: *You don't always graduate students to be up to date practitioners. We graduate them to be practitioners so they are given the basics in planning and managing*
Interviewer: *You are instilling certain skills in them so they can grow when they leave.*
Interviewee 3: *Exactly, because dentistry is something you are always learning.*

The competency to think critically is becoming increasingly important in today's electronic information age. The dental profession is exposed to vast amounts of

information, a daunting task to assimilate for both students and practitioners alike.

Dental faculties must create an environment for the pursuit of evidence based knowledge

which will provide students with the tools needed for critical assessment throughout their

professional careers:

> Interviewee 13: *Along those lines in the electronic age and what we get a lot of is advertising on the internet which is evidence based more so than it's ever been. Now I'm not talking about some supply company, but if you go into the various industry sites you can get reasonably good information which is evidence based about their product and they'll list the research that's been done on it, some of it's in house. You have to be critical about what you read of course, but I'm sure it's a cost saving measure and a good way to get at the consumer and when I say the consumer I mean dentist, or the student and when the consumer is ready for this information like 11:30pm at night when they have five minutes and no sales rep, but go on the internet site. So there has been another way to deliver the information and the information being delivered is better than it would have been if we had the internet back then.*
> Interviewer: *You touched on the internet when you considered the influence of industry on dental education. The media and the internet would be in some ways considered industry, the communication industry. Do you think that's had an influence on dental education?*
> Interviewee 13: *Oh absolutely. You get the information when you want it, when you're ready for it and we all tend do things last minute and that's one of the beauties of the internet is you get good information when you want it, whether it comes from industry or it comes from another educator at another university…it's there, it's positive. But before I go further let me just insert the words "critical thinking". We need this for our students and we need this for ourselves. We need this for our graduates that… allowing industry into our environment can only work well if we are critical thinkers. And I use the word critical thinking as you know to not just thinking and being tough about it, but critically thinking what industry has to say and if you don't like what you hear then you have to give feedback and say look this is not good enough for us anymore. We're not wasting our time on this information, we want evidence based. So we have to teach our students to be critical thinkers we have to make sure we are critical thinkers, otherwise the industry- educator-university relationship will never work.*

*Curriculum: Formal and Hidden*

Curriculum can be viewed as the entire education experience, which in dental education means the transformation of the lay person into a dentist. This encultration is a process where students acquire the knowledge and skill largely through the formal curriculum and develop an identity largely through the hidden curriculum. Students knowingly and unknowingly learn their identity within the culture of the profession; the give and take of how the profession shapes them and how they will shape the profession. The dental school is a condensed version of the profession where past traditions are constantly challenged by youth and innovation which propels the advancement of dentistry. The dental school is a community whose citizens come from varied and diverse backgrounds making for complex social interactions in the pursuit of shared goals.

*Enculturation*

Admissions committees to professional programs such as dentistry seek applicants who are well rounded individuals capable of maintaining a balance of high academic standing and extracurricular activity through volunteerism, athleticism and other personal interests. This is steeped in irony in that successful applicants who gain admission to these programs need to set aside these extracurricular activities and devote themselves to the study of their future profession. Acceptance to dental school is admitting to the profession of dentistry individuals who are self motivated high achievers whose academic success has been the result of competitive self advancement. Students from the first day of their first year as dental students have become protégés of the faculty. Their professional identity is a metamorphosis by osmosis which occurs through the extensive time commitment to develop the knowledge and skill via the formal

curriculum and the day to day socialization into the profession via the hidden

curriculum. There is a change of focus from the self to the patient resulting in a

philosophical shift which advocates the pursuit of patient needs instead of the pursuit of

personal gain; a quality developed during their encultration into the profession:

> Interviewee 6: *Now we're dealing with a group of people who are highly successful at competing among themselves and with others for good marks, for good marks for awards, for good marks to go to graduate school and so on. So they are virtual experts in how to advance their own case effectively. That's what they have been encouraged to do, that's what they have been rewarded for. We have a kind of a …a big responsibility to harness that skill so they are no longer competing for themselves as much as they were, but they now competing for their patient's well being.*

> Interviewee 6: *So what I think is useful is an acute awareness on the part of the faculty that it's our responsibility to make certain that the behaviors that the student sees or that the student experiences is…are behaviors that put the patient's interests above our own… not the other way around. The first goal because I don't feel that, I feel that in a caring profession such as dentistry our job is to demonstrate to the students that the best possible care is the care that's given when you put the patient first.*

Empathy is a quality which must be instilled in our students. This quality often is

not explicit to the formal curriculum, but is implicit in the hidden curriculum through role

modeling by faculty. Dental students have a great awareness of self and may not fully

understand the importance of empathy where the needs of the patient come first. This

core element of the curriculum represents a philosophical shift from one's own personal

needs to the needs of the patient and is central to the ethical and professional

development of a dental student:

> Interviewee 7: *We very often talk to faculty and say everything we do is curriculum, every time we sit down with students to have a chat, if they see you out in the ball field…everything you are doing is the hidden curriculum. You are influencing students…*

*Educational experience*

Educational resources are provided by industry to enhance the student's learning experience. Materials which otherwise would be unavailable, thereby depriving the students of an opportunity to enrich their learning experience:

> Interviewee 11: *They provide teaching DVD's, they provide products at discount for us to use them, kits that we use today for students they were all created and gave to us, so they have a very valuable role in teaching students. In this time, the financial mood, we just can't afford to buy this, that's something where they can provide products to students.*
> Interviewer: *They provide educational experiences?*
> Interviewee 11: *They provide educational experiences for the students.*
>
> Interviewee 8: *I think they do help to lower the cost of education first of all by providing our students with… you don't charge the market rate for instruments for example for their kit. It's a reduced cost which is passed on to the students… Well there are some dental industries that do sponsor research and so it advances methodology and techniques and materials so that we can use better things for our patients and ultimately teach our students to use those things. So indirectly it works out and I think that evidence based methodology is also pushing industry to come up with better quality research they're doing… so it sort of feeds off one another. You know and they will… I know in the past for example when the graduate program was here they would supply at cost or free of charge materials, … you know that kind of thing to our graduate program for the students to use and become familiar with.*
> Interviewer: *It creates an educational experience which otherwise wouldn't be there if the resources aren't there neither is the experience.*
> Interviewee 8: *Yes, they also supply resources to academics who teach, so they do give back in that way.*
>
> Interviewee 9: *I think that as technology develops certain companies have an opportunity to say to the university, here try our new machine that can do everything known to man and put it in the university for say a one or two year period. That brings the student or the potential graduating student or dentist up to speed with what is available when he graduates. So that is one role that industry can play. Now if the university had to pay for it, it might take about ten years before you get that new technology into the university. So industry can help the student keep up to date by giving equipment to use in the clinic.*

Innovation and technology enhance the educational experience for students and faculty by facilitating the dissemination of information through electronic libraries and

databases. Curriculum delivery is more tightly controlled by faculty because it

eliminates poor choices by students in not purchasing resource materials:

> Interviewee 6: *…students were making decisions of discrimination about which books they actually have to buy or must have and which ones they could simply ignore even though it was is a required textbook for each teaching area. What this led to was students not having the appropriate textbook or having editions that were way out of date simply because they could purchase it from a colleague or they would ask a colleague do I really need "Textbook X"? They'd say no not really. So, that produced a bit of a vicious cycle in that they didn't have the books, when there were readings given they didn't do the readings, but they kind of collectively did something that approached the reading but it wasn't a solid approach.*
> Interviewer: *Do you see this creating gaps in their knowledge base by not having the required texts?*
> Interviewee 6: *Yes, well they chose a way to get the material which was inferior to having a primary source… So, that's one of the reasons for going to the electronic curriculum textbook. We now know that virtually every student has the material and it has an exceptional enthusiastic response from faculty who have learned how to use and teach and exchange with students. So our early figures show that it is not going to be substantially more costly, but certainly more costly than if you don't buy the books. But, that really is not an option.*

Industry presentations to promote products and services provide educational

opportunities for students to apply their knowledge of evidence based assessment; an

experience only made possible through industry interaction. This faculty directed form of

student's exposure to industry is positive in that it fosters the development of critical

assessment skills which will be necessary throughout their practice careers:

> Interviewer: *So, it seems like there are lots of ways in which industry influences the way students learn…where you have the opportunity to reflect on those things in an evidence based dentistry way.*
> Interviewee 7: *They don't come in to teach evidence based dentistry, they are coming in to promote a product. But we try to prime the students to listen to them with their evidence based dentistry take.*

Faculty requires a mechanism to acquire feedback regarding curriculum from recent graduates. This feedback provides an information source to design curriculum which adds relevance to the educational experience:

> Interviewee 9: *Well I think the curriculum should be controlled by the faculty, but the faculty has a responsibility to consult with recent graduates. I think they should survey graduates who have been out there for five years and say what do… you've been out there for five years, you've been treating patients what do you think was deficient in your curriculum? What would you have liked to have seen taught that you didn't receive and what were you taught that you think was absolutely useless? Work with that group of people, and also on a regular basis which I do believe happens is that the graduating class is asked the question, how were your courses, what did you like, and what did you not like? And so in other words listen to the student and listen to the student who has graduated and its five years down the road. I'd support that kind of feedback.*

The educational experience provided by UIR's also extends to the influence these relationships can have in educating industry:

> Interviewee 13: *A company approached me and another faculty member to do some research on their product… he was trying to raise the bar in his company… He was pretty confident of what the findings would be, but the point was that here was academia's opportunity to help this guy raise the bar for evidence based work with their material. So that was really great. So is the relationship important between industry and education? It is really very important and it is important in part for what we can do for industry.*

*Ethics*

Dental faculties are tasked with teaching the skills of the profession so that students will learn to readily apply their knowledge with competence in an ethical and just way.  It is vital to the dental profession that graduating students are not only competent practitioners, but also ethical practitioners. Dental faculties when associating with industry must be forever vigilant in ensuring such relationships are devoid of bias in order to maintain its ethical and moral standing in the eyes of its students:

Interviewee 5: *So you would hope that and I think this is generally true that academic clinicians recognize they have that responsibility to be, to practice evidence based dentistry to teach concepts that are evidence based. And in so doing will not necessarily bias what they teach based on their own personal exposure to dental industry and any of the dental purse that might come with that.*

There are countless educational opportunities which take place outside of the formal ethics course which can be used to foster a student's ethical practice. Self reflection and introspection can be woven throughout the dental curriculum to develop an ethical awareness to achieve competence in beneficence, empathy, advocacy, and other humanistic qualities:

Interviewee 6: *We have a big responsibility to harness that skill so they are no longer competing for themselves as much as they were, but they now competing for their patient's well being.*
Interviewer: *So you're fostering advocacy?*
Interviewee 6: *Absolutely.*
Interviewer: *An advocate for the patient first.*

