

**MEDICAL EDUCATORS' EXPERIENCE OF ANTICIPATED
CURRICULAR CHANGE TO CASE/PROBLEM-BASED LEARNING AND
ITS RELATIONSHIP TO IDENTITY AND ROLE AS TEACHER**

by

SHAFIK DHARAMSI

Bachelor of Arts, York University, 1990

Bachelor of Education, York University, 1990

Bachelor of Science (Dental Hygiene), Medical College of Georgia, 1993

**A THESIS SUBMITTED IN PARTIAL FULFILLMENT OF
THE REQUIREMENTS FOR THE DEGREE OF**

MASTER OF SCIENCE

in

**THE FACULTY OF GRADUATE STUDIES
DEPARTMENT OF CLINICAL DENTAL SCIENCES**

We accept this thesis in conformity with the required standard

THE UNIVERSITY OF BRITISH COLUMBIA

April 1996

© Shafik Dharamsi, 1996

In presenting this thesis in partial fulfilment of the requirements for an advanced degree at the University of British Columbia, I agree that the Library shall make it freely available for reference and study. I further agree that permission for extensive copying of this thesis for scholarly purposes may be granted by the head of my department or by his or her representatives. It is understood that copying or publication of this thesis for financial gain shall not be allowed without my written permission.

Department of CLINICAL DENTAL SCIENCE

The University of British Columbia
Vancouver, Canada

Date APRIL 19, 1996

ABSTRACT

Little is known about medical educators' experience of curricular change to problem-based learning and its relationship to identity and role as teacher. The adoption of novel approaches to teaching and learning in medical education requires educators to consider a significantly different role and responsibilities as teacher. This possibly will require substantial changes in ways of thinking about education. Those involved in such curricular reform are challenged to understand better how complex interactional processes and epistemological positions affect educators involved in change.

This study used a phenomenographic research approach to explore and describe how the phenomenon of the experience of curricular change is interpreted by those who teach within one curriculum and are being moved to another. Essentially, the aim was to determine where a sampling of ten medical educators are in the position of curricular change and how they are trying to find their identity and role within it.

Findings present how the educators experienced, explained and dealt with change, and how they framed their experience and made sense of it. As such, this study found how at times participants resisted change, how they supported it, and shifted ground within it. The educators' interpretations of curricular change and understanding of identity and role as teacher were facilitated by and dependent upon their criterion for judging the legitimacy of change. In articulating their thoughts, participants focused their discussions on issues of effectiveness. The term *effectiveness* was classified as a theme from which emerged the following categories: (1) beliefs about teaching, learning and evaluation; (2) the perceived time commitments required to plan, implement and sustain the new curriculum; and (3) administrative and political influences effecting curricular change. These were the three different, yet interlinked categories or influences that mediated the educators' responses to the different situations within the phenomenon of curricular change.

TABLE OF CONTENTS

Abstract	ii
Table of Contents	iii
Acknowledgments	v
Dedication	vi
Chapter 1 INTRODUCTION	1
Toward Improving Medical Education	1
Transfer of Learning	2
Problem and Rationale	4
Research Statement and Purpose of the Study	5
Research Questions	8
The Interpretivist Perspective	9
Chapter 2 A SELECTIVE REVIEW OF THE LITERATURE	10
When to Conduct a Literature Review	10
Review of Selected Literature	11
Problem-based learning	11
The educator's role in PBL	13
Observations of faculty reactions to PBL	17
Summary	19
Chapter 3 METHODOLOGY	21
Qualitative versus Quantitative Approaches	21
Introduction to Phenomenography	24
Selecting a Sample of Educators	27
Researcher as the Instrument of Research	27
Data Collection Procedures	29
Data Analysis Procedures	33
Ensuring Rigor	34
Ethical Considerations	36