Therefore, the underlying philosophy of an ethics curriculum should be to create practitioners who are self reflective through developing their sense of introspection during their dental education experience. This will enable them to use sound moral judgment in the complicated ethical and clinical decisions which they will often encounter during their careers:

Interviewee 7: *Well there is a lot of business, I hope that some aspects of the actual care as well as the business because it is a strange situation that we are in as dentists where we are running a private business and yet we are providing care that takes time.*
Interviewer: *I remember a dentist once told me, "take care of your patients and the business will take care of itself".*
Interviewee 7: *That's a wonderful slogan isn't it?*
Interviewer: *Yes, and it's true. If the business is perceived by the patient as coming first you won't…*
Interviewee 7: *No, they won't trust you.*

Individuals who fail to uphold the professional standard are the weak links in the chain who risk tainting the integrity of the entire profession:

> Interviewee12: *They want exposure to the students so the students buy their product when they graduate and they want to be exposed in there as personalities so that when the students are seeking advice, they go to those people and the corporation makes further inroads. So, the university, they have great interest in being in there and I think as I said earlier their impact can be very, very subtle.*
> Interviewer: *It's those subtle things…those hidden things that you really have to be careful of.*
> Interviewee 12*: I think faculty tries to pick them off. I think we do a pretty fair job of that. But I think it has the potential to be worse in the future because the general breakdown in ethics and the cost of starting a practice and running a practice and they are graduating with heavy debt. There is a lot of pressure on them to produce, to get a leg up on the guy across the street.*

Creating an ethics curriculum by the immersing ethical themes throughout the formal and hidden curriculum should create positive learning outcomes. This is seen in no better place than the responsibilities faculty members have in serving as role models for students. Students would not view the ethics curriculum as lectures from the ivory tower, but view the ethics curriculum as a fundamental component in defining their identity as a dentist. Students must be made aware of their ethical and moral responsibilities by all means possible so as to acquire desirable traits and abandon harmful traits in their pursuit of a professional identity:

> Interviewee 12: *But I do think that a lot of the routine CE is industry oriented to a very large degree, getting back to the original point. And whether it is industry to make money or the industry to buy our products, it's strayed a long way from hard edged science based, clinical based outcomes and how to get there. And I think that starts with faculty and I think maybe we don't do a very good job of conveying to students what's expected of them. And I think there is some truth to that. Dentistry is different from both law and medicine. Medicine has its Hippocratic Oath and law has its oaths and its limitations and dentistry doesn't have anything like that.*
> Interviewer: *So you see in some ways maybe it's the ethics curriculum?*

Interviewee 12: *Well we're working on that now actually. They're talking about putting together a white coat ceremony. Do you know what a white coat ceremony is?*

Interviewer: *In medicine I think it's in first year…early on in their education?*

Interviewee 12: *That's right it can be at different times, but the idea is to have a ceremony that sort of welcomes these people into the profession and that says as you move forward you are taking on responsibilities, obligations, commitments and these aren't options. They go with the territory. And you know if …the Hippocratic Oath lays it out pretty hard on physicians as to what the expectations are, probably at the end of the day many of them don't hit the mark, but its there, the objective is there. We don't have that. We don't have an objective that says there are certain things you must do, there are certain things you must not do.*

Interviewer*: Because what our profession has to do is to maintain the public's trust and some of the things we have talked about in this interview with industry… some of those things would undermine the public trust in dentistry. If the public sees the motivation for an oral health professional being dollar signs at the end of the day.*

*Part-time / Full-time faculty*

A dental faculty is made up of educators from diverse backgrounds with unique experiences that are linked through the common purpose of fulfilling the mission of the dental school. The most obvious example of variation in faculty is that found between full- time and part-time members. Full-time faculty  are generally located in an academic centered environment steeped in an evidence based approach to dental education whereas part-time faculty are practice centered and may have a different (eg. anecdotal) view of education:

Interviewee 8: *I think there are three separate bodies: one, the academics who do research and rely more heavily on evidence based methodology in their teaching versus the full-time clinical dentists who have little or no training in research methodology, it is like a different language and the wet-fingered clinical dentists. I mean the full-time clinical faculty have some understanding of evidence and presenting the best methodology to our students and teaching it in a systematic way whereas the clinical dentists want to teach it the way they do it because it works best for them which is the lowest rung on the evidence ladder.*

Interviewer: *So they are looking at anecdotal types of information, not evidence based…*
Interviewee 8: *Right, exactly.*
Interviewer: *Their own personal preference.*
Interviewee 8: *Their own personal preference, which has some value, but it is not always the best way.*

Therefore, dental faculties must seek an evidence based approach to curriculum delivery. An approach understood by full time faculty, but not always embraced by part-time faculty as their perspectives are often guided by experience, not evidence:

*Interviewee 7: Very often there is the personal preference often comes from the private practice members who are here just a couple of days. And so they are used to working with something that works so well in their hands and then they are asked to teach with something they're not used to…*

As previously stated the experiential approach is not always the best approach, but it is a perspective which contains merit because some situations require opinion where evidence is lacking:

Interviewee 1*: We have some very seasoned practitioners here from a clinical standpoint, who know what's out there and what they're[students] going to be approached with, dental laboratories, salesmen, or whatever. Now with our evidence based dentistry and with these seasoned practitioners we try to make sure they [students] have these coping skills to deal with that.*

Interviewee 11: *I see that, but I see the part timers as being very valuable, because what they bring to the faculty is their experience of what works…because if it didn't work for them in private practice, they probably wouldn't be doing it here at the school. They wouldn't say use "Product A" because its fantastic if they had a terrible experience with it in private practice. So what they bring to faculty is the clinical side of …does it really work? Sometimes we don't have information on products… how good or how bad they are. We have to make a decision and we have to rely from part timers to give us what they use in practice and what works well there.*

It is very important for part time faculty to understand that anecdote can be damaging to the education experience of students if it is at odds with the formal curriculum and presented in a fashion which misleads or creates confusion for students:

Interviewee 7: *And then I would say to the students as well, 'you may experience slight variations because we all do things slightly differently. We all hold a knife and fork differently but we all eat. And we all hold a carver slightly differently and we all like slightly different carvers to do certain aspects. So listen to it all, try all of those little things and then you will find what suits you best.' But that is an area where there is a potential that students can be confused.*

This variation between part-time anecdote and full-time evidence can be a contentious issue with faculty because students sometimes place more credibility in anecdote over evidence. Students can wrongly hold part-time faculty opinion in high regard only because it is seen as relevant where it emerged from the realm of private practice:

Interviewee 7: *The students, especially senior students, tend to think that those who are in practice are the experts and those in the faculty have this sort of ivory tower, academic idea that we're not wet-fingered dentists.*

Part–time faculty must be aware that variations exist between the formal curriculum students are taught and the clinical materials and techniques they use in private practice. A failure to recognize these variations and pursue teaching students in ways not congruent with the curriculum creates confusion and undermines the primacy of the formal curriculum. This divergence from the formal curriculum represents a loss of control over the curriculum, and if this divergence was acquired by the instructor through industry influence, then in essence that faculty member is an agent of industry. Faculty development to calibrate and teach part-time clinical faculty education techniques will strengthen curriculum control and improve the learning environment for students:

Interviewee 3: *People don't always agree particularly I find with the part time people that come in and I know that they come in from a different situation. They are out there practicing everyday and are seeing these patients and are using different methods and different techniques and they wonder why students are still using this method and we don't do enough work in educating the part timers.*

Interviewee 7*: I think through faculty development they understand what they are doing and they preface it with, "This is what I use and it works really well for me." I think that makes a big difference with saying, "I don't know why the school makes you use this terrible alloy."*

Interviewee 12: *…where part timers really have an impact on curriculum is on the clinic floor. Where there they bring in rightly or wrongly techniques that they learn to use themselves and expose the dental students to it and at times be at variance with what faculty curriculum would like to see. But, that I don't think is a part time issue, but that I think is a failure on the part of the university to calibrate.*
Interviewer:  *Do you think it is possible to calibrate faculty?*
Interviewee 12: *I think it is certainly possible to do it, but it is the cost associated with it. It means you've got to bring part timers in for a period of time and expose them to the curriculum. We have part timers coming in who have never taught and are suddenly in positions of influence on the clinic floor or whatever and I personally think that a lot of the time faculty have no idea what they are teaching.*

*Tenure & Promotion*

Research and education are intimately connected yet the relationship is not pursued to its full extent due to tension between researchers and teachers. An underlying tone of resentment between teaching faculty and research faculty is rooted in an academic culture which places greater value on research than teaching:

Interviewee 3: *… that's one of the areas that we didn't really pursue very well, bringing teachers and researchers together. There was always a certain amount of animosity between the two. There still is I'm sure.*
Interviewer: *In what way?*
Interviewee 3: *Well, because for years the person who got promoted was the researcher* but *you will always get this dichotomy within the committee of who does research versus teaching and the weight of each and a lot of people complain research is too heavily weighted.*

This academic philosophy creates conflict for faculty members who teach and do research because of the perceived need to devote more time and energy to research than to curriculum development. Academe therefore creates circumstances whereby faculty

may place research activities ahead of teaching needs in order to fulfill what the

culture of academe demands:

> Interviewer: *If you are a faculty member and you are involved in research and teaching, do you see there being a conflict in the time that you have to do your day to day job and getting funding; the time that you use to devote to the administrative and research side of things conflicting with the time you are able to devote to developing the curriculum that you are teaching to students?*
> Interviewee 8: *No question, no question, because I think we are all over worked and I know I could be much more creative with the delivery of my teaching and perhaps the content if I had the time to sit and think about how and what I've presented. Similarly I need to have time to do research and to write papers. So when both are cramped together… maybe with those time constraints that the curriculum might suffer. I'm not sure if it suffers but it isn't always a benefit. It can be a benefit because you know that…people who are involved with research deliver a higher level of information to students because they know how to critique things and they may be more current with research. But it plays a role in how much time you have to develop a teaching program. You've got papers to publish and projects to complete.*
>
> Interviewee 5: *Well I mean that is another big topic really, I think that is very much faculty dependent is when you get hired in a tenure track position. The typical breakdown is 40% research, 40% teaching and 20% administration. That number can change depending on where you are, who you can hire, so on and so forth. But if you take that as our traditional model for tenured faculty or tenure track faculty… some faculty make provisions for buying out some of your teaching time if you have large research interests going on… others don't.*
> Interviewer: *So there's flexibility?*
> Interviewee 5: *Yes, in a situation where they don't… then in that case you could see additional pursuit of research contracts as harming I think your ability to devote time to your teaching.*

With this view in mind faculty need to effectively utilize time and resources

devoted to research. The competition for national health research funding is intense and

poses difficulty for faculty in that a large amount of time and energy need to be invested

into the application process all the while knowing the prospects for success are low.

Research funding from industry however is more easily obtained, and is a means faculty

members pursue in order to perform the research needed to advance their academic

careers. This creates closer ties between faculty and industry and in effect industry

and curriculum. Therefore, the quest for tenure and promotion could foster increased

industry influence upon curriculum:

> Interviewee 8*: I mean you have to have research to advance on the academic ladder and if you can get industry sponsored research it is a lot easier to get depending on what you are doing to get that money than a national health research grant where the success rate is 12% or 20%. To approach industry or if they approach you, you can be sure that if it is a good research design then you will get funding for that. You get papers for it, it goes on your CV and you produce something.*

*Identity*

Dental education is a socialization process in which students develop their

identity within the profession, a difficult undertaking due to the dilemmas the profession

faces when trying to define itself. The constant push and pull of social justice and market

influences constantly shape the professional identity. Dentistry's identity crisis is an

unending debate regarding its status of being a business or a profession. The likely

answer is both, meaning that dentistry's identity is a balancing act in which market and

social justice influences are constantly weighed by societal, economic, and political

factors :

> Interviewee 6:… *that's why we say, we've got to be, what we have to do for our students, and the profession has to do…we have to be market savvy, but we have to be mission sensitive.*

> Interviewee 8: *I think dentistry is kind of on the edge of a sword, you know it is healthcare, but its profit driven and so it's difficult sometimes to balance those two.*

The primary trait dental faculty must recognize in graduating students is their

competence which allows them to make rational choices based on critical thinking and

sound moral judgment. Dental practice is broad in scope with some practices being

more business oriented than others. It is vital however, that in all shapes and formats of

practice, that patient needs supersede those of business needs:

> Interviewee 7: *It wasn't in this school it was in another school, a person teaching business administration said time is money and leave it to the girls, which annoyed me, leave it to the girls to do all the chatting as soon as the patient walks in, they should be lying flat and ready for you to start as soon as you walk into the office. So she said we've been taught two opposite things. And I said well both of us are probably right or both of us are wrong. You'll have to work it out on your own, almost in your own heart, what sort of a practitioner you want to be. And if you want to be like the other person who wants to be very productive, then you'll have to make sure that your staff are well trained so that the patient is cared for. But you still have to know… you're not just a machine making an impression or cementing a bridge. That bothered me a lot.*

Autonomy comes with the freedom to find and shape an identity within the

profession. It also comes with the duty of upholding the integrity of the profession

through serving patients needs; not the needs of their business. Therefore no matter what

identity a practitioner fashions to be, this identity should be grounded in service to

society in which the care of the patient in the best interest of the patient comes first:

> Interviewee 7: *Well there is a lot of business, I hope that some aspects of the actual care as well as the business because it is a strange situation that we are in as dentists where we are running a private business and yet we are providing care that takes time.*
> Interviewer: *I remember a dentist once told me, 'take care of your patients and the business will take care of itself.'*
> Interviewee 7: *That's a wonderful slogan isn't it?*
> Interviewer: *Yes, and it's true. If the business is perceived by the patient as coming first you won't…*
> Interviewee 7: *No, they won't trust you.*

*Agents for Industry: Style versus Health*

In this current era the dental profession finds itself in an identity crisis fueled by industry influence creating more uncertainty and volatility in its pursuit. Industry influence should be easily defined when in fact it is quite enigmatic with tentacles from the financial, manufacturing, service, media and health industries finding ways into all things and creating complex networks which are forever changing. In academe however industry influence may be more apparent as the philosophies of academe and industry are often contradictory.

An underlying theme at the heart of this undertaking is the tension between style and health. Dentistry has had the difficult task of balancing these ideologies, a task which becomes increasingly challenging as market forces strengthen. Industry's primary motivation is profit and will participate in ventures which support this activity.

*Non-institutional Continuing Dental Education (CDE)*

Industry supported CDE and the growth of the non-university affiliated "institute" often promote a market oriented philosophy which could contradict what's best for the patient. Dentists who enroll in these education programs need to exercise due diligence through critical assessment to discard testimonials and anecdote in search of evidence to support the educational content which is in the patient's best interest:

> Interviewee 12:…*the bulk of the CE programs that are put on for GP's are one way or another production oriented or attracting patient oriented or making more money oriented. That's got nothing to do with breadth or depth. That's got everything to do with point of view and for some reason we're not getting across to our undergraduates that maybe at the end of the day the important thing is not whether you make an extra ten bucks, maybe the important thing at the end of the day is that this works better and this is a good way to do it, and I'd feel a lot better with myself if I saw graduates having a greater interest in doing things technically the better way and that as soon as some speaker stands up and starts talking about money he gets booted out of the room.*

Universities recognize their patriarchal role of providing CDE to protect the profession from bias and potential harm:

> Interviewer: *Do you feel that the continuing dental education here at the school is influenced by industry in some ways?*
> Interviewee 9: *The only way we are influenced by industry is to try and give as many courses that would match those courses being given by industry outside of the university. We try and make sure we cover all those topics to give the part timers a chance to take courses through us and not through industry. Because there is a chance for bias obviously when industry puts it on and we're aware of that and we try to protect the faculty and dentists from having to go to those courses because they have nowhere else to go.*

University based CDE programs often do not have the capacity to meet the educational needs of the profession thereby creating an opportunity for non-academic institutes and industry sponsored CDE. Industry recognizes this void and assumes the role of educator by sponsoring courses. Industry exploits education for the purpose of marketing and financial gain:

> Interviewee 12: *I just think the CE could be higher and I think that's why so many people now are flocking off to "Institute A" and the "Institute B" and things like that because they are really hungry for more information. And part and parcel of that they get the baggage that goes with it, but I think they are honorable, decent people who are bright and we have selected them to be bright and capable and then we drop them off a cliff with a DDS and we say that's it. Now a few of you will get to go to grad school and the rest of you no matter how badly you want to do it, can't, because we're not going to teach you. We're getting better at that. We're starting some better programs at the school.*

Industry sponsored continuing education seeks well respected clinicians to teach courses using educational content based on their products. Through their reputations these clinicians provide indirect product endorsement thereby becoming agents of industry:

> Interviewee 5: *I think what happens in continuing education is that there are definitely biases to any of the programs that are offered, not all of them of course, but certainly in a number of the courses there is a bias to a particular technique*

*or company or typically both, technique involving the products of a particular company.*

Interviewee 6: *Now usually a university or academic health center specialists are well known among practitioners and so this is the group from which the industry wants to recruit. So they may come to a very good clinician and say 'we would like you to give ten lectures on to use our product and how you use our product and how they would prefer that and in return for that… we are not asking you to say others products are bad, but we are asking you to participate in a so called continuing education program and show people how to do this, so they too can do it' And what this tends to do, this is what I call the indirect endorsement,*

Interviewee 12: *I think any time a corporation sponsors a CE course… they're really not there out of the goodness of their heart. They're there because they want to promote and sell product. And we've certainly all gone to courses where a presenter is clearly attached by the hip to a supplying company or a manufacturer and they are up there extolling the virtues of this material and they even passed it as having done all kinds of research and they believe this. But I think as long as there is a dollar connection between the two, you have to be little bit suspicious as to whether or not they are actually telling the truth or whether the research was in fact done properly or whether it was biased from the get go…*

Educators constantly need to remind students of the fact that the dental curriculum teaches students the basic core knowledge and skills to be competent practitioners. As dentists they will be lifelong learners who utilize the basic skills acquired in dental school to critically assess information and incorporate those things which benefit patient care into their practice during their careers:

Interviewee 3: *A fine example of that is recently a recent grad set up here in the city… He came back and said you know I didn't learn anything in dental school. I learned it all when I got out. I learned it all by going to Continuing Ed courses and talking to these people. But, he was big in the cosmetic end of it.*
Interviewer: *So is it as much a marketing philosophy as an actual dentistry one?*
Interviewee 3: *Yes, that's right and it's becoming more so.*

The dental curriculum is limited in the amount of time it has to deliver its core content. There are crucial aspects of dental practice, such as practice management, which lie outside the curriculum (para-curriculum), but due to time constraints cannot be fully

addressed in dental school. Faculties need to examine strategies for the development

of courses which teach para-curricular content to recent graduates so that they receive

evidence based information in an academic setting insulated from industry bias and

consistent with the values of the profession:

> Interviewee 11: *I think that we try to teach the students how to be dentists, but we don't teach them the fact that they need to understand how to run a business very well. Include like an MBA in dentistry as well, but enroll students in additional practice management programs would be good, teaching them not only how to cut teeth, but also how to manage a business…just the basics and again how will we do that? Well, we have to contact those industries… you know the bankers. We don't have to be a banker, but we need to know the bare essentials about how to do banking for a company.*
> Interviewer: *Do you think those resources now would be in the university?*
> Interviewee 11: *Of course they are. Yes. We've got the lawyers here, we've got the management, we've got…it's all here at the university.*
> Interviewer: *So maybe something to look at is interdisciplinary interaction between the faculties. Those resources may already be there, it's just that we have to tap into them.*
> Interviewee 11: *And the reason we haven't tapped into them is because it's a four year program and you try to cram everything into it. You try to cram this stuff into it as well. It makes it into a six year program.*
> Interviewer: *Exactly. So where do you place it?*
> Interviewee 11: *So where do you place it? Maybe where you place it is in the year after graduation is an idea. I'm not saying that you don't allow people to graduate, but I'm saying that you offer the courses to the people and really target the people who have just graduated.*

There is a notable imbalance in the popularity of CDE topics as noted when

attendees of national dental meetings have freedom to choose which courses they want to

attend. Courses in practice management are often better attended than courses with

clinical content. Students who attend national meetings suggest that the faculty should

upscale its practice management curriculum to reflect the needs of the profession. This

issue is important for universities to address in the formal curriculum and in CDE so as to

gain an element of control in the para-curriculum:

Interviewee 6: *At national meetings for dentists and as you know students participate more and more in the national dental meetings. You might see on the annual continuing education programs how to increase the... how to increase your office revenue... or something like that and that lecture would draw 3000 people. At the same time there would be a lecture going on...prevention of oral cancer...and that would draw 40 or 50.*

Interviewer: *So that would be seen as an imbalance in continuing education, where within the dental school you don't have that type of practice management curriculum being delivered, the importance is more on the core subjects...*

Interviewee 6: *No, but the more students are involved in this part of it... they are seeing that and then they are demanding that in the curriculum. That's how it is getting back to the school... they are saying we heard a wonderful speaker in Ottawa, at the national meeting...*

*Organized Dentistry*

The enculturation of lay people into professional peers may occur in dental school, but the culture of the dental profession goes beyond the walls of the institution and is found in practitioners of the profession, the organizations which represent the profession and in the society we serve.