Chapter 4	RESEARCH FINDINGS	37
	Views of Curricular Change Based on "Effectiveness"	38
	Summary	65
	Participants' Views about Teaching and Learning	66
	Summary	82
	Views of Curricular Change based on "Time and Resources"	83
	Summary	97
	Views of Curricular Change Based on Perceptions of "Administrative and Political Influences" Affecting Change	98
	Summary	104
	Views of Curricular Change and Role Change: The Second Interview	105
	Views of Curricular Change Based on Perceptions of "Administrative and Political Influences"	106
	Summary	116
	Participants' Understandings of Identity and Role as Teacher in the New Curriculum	117
	Summary	135
	SUMMARY OF FINDINGS	137
 Chapter 5	 DISCUSSION	 144
	The Consequence of Disparate Expectations	144
	Affecting Role Change: Challenges	147
	Faculty Development: Changing One's Meaning of Teaching	149
	Administrative Management of Change: Creating a Framework	154
	Recommendations	157
	Future Research and Concluding Remarks	158
	REFERENCES	161
 Appendix A:	Contact Letter	175
Appendix B:	Consent Form	176

Acknowledgments

I wish to express my deep gratitude to all those who, in one way or another, affected my studies at the University of British Columbia. You were the bows from which I was sent forth in the quest for knowledge. My gratitude to you will be everlasting.

First, I wish to acknowledge the fundamental involvement of Dr. Chris Clark, my research supervisor. Dr. Clark truly understands the meaning of freedom in learning and inquiry. His wisdom, humility, limitless generosity, unending support, and role as co-inquirer (yet always giving me the benefit of the doubt), encouraged me to pursue uncompromising excellence in everything I did. Dr. Clark, your continual interest in my future, well-being and scholarship goes far beyond what I expected. I will always be grateful.

I will always remember the substantial support I received from the rest of my research supervisory committee, Dr. Dan Pratt, Professor Bonnie Craig, Dr. Marcia Boyd, and Dr. Ric Arseneau. Dr. Pratt, your wisdom and deep insight taught me what it means to be a role model and mentor. I have immense respect for you. Your words always challenged my thinking, and encouraged me to see the world differently. You motivate me to work harder and to constantly demonstrate understanding and insight. I hope to have more meaningful opportunities to work with you in the future. Professor Craig, I will never forget your advice, understanding and encouragement; without your support I may have been in a different program pursuing a different career. Your commitment to the dental hygiene profession has and always will be a source of inspiration for me. I hope that you continue to share your guidance and support in times to come. Dr. Boyd, you always left your doors open to me throughout my studies. I knew where to go if I had any concerns, academic or other. Thank you for always finding the time in your hectic schedule to share valuable ideas, and in providing the foundation I needed to begin this thesis. And last, but not least, I am truly thankful to Dr. Arseneau for helping me better understand the world of medical education. Your challenging, yet supportive ways as teacher enhanced my understanding of problem-based learning. I have learned from, and admire your tenacity in everything you set out to accomplish.

Among those who played significant roles in this research are the ten medical educators who sacrificed valuable time to share their thoughts of a phenomenon that significantly affected their lives. Without you this study would not have existed. It is you who have shed light onto an aspect of reality in curricular change that had remained so dark for so long. I hope this study enables you to continue bringing critical reflection, vigor, dedication, commitment, and enthusiasm into your teaching as you evolve as teachers during this change.

Life as a graduate student can be a grueling experience without fellow students to lean on. I wish to recognize my colleagues and friends, Brent Hehn, Alan Young, and Ananda Kuttan whose camaraderie, constructive criticism, and 5:30 A.M. jogging excursions meant more to me than I can say.

Finally, my studies, throughout my academic career, would never have evolved without the patience, support and understanding of my wife Ashifa, and the rest of my family. However, it was Ashifa who had to endure the consequences of my sleepless nights and frustrating moments. Yet, in between taking care of me she completed, with honours, her Provincial Instructors Diploma, while also continuing her career as instructor and dental hygiene practitioner. Her hard work, tremendous inner strength and perseverance will always be an inspiration to me.