The dynamism of dentistry's social identity is what drives the constant revisiting of what professionalism means in dentistry and the often asked question "is dentistry a profession?" Professional schools and professional organizations alike serve to uphold the image of the profession to maintain the public's trust in the profession. This is a great responsibility which carries great power. Professional schools are charged with the responsibility of being the gatekeepers of the profession while professional organizations serve the interests of the dentists they represent. These organizations recognize a purpose in representing the collective needs of dentistry by upholding the core values of the profession. Therefore, the autonomy bestowed upon students after graduating from dental school is given social, political and economic empowerment through membership in

organized dentistry. There is a change in the locus of power from an academic center to an organizational center and with power comes influence. Therefore when one examines the influence of industry on dental education one must include the dental profession as an industry; an influence which wields power through organized dentistry's ability to harness the strength of its membership. It is an undeniable fact that the industry of organized dentistry holds influence over dental education for the basic reason that one cannot exist without the other. Attempts at separating the two can only be based on philosophy and nothing more:

> Interviewee 7: *The dental profession to some degree could be considered an industry and isn't that influencing the curriculum?*
> Interviewer: *Yes.*
> Interviewee 7: *Hopefully to the good…What should we be emphasizing? What are we not teaching that we should be teaching? But, that's another industry. In a way that maybe we call ourselves a profession, but we are an industry as well.*

There is a general consensus between academe and organized dentistry on most issues. However, one philosophical point of contention is organized dentistry's view on cosmetic dentistry. "The Perfect Smile" has been a message advocated by organized dentistry with as much emphasis as messaging related to oral health issues of much greater consequence:

> Interviewee 9: *I mean our profession in many cases including the "Association C" will give you a sticker "The Perfect Smile"… well you have to get away from that, say "Perfect Dental Health". It should focus as much on having an exam by a dentist to look for oral cancer than they should say having a dentist examine you for your white teeth and you can bleach them and they have to get away from that. And that's "Association C" promoting that based on a committee that's telling them what to do. So the media is picking up from as I say "Association C" talking about the perfect smile all the time when we should be talking about the overall health of how the mouth and jaws contribute to the patient's overall health which is being neglected totally. It is up to us to educate the media.*

Organized dentistry is viewed as sending the wrong message to society in how oral health should be defined. Through branding organized dentistry has created a false sense of what constitutes good oral health. Authenticity is not viewed as esthetic and therefore drives oral health in the direction which favors style over health. Professional organizations themselves have therefore become agents of industry by succumbing to industry friendly messaging:

> Interviewee 7: *Actually I think "Association B" may be using that as their logo. The person who had designed it came to see me… I was at a meeting and we were talking about the image of dentistry in the public. I stood up and I said, "what you have up there on the screen is one of the problems … what message are you giving them that dentistry only creates good looking young women who want straight, white smiles. And she came to me and she said well this gets them into the practice and then we can check. And I said I still don't agree with that. It's too bad if we as a profession, caregivers have to use good looks as the hook to get people to come in for oral health. Many of the ads in the journals are using that.*

The message of style over oral health trivializes the dental profession. The mandate of dentistry is seen as treating crooked and discolored teeth instead of oral disease; an industry friendly message which easily garners industry support. The smile has become a part of the culture of the profession. The public has accepted the profession's message and as a result dentists must treat the smile to uphold its duty in order to meet the public's expectations. A concept not lost on dental students who have also received this message:

> Interviewee 6: *And I think if you look at Canada, "Association B" has been remarkably successful with this happy face with a smile and my intention is not to directly criticize the "Association B", but it trivializes oral disease. Insurance companies know what patients want and what dentists can deliver in terms of care. So they are going to structure their insurance products taking those things into account… So things like teeth whitening, veneers, essentially cosmetic… attention to cosmetic dentistry are very high on the patient's list, so the insurance companies structure their product to make a profit on the provision of these*

*services. Now what that tends to do is that also encourages the professional to concentrate on those services that the patient wants and for which there is a charge. Now if that's the overview or the ambience or is the reality of the day for the profession, fourth year students are going to be very sensitive to that, third year slightly less so, second year a little less and first year really wouldn't pay much attention to it… in my view I don't think that having style is as important as proper management of cleft lip and palate, oral cancer, basic oral care for institutionalized people, oral health care for the elderly…We've got to get that message out to the students and reverse the current in circumstances where market forces are driving what we do. What we have to do is get the profession to tell the insurance companies these are the things we should be doing.*

*Media and Society*

The oral health message which dominates the media is the esthetic aspect of dentistry, one small component of the profession which looms large for industry due to the financial gains related to these treatments. Cosmetic dentistry provides a useful public service which is not a problem. The problem occurs when cosmetic dentistry overshadows the whole scope of dental practice creating an imbalance in which oral health issues the public needs to understand become lost in the search of the perfect smile:

Interviewee 7: *Well one of my things that really bothers me in dentistry is the … I have no objection to cosmetic dentistry, I think it is needed, but I don't like the emphasis on it. The general public thinks of dentists as people who make straight smiles as opposed to combating chronic diseases or diagnosing cancers, and oral health. And I think many of the ads that you see show very good looking people, especially good looking young women with these California type smiles that I think is the wrong emphasis.*

The profession needs to reflect upon how the media portrays dentistry and develop ways in which the image of dentistry can be improved in the future. Educating the media should be the responsibility of the profession and so should the mission to provide an accurate version of dental practice to the media for public understanding:

Interviewer: *I think of industry, sometimes we have a narrow focus with dental supply companies and labs and what not, but I think it is broader than that. I often think I think the media is an industry, and I think the media has a role to play in how we practice our profession. The way the media portrays what oral health is to society… and society is going to demand things of our profession. I think that is the other side of the coin is media's influence in dental education.*

Interviewee 7*: Have you ever seen a movie or a television show where there was a caring, good dentist? They are always idiots. They are always showing us caring more about our big car than our patients… and all these shows on television about emergency rooms… I think the public gets a much better idea of the scope of medicine than they do of the scope of dentistry. All they see through the media would be their private practitioner and maybe an orthodontist. But they don't know that dentists are working with cleft palate babies. That they are working with speech pathologists for kids who didn't have things repaired properly.*

Interviewer: *Everything has to be newsworthy I guess, the things we do are anonymous and remain anonymous.*

Interviewee 7: *I don't think everybody is supportive of oral health. Maybe we don't encourage them to be so. We encourage them to do what they are doing rather than try to make a difference. I wasn't thinking of the media as an industry that impacts in dentistry, but now that you've mentioned it, it has a big impact.*

The media industry measures success by the size of its audience and the revenue generated through advertising. The true test dentistry faces in educating media will be to gain their interest and this will only be achieved through dentistry's keen assessment of market forces:

Interviewee 6: *…the constraint is that insurance companies are selling products to people who they know can pay. That's where they are targeting. They are not interested in selling insurance policies to people who can't pay the premiums. And neither are the media interested in stories that don't appeal to their advertisers, that don't appeal to the ratings that their advertisers are looking for. So the unfortunate thing… market forces concentrate on the populations that pay… pure and simple. Because that is what marketing is.*

*Health*

One of the values related to the Mission of Dalhousie's Faculty of Dentistry is to "apply our knowledge and skills in an ethical, caring and compassionate manner to

promote and maintain oral and maxillofacial health in Atlantic Canada and to treat

appropriately evolving oral health needs" (Dalhousie University Faculty of Dentistry,

2004, p.1). This says nothing about style, but everything about health. The Faculty will

remain honest in its mission by holding true to its values which begins by incorporating

this sense of purpose in its students. This holds importance not so much for the individual

professional identity the student acquires, but how students will shape the greater identity

of their profession as practicing dentists:

> Interviewee 3: *I think what industry now pushes is the esthetic dentistry.*
> Interviewer: *It is such a big marketing tool.*
> Interviewee 3: *Yes and there are so many other things that could be addressed in dentistry where it really overshadows a lot of the more pressing things that need to be looked at.*
>
> Interviewee 9: *…I tell them point blank in first year you shouldn't be worried about the patient's perfect smile. You should be worried about the patient's squamous cell carcinoma or another tumour, or has a broken jaw or has a deformity or has pain. A lot of the patients that they are going to see come to see them because they are in pain, not because they want to have their teeth bleached. So they can't focus on cosmetic dentistry.*

Process

*Awareness*

Faculty must be aware of the sociologic processes at work in academe. This

awareness comes with the knowledge and experience of dealing with curricular issues

which focus not only upon student competency in core subjects, but also in developing

the ethical and moral competency necessary for their professional identity. An open

minded approach to curriculum study will help uncover elements in the hidden

curriculum which can be harmful to the culture of dental education. A fact which holds great importance as the dental school is the micro environment which commands great influence in the macro environment of the dental profession.

*Balance*

Academe is fraught with educational dichotomies. When academe encounters a powerful external influence with conflicting ideology such as industry, the inherent tensions associated within these dichotomies mount. The hierarchal organizational structure and policies of academe serve as barriers to external pressure; however in an era characterized by rapid technological advances combined with government fiscal restraint, universities are becoming more receptive to external influence. When academe partners with industry, thorough investigation of the relationship is required to ensure the venture is consistent with the mission and values of the university, and at the same time is favorable to industry in that it recognizes the gains such relationships hold. A balance between academic philosophy and entrepreneurial ideologies is needed for these partnerships to have success by meeting educational, social and market objectives.

*Power*

Dalhousie University gives the Faculty of Dentistry autonomy in making curriculum decisions with the understanding that the academic policies of upper campus are upheld. The faculty must also hold accreditation status by maintaining a standard as set by the Canadian Commission on Dental Accreditation. The dental faculty has a hierarchal organizational structure with academic policies and strong leadership which

provides the authoritarian environment required to protect the integrity of the program and maintain the accredited status of the school. The checks and balances built into the system are designed to be open to change, but only if change is consistent with curriculum philosophies. Change requires critical reflection by committee and approval by senior faculty creating a resistance to maverick decisions based on impulse.

Industry's entrepreneurialism contradicts the authoritarianism of academe creating an interface of tension when these philosophies meet. Industry's motivation is profit driven and uses manipulation tactics in order to gain market share. Academe is viewed by industry as a marketplace where students are targeted as customers of products and services. Faculty recognizes that students are targeted by industry and the primary means faculty uses to protect students is through education. An evidence based curriculum to instill self efficacy through competency skills and critical thinking will give students the tools needed for dental practice:

> *With the advent of democracy and modern industrial conditions, it is impossible to foretell definitely just what civilization will be twenty years from now. Hence it is impossible to prepare a child for any precise set of conditions. To prepare him for future life means to give him command of himself* (Dewey, 1929 cited in Flinders & Thornton, 1997, p 18).