*This thesis is dedicated to the loving memory of
my grandmother, my maaji, Jhenna Dharamsi,
and my dear cousin, Shehnoor,
both left this world during my studies.
They remind me that life is but a short passage in eternity and I should live
it with honour, integrity, and humility.*

Chapter 1

INTRODUCTION

Toward Improving Medical Education

The move toward better ways of educating learners has been an evolving concern among educators, giving rise to recurrent paradigm shifts in education (Bigge and Shermis, 1992; Prawat, 1992). Historically, a major educational reform occurred in the 1960s that substantially changed how learning was viewed (De Corte, 1977; Glaser, 1982; Prawat, 1992). Emerging theories moved from stimulus-response views of learning behaviour to a focus on problem-solving, cognitive development, and an overall concern for understanding of thinking processes (Brown, 1990; Prawat, 1992; Shuell, 1986). The social nature of cognition was also emphasized, which stressed that learning, to be truly effective, had to occur within a social context (Vygotsky, 1962, 1978). Classrooms were structured so that learners could interact with each other in a cooperative learning environment. All this contributed to significant curricular reform movements in public schools throughout North America (Prawat, 1992). In science education, in particular, much of curricular reform was geared toward the learning process and focused on problem-solving skills (Bredderman, 1983). Reform movements also influenced higher education, particularly medical education.

In 1969, the McMaster University Medical School introduced a different philosophy in its approach to undergraduate medical education (Neufeld and Barrows, 1974). At first, the aim was to teach students to know how and where to find information, and how to manage the burgeoning knowledge base in medicine. This led to the development of problem-based learning (PBL) as a new way to educate medical students in the classroom (Barrows and Tamblyn, 1980). The PBL approach required students to unravel medically related "problems" while working in small groups using systematic problem-solving approaches in a self-directed learning environment (Barrows, 1985). The

basic aims of this approach were two-fold: first, to enable medical students to acquire knowledge and skills through the integration of basic and clinical sciences -- this was thought to enhance acquisition and transfer of conceptual knowledge to practice; and second, to prepare students to provide optimum, up-to-date health care by promoting attitudes toward life-long, self-directed learning (Norman and Schmidt, 1992; Verwijnen, Van Der Vleuten and Imbos, 1990). Eventually, more educators began to realize that the PBL idea may be a good way to provide a meaningful link between theory and practice (Muller, 1984; Cf. Schmidt, Dauphinee and Patel, 1987). Consequently, the PBL approach to medical curriculum is being considered and gradually adopted by different medical and dental schools throughout the world (Armstrong, 1991; Bell and Hendricson, 1993; Boyd, 1993; Des Marchais, 1990; Des Marchais, Bureau, Dumais and Pigeons, 1992; De Volder and De Grave, 1989; Edwards, 1990; Hill, 1992; Kantrowicz, Kaufman, Mennin, Fulop and Guilbert, 1987; Neidle, 1986; Schmidt, Dauphinee and Patel, 1987; Thomas, 1992; Yang and Zhang, 1991). To provide additional credence, PBL is recognized by the World Federation for Medical Education and the World Health Organization (Walton and Matthews, 1989).

Transfer of Learning

Since McMaster's innovation, medical schools worldwide have continued to grapple with integration of the basic sciences and clinical expertise in a way that reconciles the lack of learning transfer that exists in traditional medical education (Tedesco, 1990, 1991). Essentially, transfer refers to "the ability to draw on or access one's intellectual resources in situations where those resources may be relevant..." (Prawat, 1989). Traditionally, classroom teachers in medical schools have embraced methods of instruction that mostly emphasized the *transmission* of factual and procedural knowledge (Anderson, 1983; Bigge and Shermis, 1992; Bernstein, Tipping, Bercovitz and Skinner, 1995; Bowden, 1987; Zahorik, 1977, 1986). As such the teacher's primary role and