A potential threat to faculty's responsibility is exclusivity agreements with industry. Exclusivity agreements should be avoided whenever possible. However in cases where exclusivity agreements are deemed necessary in order to create educational experiences for students, extreme caution must be exercised so as to ensure curriculum control rests firmly in the hands of faculty.

There is value in autonomy and having control over one's actions. Dentistry is a self regulated health profession of independent practitioners who theoretically abide by a

professional code of ethics to care for the public's oral health needs. Dentistry is also a fee for service business which can create competitive tensions within the profession. Industry recognizes the competitive aspect of dentistry and manipulates dentists through various means such as industry sponsored CDE to promote products and services through testimonials and anecdote. University based CDE is a viable alternative and academe should endeavor to expand the scope of the CDE curriculum to satisfy the educational needs of the profession and firmly establish its stewardship in dentistry's professional development.

*Advocacy*

The mission of academic institutions holds core values consistent with the purpose of serving the greater good of society. The enculturation students experience in becoming dentists is admission into the culture of the profession. Market forces often contradict the academic mission as is the case with social justice. Academe takes a humanistic perspective on social justice whereas industry does not hold social justice as a core value, viewing social justice only through the lens of marketing. Industry participates if it can recognize value in the venture in order to receive a return on its investment. To honor its mission, academe needs to work with industry to develop strategies and create circumstances which serve the greater good of society. Academe, by educating industry, can help break through its philanthropic paradox in order for industry to do the right things for the right reasons.

Curriculum infused with social justice creates educational experiences for students to develop ethical and moral competence. Dental education which breaks down

the barriers to care to the underserved fosters social justice, the antithesis of the market driven philosophy of esthetics and image, which underscores academe's role as stewards of health over style.

*Growth*

The growth of dental faculties must be viewed in terms of increasing the capacity to deliver an enriched learning experience for students through education and research, adding capacity for faculty development, and leadership in lifelong learning through the development and delivery of CDE programs. In today's climate of rapid technological development and change, dental faculties find themselves in the difficult position of maintaining relevance in the curriculum due to the financial commitment required to implement innovation. Innovation is financially expensive and often academe finds itself in the position of brokering relationships with industry to provide students with learning opportunities that otherwise would be impossible to provide. The time available to implement new technology into the curriculum is also a cause for concern due to the need of faculty development so that they can identify strategies for change and have the time and resources necessary to learn and implement change. The organizational structure of academe requires that curriculum change be consistent with the academic philosophy and supported by evidence based research. Change is based on the collective reflections of faculty to ensure no harm comes to the integrity of the dental school.

Academe's ability to maintain research programs to contribute to the advancement of the profession has become increasingly reliant on industry research contracts due to decreased government research funding. Industry values research in

academic settings as favorable results provide product endorsement and a better position over its competitors in the marketplace. Unfavorable results pose ethical dilemmas for academe as questions surrounding intellectual property and the suppression of results are raised. It is of vital importance that research contracts are thoroughly reviewed before embarking on research endeavors that may adversely affect the university.

The growth of the continuing dental education industry in non-institutional settings has created a strong market oriented philosophy in the dental profession. In order to satisfy the education and development needs of the profession, academe needs to assume a greater role in CDE by providing a greater spectrum of evidence based CDE curriculum as an alternative to industry sponsored courses. The social sensitivities of academe would infuse the humanistic qualities absent from the market driven curriculum of industry. It would mark a return to an emphasis on health over the esthetic and strengthen the public's trust in the profession.

*Accountability*

The stewardship role of dental education can be defined by the means in which dental faculties serve the profession. Academe's roles include: gatekeeper for admitting students, teacher to educate students, researcher to advance the profession, administrator to direct the profession, counselor to provide wisdom and advocate for giving voice to those not heard. With stewardship comes great responsibility and accountability. Academe must be accountable to its students, to society, and most importantly to itself.

External influence such as industry can undermine the ability of academe to be self accountable through bias and distrust. Therefore relationships with industry must have relevance to faculty, be open and transparent, and supported by evidence. An institution must have integrity from within in order to use its integrity to maintain the trust of the society it serves. Stewardship ultimately depends on the power of self control because a loss of self control risks losing integrity and the mechanism of accountability.

Table 1. Reflective Coding Matrix (Scott, 2004) for the substantive theory "The Power of Self Control"

Reflective Coding Matrix

| Core Category | Stewardship | | | | |
|---|---|---|---|---|---|
| Processes | Power    Awareness    Advocacy    Balance    Accountability    Growth | | | | |
| Properties | Academe And Industry (Two Solitudes) | | Educational Dichotomies | | |
| Contexts | Authoritarianism (UIR's: " A guest in the temple of academe") | Entrepreneurialism | Knowledge (Evidence based versus anecdotal) | Formal/ Hidden Curriculum | Agents for industry (Style versus health) |
| Dimensions | -Hierarchal organizational structure -University policy -Government funded -Public trust | -Exclusivity -Marketing: Financially driven -Philanthropic paradox -Innovation | -Critical thinking -Principles & Guidelines | -Enculturation -Educational experience -Ethics -Part-time/ Full-time faculty -Tenure & Promotion | -Non-institutional CDE -Organized dentistry -Media & Society |
| Modes for Understanding The Consequences | Autonomy | Manipulation | Competency | Identity | Health |

Figure 1. Conditional matrix representing the substantive theory of The Power of Self Control.
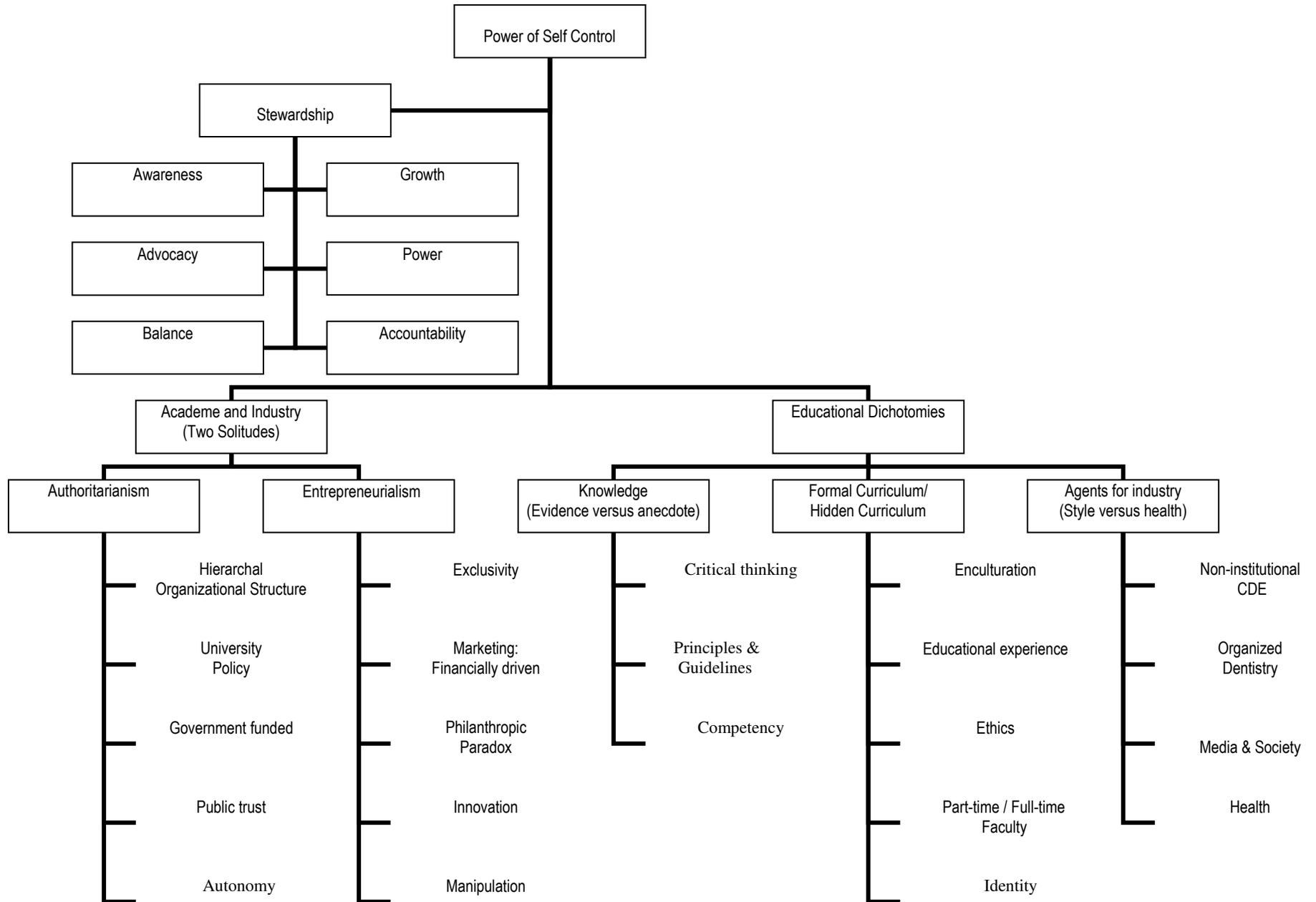
CHAPTER FIVE : DISCUSSION

Substantive Theory: The Power of Self Control

The influence of industry on dental education is a hegemonic clash of knowledge and money. Industry's quest for influence on knowledge is in tension with academia's responsibilities. Academes' authoritarian structure subscribes to a Marxist ideology which insulates its institutions from industry forces. Dewey (1938) states "the ideal aim of education is creation of power of self control" whereby one seeks intellectual and moral freedom for the development of mind and character. The absence of structure only creates the illusion of freedom as control is exerted by accidental circumstances; forces under no one's command. Similarly, industry's push to incorporate entrepreneurialism into professionalism does not create freedom but in effect, practitioners risk a loss of "autonomy" as they blindly follow market forces.

In the 19th century, during the days of the itinerant dentist, regulation was absent from the profession placing the public at the mercy of "the snake oil salesmen" who traveled from town to town practicing dentistry. In the 21st century, one could argue that is it not the dentist who is at the mercy of the snake oil salesmen of industry advocating methods of practice which may not be in the best interests of the dental profession and the public it serves? Is the dental profession willing to surrender its autonomy to industry influence by abandoning its ability to think critically of the ways industry seeks to educate us? Dental education trains students with the ability to treat people with oral disease with skill and compassion and to improve the oral health of the public it serves. Dental education must maintain its autonomy through the development and maintenance

of a power of self control in order to be honest in its mission of education and service

to the profession and society.

For industry, academia is both a consumer and a vehicle through which industry

can achieve growth. The primary motivation of industry is profit. Therefore it utilizes a

variety of tactics to manipulate the consumer to achieve wealth. As described, these

tactics include: direct and indirect marketing to students and faculty; branding;

exclusivity arrangements; research partnerships to promote products and continuing

dental education programs. Academe, on the other hand appears committed to a different

mission - one in which the basis of knowledge rests on an evidence based curriculum that

is consistent with sound ethical and moral values:

> *Direct ties between curricula and external, well-resourced organizations raise the possibility of academic knowledge as the servant of power, ministering to special interests at odds with the public good, creating a façade of expertise that shields the benefits knowledge brings to a variety of elite. Even worse, were curricula developed to cement our ties with external groups, non-academics would become co-authors of curricula, reducing, if not undermining, the autonomy, authority and integrity of science* (Slaughter, 1997, p 21).

The interface of industry and academe is the locus for the brokering of curricular

control where educators recognize their need of authority over the curriculum yet need to

entertain the sorties of resource laden industry:

> *If legitimacy, rather than space for exploration, is a key issue for creators of new knowledge, they have to do more than sustain their contributions to curricula with work underwritten by their state or institutional lines and dues from their members: they need to connect with resource rich organizations embedded in the economy. Of course, such a connection might mean undermining the commitment of these authors of curricula to the social movements that sustained and nourished them* (Slaughter, 1997, p 23).

Academe recognizes the importance of creating rich educational experiences for

students, which in some circumstances can only be realized through industry assistance.

Faculties must exercise caution with enrichment of the formal curriculum through corporate means as such ventures cannot come at the expense of undermining the hidden curriculum. Not all educational experiences are written in the course syllabus. The attitudes students develop through interpretation of learned experiences is as much a product of the hidden curriculum as it is a product of the formal curriculum. Therefore, an enriched formal curriculum via industry assistance may elevate the importance of market oriented elements of the profession such as esthetics over humanistic elements of the profession such as removing barriers to oral health care. Faculty must envision how the formal curriculum and hidden curriculum work in concert to create a student's professional identity:

> *Perhaps the greatest of all pedagogical fallacies is the notion that a person learns only the particular thing he is studying at the time. Collateral learning in the way of formation of enduring attitudes, of likes and dislikes, may be and often is much more important than the spelling lesson or lesson in geography or history that is learned. For these attitudes are fundamentally what count in the future* (Dewey, 1938, p.48).

Industry influence in dental education is a reality and will forever be a reality. What dental education must remain true to is the assurance that control of what students are taught is entrenched in the domain of academe. The encultration of students into the profession of dentistry is through the curriculum. Faculties need to control student experiences through the curriculum to instill desirable traits and minimize undesirable ones. Educators create the situations in which the students interact so they can make interpretations:

> *A primary responsibility of educators is that they not only are aware of the general principle of shaping of actual experience by environing conditions, but that they also recognize in the concrete what surroundings are conducive to having experiences that lead to growth. Above all, they should know how to utilize*

*the surroundings, physical and social, that exist so as to extract from them all that they have to contribute to building up experiences that are worth while* (Dewey, 1938, p. 40).

Faculty's ability to control curriculum permits the freedom to create the educational environment and the educational experiences of students. It is through these experiences in the social institution of the dental school where students become members of the culture of dentistry. This is supported by symbolic interactionism in that students assume a professional identity through the process of the self or the unit making sense of the learning experience or situation through interpretation:

*In formulating propositions of social change, it would be wise to recognize that any given line of such change is mediated by acting units interpreting the situations with which they are confronted* (Blumer, 1969, p. 89).

This is where a great deal of professional stewardship is seen as the responsibility of dental faculties because it is the site of cultural determinism for the dental profession:

*Usually, most of the situations encountered by people in a given society are defined or 'structured' by them in the same way. Through previous interaction they develop and acquire common understandings or definitions of how to act in this or that situation. These common definitions enable people to act alike* (Blumer, 1969, p. 86).

Students will adopt traits and behaviors consistent with their educational environment: "What students are taught and how they are taught is inextricably linked to particular orientations to social responsibility" (Mouradian et al 2003, cited in Dharamsi, 2006). The curriculum creates situations for student interaction. Self analysis of perceived experiences creates attitudes and behaviors which will shape the type of practitioner they will become:

*Under the perspective of symbolic interaction, social action is lodged in acting individuals who fit their respective lines of action to one another through a*

*process of interpretation; group action is the collective action of individuals* (Blumer, 1969, 84).

*Human society is to be seen as consisting of acting people, and the life of the society is to be seen as consisting of their actions. The acting units may be separate individuals, collectivities whose members are acting together on a common quest, or organizations acting on behalf of a constituency… There is no empirically observable activity in a human society that does not spring from some acting unit* (Blumer, 1969, p. 85).

Therefore it is the responsibility of faculty to design curriculum which not only creates clinical competency, but also instills cultural competency consistent with the accepted norms of the profession. The future direction of the profession is dependent upon the principles of the qualities instilled in graduates as it will be their behavior which shapes the cultural identity of the profession, thus creating a cycle between the cultural influence of the profession and the cultural identity of academe:

*The designations and interpretations through which people form and maintain their organized relations are always in degree a carry over from their past to ignore this carry-over sets a genuine risk for the scholar. On this point the methodological posture of symbolic interactionism is to pay heed to the historical linkages of what is being studied* (Blumer, 1969, p.79).

The power of self control enables academe to shape external influence such as industry. Resources from industry are and will continue to be relied upon to give the best possible learning experiences to students. The hidden curriculum is most at risk to negative external influence because what may appear to be a positive learning experience in the formal curriculum may actually be creating a negative learning experience in the hidden curriculum. Faculty must always search for deeper meaning in curriculum decisions to ensure the learning experience interpreted by students supports their ethical

and moral development, and not create an identity with attitudes and behaviors inconsistent with the cultural norms of the profession.

> *From the standpoint of symbolic interaction, social organization is a framework inside of which acting units develop their actions. Structural features such as 'culture', 'social systems', 'social stratification', or 'social roles,' set conditions for their action but do not determine. People - that is, acting units – do not act toward culture, social structure or the like; they act toward situations.* (Blumer, 1969, p. 87).

Praxis

A parable tells the story of three men, a scholar, a monk and a bricklayer trapped in a dark cellar with no windows or doors. The scholar analyzed the situation and came to the conclusion that since there were no doors or windows, escape was impossible and their situation was hopeless. The deeply religious monk also recognized the situation as dire, so he prayed to God for divine intervention and awaited rescue. The bricklayer, however, assessed his surroundings and took action. He found a sharp stone and began to scrape at the mortar between the bricks. When his hands became bloodied and sore he prayed to God for strength and continued to scrape away. Eventually brick after brick were loosened and removed until all three men found their escape. This story teaches us the lesson that philosophy and knowledge have little value unless it can be tied to action. Praxis is essential as one cannot be so bound by discourse that it paralyzes one's ability to act. True meaning can only be realized through practice.

Reflection is needed to uncover the principles of academe which are open to influence when partnering with industry. This will facilitate the development of evidence based guidelines for faculty to use as a template to structure UIR's. Industry input in

guideline development would serve as an act of good will by academe which recognizes industry's importance in the creation of these relationships. Industry however needs to understand the stewardship role of faculty meaning that control ultimately rests in the hands of academe so as to maintain the integrity of the curriculum. Faculty will need to assess the current organizational structure and academic policy to ensure these mechanisms are sufficient to develop and sustain UIR's. The challenges and opportunities industry brings to dental education are not unique to Dalhousie's Faculty of Dentistry but may be common to all faculties. There may be practical use for the creation of universal principles and guidelines for UIR's in dental education across the faculties:

> *A richer understanding of the complex and multiple forces that shape the content we select for our courses and the ways we enact curricula may better enable us to appreciate the problems involved in changing curricula* (Slaughter, 1997, p 22).

> *It is the business of an intelligent theory of education to ascertain the causes for the conflicts that exist and then, instead of taking one side or the other, to indicate a plan of operations proceeding from a level deeper and more inclusive than is represented by the practices and ideas of the contending parties* (Dewey, 1938, p. 5).

Curriculum cannot serve two masters. Polarized philosophies will only serve to work against the creation of a meaningful curriculum as such debate only serves to inhibit the progress of curriculum development:

> *We need to move past the dichotomous debate on external relations (basic/ applied), autonomous/ dependent) to a deeper and more realistic discussion on how curricula are related and should be related to agencies and organizations outside the university* (Slaughter, 1997, p 23).

A rational scheme of co-created principles and guidelines will enable academe and industry to find common ground for a mutually accepted co-existence. Curriculum control by academe is at the heart of these principles. However, faculty must be attuned

to industry motivations and provide mechanisms consistent with the mission and core values of the faculty in order for industry to realize its goals. A failure to do so will dissolve industry's interest in partnership creating circumstances which compromise patient care and learning experiences for students through loss of innovation and technology. At the same time faculty cannot lose control to external forces because doing so creates catastrophe as the profession succumbs to market forces compromising social justice and the integrity of the profession:

> *If students are overwhelmed by an educational milieu that favors technical and clinical competencies and overlooks education for civic duty, then social responsibility will remain peripheral to professional practice* (Rubin, 2004 as cited in Dharamsi, 2006).

By exercising the processes of awareness, balance, power, advocacy, growth and accountability faculties can maintain stewardship of the profession.

CHAPTER SIX : CONCLUSION

The dentists who forged the development of the dental profession recognized the pursuit of higher learning in dental schools as the foundation on which to build the profession. The hard work and selfless efforts of faculty members in the early years of the Faculty of Dentistry at Dalhousie are acknowledged for their contributions to dental education and the profession of dentistry in Atlantic Canada. Historically, economic, political and societal pressures have challenged the faculty's resources to deliver dental education to grow the profession and treat the public's oral health needs.

Today dental education continues to face great challenges to find the resources to deliver a curriculum which provides its graduates with the knowledge and skill to address the oral health needs facing society. Innovations in health research and communication have created a more informed society which places high expectations upon the dental profession in delivering their oral health care. At the same time, oral health does not fall under the umbrella of universal health care thereby creating great disparities in how the public's oral health needs are addressed. Dental education will continue to face challenges to find the resources to deliver a curriculum which provides its graduates with the knowledge and skills to address the oral health care needs facing society.

Industry partnerships are viewed as a means by universities to relieve the financial burdens related to delivering curriculum. However, industry motives are often incongruent with the academic mission resulting in authoritarian versus entrepreneurial philosophical tensions and create mounting tensions within already existing educational dichotomies.

Grounded theory analysis of faculty perspectives revealed the substantive theory of The Power of Self Control based on Dewey's view that the ultimate purpose of education is the pursuit of intellectual and moral freedom for the development of mind and character. This belief is supported by faculty opinion regarding industry's influence on academe whereby the faculty must retain ultimate authority in dental education and maintain stewardship of the profession.

The organizational structure and academic policies of dental faculties need to provide a mechanism which fosters both the development of UIR's, yet protects the integrity and authority of academe. The development of principles and guidelines to be used when working with industry would help create UIR's that have positive outcomes for all stakeholders.

Universities need to provide faculty development to members in order to address those elements of the hidden curriculum which have a deleterious influence on the dental education experience of students. Creating greater consistency in the clinical curriculum by calibrating the level of instruction and evaluation by faculty members, and promoting the exchange of ideas between research and teaching faculty to facilitate curriculum design are positive steps to take.

The leadership role of academe in continuing dental education is threatened by industry sponsored courses. Expanding the evidence based CDE curriculum in dental school will strengthen alumni's view of the dental faculty being stewards of the profession.

Dental education needs to remain honest and true to its mission, yet be nimble in brokering industry influence without compromising the integrity of the institution.

Academe must maintain health before style, evidence before anecdote, and patients before profit. . It is vital that academe create a learning environment which fosters positive educational students for the ultimate benefit of the public we serve. It is in this learning environment where students will develop their professional identity as underscored by Interviewee 7's comment, "You'll have to work it out on your own, almost in your own heart, what sort of a practitioner you want to be."

REFERENCES

Angen, M. J. (2000). Pearls, pith and provocation – evaluating interpretive inquiry: reviewing the validity debate and opening the dialogue. *Qualitative Health Research, 10*(3), 378-395.

Annells, M. (1996). Grounded theory method: philosophical perspectives, paradigm of inquiry and postmodernism. *Qualitative Health Research, 6*(3), 379-393.

Atkinson, R., & Flint, J. (2001). Accessing hidden and hard–to–reach populations: snowball research strategies. *Social Research Update, 33*.Retrieved April 26, 2006, from http://www.soc.surrey.ac.uk/sru/SRU33.pdf.

Baker, B. (1996). The history of curriculum or curriculum history? What is the field and who gets to play on it? *Curriculum Studies, 4*(1), 105-117.

Barnett, M. L. (2002). University-industry relationships in dentistry: Past, present, future. *Journal of Dental Education, 66*(10), 1163-1168.

Beyer, L.E. & Apple, M. W. (1998).*The curriculum: problems, politics and possibilities.* Albany, NY: State University of New York.

Bloom, S. W. (1989). The medical school as a social organization: the sources of resistance to change. *Medical Education, 23*(3), 228-241.

Blumer, H. (1969). *Symbolic interactionism.* Berkeley, CA: University of California.

Britten, N. (1995). Qualitative research: qualitative interviews in medical research. *British Medical Journal, 311*, 251-253.

Campbell, E.G., Moy, B., Feibelmann, S., Weissman, J. S., & Blumenthal, D. (2004).

Institutional academic industry relationship: results of interviews with university leaders. *Account Research, 11*(2), 103-118.

Carr, W. (1993). Reconstructing the curriculum debate: an editorial introduction. *Curriculum Studies, 1* (1), 5-9.

Chambers, D. W. (2006, May). Addressing commercialism in dentistry. *News and Views: Newsletter of the American College of Dentists, 34*,(2), 1.

Charmaz, K. (2005). Grounded theory in the 21st century: Applications for advancing social justice studies. In N. K. Denzin & Y. S. Lincoln (Eds.), *Handbook of qualitative research* (3rd ed.) (pp.507- 535). Thousand Oaks, CA: Sage.

Chew-Graham, C., May, C. R., & Perry, M. S. (2002). Qualitative research and the problem of judgement : lessons from interviewing fellow professionals. *Family Practice, 19*(3), 285-289.

Chiovitti, R. F., & Piran, N. (2003). Rigour and grounded theory research. *Journal of Advanced Nursing, 44*(4), 427-435.

Cisneros-Puebla, C. A. (2004). To learn to think conceptually. *Forum: Qualitative Social Research, 5* (3) Art 32. Retrieved Feb 26, 2006, from http://www.qualitative-research.net/fqs/

Cote, L. & Turgeon, J. (2005). Appraising qualitative research articles in medicine and medical education. *Medical Teacher, 27*(1), 71-75.

Creswell, J. W. (2003). *Research design: qualitative, quantitative, and mixed methods approaches* (2nd ed.). Thousand Oaks, CA: SAGE.

Dalhousie University Faculty of Dentistry (2004). *Academic Policy Manual*. Halifax, NS: Dalhousie University.

Denzin N. K. & Lincoln Y. S. (2005) Introduction: The discipline and practice of

qualitative research. In N. K. Denzin & Y. S. Lincoln (Eds.), *Handbook of*

*qualitative research* (3rd ed.) (pp 1-32). Thousand Oaks, CA: Sage.

DeSchepper, E. J. (1987). The hidden curriculum in dental education. *Journal of Dental*

*Education, 51*(10), 575-577.

Dewey, J. (1916). *Democracy and education: an introduction to the philosophy of*

*education.* London: Collier-Macmillan. [Electronic version] Retrieved Sept 17,

2006, from http://www.ilt.columbia.edu/publications/Projects/digitexts/dewey

Dewey, J. (1938). *Experience and Education.* London: Collier- MacMillan.

Dewey, J. (1997). My Pedagogic Creed. In : Flinders, D. J. & Thornton, S. J. (Eds.), The

curriculum studies reader. New York: Routledge.

Dharamsi, S. (2006). Social responsibility and oral health disparities: a constructivist

approach. In : Welie, J. (Ed.), Justice in oral health care: ethical and educational

perspectives, 61-80. Milwaukee, WI: Marquette University Press, [Electronic

version] Retrieved Sept 25, 2007, from

http://www.elders.dentistry.ubc.ca/research/our_people/cv/dharamsi/Dharamsi

Donovan, T.E. (2007). Dental academia, commercialism and the rise of the 'institute':

where have we gone wrong? *Journal of Esthetic and Restorative Dentistry, 19*(2),

65-68.

Drevdahl, D. Social justice or market justice? The paradoxes of public health

partnerships with managed care. Public Health Nursing, 19(3), 161-169.

Dugger, W. M. & Sherman, H.J. (1997). Institutionalist and Marxist theories of

evolution. *Journal of Economic Issues, 31*(4), 991-1009.

Eakin, J. M. & Mykhalovskiy, E. (2003) Reframing the evaluation of qualitative

health research: reflection on a review of appraisal guidelines in the health

sciences. *Journal of Evaluation in Clinical Practice, 9*(2), 187-194.

Fontana, A. & Frey, J. H. (2005). The interview: From neutral stance to political

involvement. In N. K. Denzin & Y. S. Lincoln (Eds.), *Handbook of qualitative*

*research* (3rd ed.) (pp 695-727). Thousand Oaks, CA: Sage.

Guba, E. G. & Lincoln, Y. S. (2005). Paradigmatic controversies, contradictions, and

emerging confluences. In N. K. Denzin & Y. S. Lincoln (Eds.), *Handbook of*

*qualitative research* (3rd ed.) (pp.191-212). Thousand Oaks, CA: Sage.

Graham, B. S. (2004). Is dentistry a business or a profession? *The Journal of the*

*American College of Dentists, 71*(4), 8-10.

Greenwood, D. J. & Levin, M. (2005). Reform of the social sciences and of universities

through action research. In N. K. Denzin & Y. S. Lincoln (Eds.), *Handbook of*

*qualitative research* (3rd ed.) (pp.43-64). Thousand Oaks, CA: Sage.

Greenwood, D. & Levin, M. (2001). Re-organizing universities and 'knowing how':

university restructuring and knowledge creation for the 21st century.

*Organization, 8*(2), 433-440.

Hafferty, F. W. (1998). Beyond curriculum reform: confronting medicine's hidden

curriculum. *Academic Medicine, 71*(6), 403-407.

Hafferty, F. W., & Franks, R. (1994). The hidden curriculum, ethics teaching, and the

structure of medical education. *Academic Medicine, 69* (11), 861-871.

Hundert, E. M., Hafferty, F., & Christakis, D. (1996). Characteristics of the informal

curriculum and trainee's ethical choices. *Academic Medicine, 71(6)*, 624-642.

Kelle, U. (2005). Emergence vs. forcing of empirical data? A crucial problem of

    grounded theory reconsidered. *Forum: Qualitative Social Research, 6* (2) Art 27.

    Retrieved Sept 12, 2007, from http://www.qualitative-research.net/fqs/

Kennedy, T. J. T., & Lingard, L. A. (2006). Making sense of grounded theory in medical

    education. *Medical Education, 40*, 101-108.

Korn, D. (2002). Industry, academia, investigator: managing the relationships. Academic

    Medicine, 77 (11), 1089- 1095.

Lempp, H. & Seale. C. (2004). The hidden curriculum in undergraduate medical

    education: qualitative study of medical students' perceptions on teaching. *British*

    *Medical Journal, 329,* 770-773.

Lewis, S., Baird, P., Evans, R., Ghali, W. A., Wright, C. J., Gibson, E., et al. (2001).

    Dancing with the porcupine: rules for governing the university-industry

    relationship. *Canadian Medical Association Journal, 165* (6), 783-785.

Liberto, V. N. (2005). Entrepreneurship in continuing dental education: a dental school

    perspective. *The Journal of the American College of Dentists, 72* (2), 10-11.

Lobb, W. K. (2005). The buy or lease decision in dental curricula. *The Journal of the*

    *American college of Dentists, 72*(2), 15-17.

MacInnis, W. A.  (1994). Dean's message.  *Dalhousie University Alumni Anchor 1*(1), 2.

MacInnis, W. A.  (1996). Dean's message. *Dalhousie University Alumni Anchor 1*(3), 3.

MacInnis, W. A.  (1997). Dean's message. *Dalhousie University Alumni Anchor 1*(4), 3.

MacInnis, W. A.  (1999, Fall). Dean's message. *Dalhousie University Alumni Anchor,* 2.

MacInnis, W. A.  (2000, Fall). Dean's message. *Dalhousie University Alumni Anchor,* 2.

MacInnis, W. A.  (2001, Fall). Dean's message. *Dalhousie University Alumni Anchor,* 2.

Marinker, M. (1997). Myth. Paradox and the hidden curriculum. *Medical Education,*
*31*(4), 293-298.

Marsh, C. J., & Willis, G. (2007). *Curriculum: alternative approaches, ongoing issues*
(4th ed.).Columbus, OH: Pearson.

Masella, R. S. (2006). The hidden curriculum: value added in dental education. *Journal*

*of Dental Education, 70*(3), 279-283.

Masella, R.S. (2007). Renewing professionalism in dental education: overcoming the
market environment. *Journal of Dental Education, 71*(2), 205-216.

Meyrick, J. (2006). What is good qualitative research? *Journal of Health Psychology,*
*11*(5), 799-808.

Mills, J., Bonner, A., & Francis, K. (2006). The development of constructivist grounded
theory. *International Journal of Qualitative Methods, 5*(1), 1-10.

Mills, J., Chapman, Y., Bonner, A., & Francis, K. (2007). Grounded theory: a
methodological spiral from positivism to post modernism. *Journal of Advanced*
*Nursing, 58*(1), 72-79.

Nova Scotia Dental Association. (2003). HealthyTeeth.org our case for support. Halifax,
NS: Compass Communications.

Nova Scotia Dental Association. (2003, November). Nova Scotia Dental Association
policy on corporate sponsorship. Halifax, NS: Gillis, M. R.

Portelli, J. P. (1993). Dare we expose the hidden curriculum? In : Portelli, J. P., & Bailin,
S. (Eds.), *Reason and values: new essays in philosophy of education*, 171-197.
Calgary, AB: Detselig Enterprises.

Precious, D. S.  (2003, Fall). Dean's message. *Dalhousie University Alumni Anchor, 2.*

Precious, D. S. (2006, Winter). Dean's message. *Dalhousie University Alumni Anchor,* 2.

Precious, D. S. (2007, Winter). Dean's message. *Dalhousie University Alumni Anchor,* 2.

Rice, P.L. & Ezzy, D. (2000) *Qualitative research methods*, 1-5. Victoria, Australia: Oxford University Press.

Schuwirth, L. W. T., Southgate, L., Page, G. G., Paget, N. S., Lescop, J. M. J., Lew, S. R., Wade, W. B., & Baron- Maldonado, M. (2002). When enough is enough : a conceptual basis for fair and defensible practice performance assessment. *Medical Education, 36,* 925-930.

Scott, K. W. (2004). Relating categories in grounded theory analysis: Using a conditional relationship guide and reflective coding matrix. *The Qualitative Report, 9*(1), 113-126. Retrieved Nov 11, 2007, from http://nova.edu/ssss/QR/QR9-1/ wilsonscott.pdf

Shenkin, J. D. (2003).Corporate versus personal responsibility: where will dentistry go? *Journal Public Health Dentistry, 63*(3): 139-140.

Slaughter, S. (1997). Class, race and gender and the construction of post secondary curricula in the United States: social movement, professionalization and political economic theories of curricular change. [Electronic version]. *Journal Curriculum Studies, 29*(1), 1-30. retrieved February 1, 2006, from the PsychINFO database.

Spalding, P.M. & Bradley, R.E. (2006). Commercialization in dental education: have we gone too far? *The Journal of the American College of Dentists, 73*(3), 30-35.

Strauss, A., & Corbin, J. (1998). *Basics of qualitative research: techniques and*

*procedures for developing grounded theory* (2<sup>nd</sup> ed.). Thousand Oaks, CA:

Sage.

Sykora, O. (1991). *Maritime Dental College and Dalhousie Faculty of Dentistry: a*

*history.* Halifax, NS: McCurdy.

Tanner, L. (2003, March 5). Dental academy's $1m deal with Coca-cola hits nerve. The

Chronicle-Herald, p F2.

Tavakol, M., Torabi, S., & Zeinaloo, A. A. (2006).Grounded theory in medical education

research. *Med Educ Online 11*(30), 1-6. Retrieved  Dec 9, 2006 , from

http://www.med-ed-online.org.

Uchin, R. A. (2005). Entrepreneurialism in dentistry: commercialism versus

opportunity. *The Journal of the American College of Dentists, 72*(2), 18-19.

Walker, D., & Myrick, F. (2006). Grounded theory: an exploration of process and

procedure. *Qualitative Health Research, 16*(4), 547-559.

APPENDIX A

Invitation to participate

My name is Martin Gillis and I am a candidate for the degree Master of Arts in Education at Mount Saint Vincent University. I am writing a thesis titled "The Influence of Industry on Dental Education". I will be performing a qualitative study using semi-structured interviews by purposeful selection of dental faculty to gain insight into this issue.

The interview will involve open ended questions centering on faculty members' impressions of the influence of industry on dental education. The interview will be held at a location of the participant's choice and take 60-90 minutes to complete. A second 30 minute interview may take place to pursue themes which arose from the initial interview. The interview will be audio recorded and transcribed. The confidentiality of the participant will be maintained unless the interviewee chooses otherwise. The data will be stored in a locked filing cabinet in the research office of Dr Gillis. After seven years the data will be destroyed. A copy of the thesis will be presented to participants upon completion.

If you would be willing to participate in this research please read the following consent form and seek clarification on any points. Dr Gillis can be reached by telephone at ▮▮▮▮▮▮▮▮ or via e-mail at ▮▮▮▮▮▮▮▮▮▮▮▮▮ . Dr McNally, his thesis supervisor, can be reached by telephone at ▮▮▮▮▮▮▮▮ or via e-mail at ▮▮▮▮▮▮▮▮▮▮ . If you wish to contact someone who is not directly involved in the study, you may contact the chair of the University Ethics Review Board (UREB) c/o MSVU Research and International Office by telephone at (902) 457-6350 or via e-mail at research@msvu.ca.

Your signature will indicate your informed consent to participate based on the terms contained in the consent form. The consent form must be returned to me within fifteen business days. If the consent form is not received in fifteen business days I will contact you by telephone to confirm your decision to decline participation.

Sincerely,

Martin Gillis, DDS

Consent to Participate

By signing this form I am indicating my understanding that the research project I will participate in will explore my perception of the influence of industry on dental education. I understand that the research is being conducted by Dr Martin Gillis, a Master of Arts in Education student, and that this particular research will contribute to a thesis being supervised by Dr. Mary McNally of the Faculty of Dentistry at Dalhousie University.  Dr Gillis can be reached by telephone at ███████████, or email at

████████████████████

As a participant in this research I have been informed that I have particular personal rights, outlined here:

1) I understand that I have a right to confidentiality with regard to the interviews.

2)  My name will not appear anywhere in relation to the research unless I choose to be acknowledged. A pseudonym will be used, if I choose.

3) I have the right to determine if my name will be listed in the acknowledgements.

4) I have the right to withdraw from this project at any time and for any reason. I do not have to share my reason(s) with the researcher.

5) I have the right to refuse to answer any of the questions asked of me for any reason. I do not have to share my reason(s) with the researcher.

6) I am aware that I have the right to contact Dr Mary McNally at ██████████ or via email at ████████████████ to inquire about the research.

7)  I am aware that I have the right to contact Dr Frederick French, Associate Chair Graduate Education at Mount Saint Vincent University, at 457-6186 or via email at Frederick.French@msvu.ca , to discuss any concerns I have.

8) I am aware that I have the right to contact someone who is not directly involved in the study to discuss any concerns I have through the Chair, University Ethics Review Board (UREB), c/o MSVU Research and International Office at (902) 457-6350 or via e-mail at research@msvu.ca .

9) I am aware that participation in the study is voluntary.

*Page 2,*
*Consent to Participate,*
*Research Thesis: The Influence of Industry on Dental Education,*
*Student: Martin R. Gillis*

10) I am aware that participation will involve no more than two individual interviews. The first interview will take 60-90 minutes to complete. The second follow-up interview will take 30 minutes to complete.

11) I am aware that the individual interview will be audio taped. I have been informed the data will be kept secure in a locked cabinet and destroyed after seven years. All electronic files will be password protected

12) I am aware the results of this research will be published in a refereed medical education journal and will be presented at education conferences and faculty development seminars and workshops.

13) I will receive a copy of this consent form.

14) I will receive a copy of Dr Gillis's thesis upon completion.

*Page 3,*
*Consent to Participate,*
*Research Thesis: The Influence of Industry on Dental Education,*
*Student: Martin R. Gillis*

---

I consent to participate in an interview:                              Yes [ ]          No [ ]

I consent to having my name listed in the acknowledgements:      Yes [ ]          No  [ ]

I consent to having my name, rather than a pseudonym, used throughout the thesis:

                                                                       Yes [ ]          No [ ]

I choose to use the following pseudonym:_____.

Name of Participant (printed):_____.

Signature of Participant:_____, Date:_____.

Signature of Researcher:_____, Date:_____.

Signature of Thesis Supervisor:_____, Date:_____.

Signature of Program Coordinator:_____, Date:_____.

APPENDIX B

Interview Confirmation

Thank you for agreeing to participate in an interview for my thesis research " The Influence of Industry on Dental Education".

The interview will involve you providing a brief bio describing your education background and your teaching experience in dental education at Dalhousie.

Following your brief bio I would like to hear your thoughts, opinions and experiences pertaining to industry's relationship with dental education, some of which may be:

1. should relationships be pursued

2. control of the curriculum by faculty

3. polarization of dental faculty on this issue

4. influence on how students are taught and what they learn

5. development of guidelines for academic-industry relationships.

Commentary on these and any other viewpoints related to this topic are welcome.


Sincerely,

Martin Gillis, DDS

APPENDIX C

Proposed Interview Guide

The following questions are a roster of main questions. Each main question may have

probing or follow-up questions.

I  Introductory Questions

    A.  Academic Background

        a.  Where did you receive your undergraduate education?

        b.  Where did you receive your professional dental education?

        c.  Where did you receive your graduate dental education? In what

            discipline?

        d.  Have you any undergraduate or postgraduate education unrelated to

            dentistry?


    B.  Academic Responsibilities

        a.   How long have you been on faculty at the dental school?

        b.  What are your teaching responsibilities?

        c.  Do you perform research at the dental school?

        d.  How is your research funded?

        e.  Is your research related to the courses you teach?

        f.  Do you feel your research is complementary to your teaching

            responsibilities or competes with your teaching responsibilities?

        g.  Do you have any administrative duties at the dental school?

II Curriculum Questions

A. Industry's Impact on Dental Education Curriculum

a. In what area(s) do you believe industry has an impact upon the dental
education curriculum?

b. Do you have any specific examples of where you see industry's impact
in action?

c. Do you view industry influencing teaching at the dental school?

d. Do you perceive industry as being a major player, significant player or
a minor player in dental education?

e. Do you see industry having an influence in the language of dental
education?

f. Do you see industry having an impact on resource allocation for the
dental curriculum?

g. Do you see industry having an impact on academic policy?

h. Do you see industry having an impact upon student assessment or
faculty advancement?

i. Are you aware of university policy which pertains to university-industry
relationships (UIR's)?

j. Do you feel current university policy provides sufficient guidance
with respect to UIR's?

k. If you were to choose one characteristic of UIR's which has a positive

influence on curriculum what would it be?

l. If you were to choose one characteristic of UIR's which has a negative

influence on curriculum what would it be?

m. Based on our interview today how would you summarize industry's

influence on the hidden curriculum?