responsibility aims mostly at the effective and efficient delivery of their content. However, it is not unnatural for highly qualified academics to think of teaching mostly in terms of their specialist subjects (Fox, 1983, p. 151). Many such teachers probably hold an objectivist orientation to knowledge as a commodity that they possess and ultimately transfer to their learners (Arseneau, 1993; Fox, 1983; Prawat, 1992; Pratt, 1992). As such, teaching and learning take on a cause and effect relationship. Researchers in education and psychology, however, have questioned the ability of traditional educational practice to enable the transfer of learning (Glaser, 1990; Goldman, 1989; Prawat, 1989; Cf. Ramsden, 1987). As emerging research began to reveal that learners construct knowledge rather than passively accept it from teachers (Anderson, 1992; Hand, 1993; Kelly, 1955; Lincoln, 1990; Menges and Rando, 1989; Mezirow, 1990; Oberg, 1986; Resnick, 1987a, 1987b), educators made major attempts to shift education from a content and teacher/teaching focus to a learner/learning focus. This called for a transformation in education and in the roles and responsibilities of all its players. Consequently, from working with a transmission model of teaching and learning, the teacher was now asked to consider a developmental or transformative model (Bailey, 1991; Mezirow, 1991; Pratt, 1992). Teaching and learning were understood to be dynamic and constructive (Entwistle and Marton, 1984; Prawat, 1989, 1992) based on "the parallel concept of mutual simultaneous shaping, arguing that any particular inference about the nature of that shaping is purpose dependent and time and context bound" (Guba and Lincoln, 1986, p. 148). Despite reform efforts, however, discussion and debate continues to focus on issues of learner/learning-centred versus teacher/subject-centred approaches to education (Petrie, 1981). This debate still continues, especially in medical education where the gradual evolution in conceptions of effective teaching and learning have had significant influences on curricular development.

It seems inevitable that as educators continue to look for better ways to facilitate the transfer of learning and to enhance problem-solving, comprehension and critical thinking

among their students, there will be continual attempts at curricular renovation (Benner, 1984; Feletti and Carver, 1989; Friedman, deBliek, Greer, Mennin, Norman, Sheps, Swanson and Woodward, 1990; Hardin, Swoden and Dunn, 1984; Kaufman, Mennin, Waterman, Duben, Hansburger, Silverblatt, Obenshain, Kantrowicz, Becker, Samet and Wiese, 1989; Kimmel, 1992; MacKenzie, 1980). Hence, within the last twenty years there has been a steady increase in the adoption of various forms of PBL as a teaching method, not only in medical education, but in the education of health professionals in general (Branda, 1990; Boud and Feletti, 1992; Jonas, Etzel and Barzansky, 1989).

Problem and Rationale

The adoption of novel approaches to teaching and learning in medical education will ask teachers to consider very different roles and responsibilities requiring substantial changes in ways of thinking about education (Creedy and Hand, 1994; Pratt, in press; Prawat, 1992). It is likely that medical teachers may have to consider a significant shift in understanding what it means to teach and learn, their identity as teachers, ideas of expertise and authority, ways of evaluation, and epistemology (philosophy of knowledge) or basis for knowing and justifying what we think is true (Bernstein, Tipping, Bercovitz and Skinner, 1995; Pratt, in press; Vernon, 1995; Wilkerson and Maxwell, 1988; Tedesco, 1990). However, research in teaching and learning indicates that it is unlikely for teachers to adopt changes that will require them to reform the way they teach when change is in conflict with their beliefs about teaching and learning (Ernest, 1989; Hewson and Hewson, 1989; Lester and Mayher, 1987; Pratt, 1992; Sparks, 1988). Also, "teachers' epistemological and metaphysical beliefs about the nature of inquiry, the construction of new knowledge, and judgments about reality ... can influence what and how they learn

from teacher education courses and professional-development seminars” (Pintrich, 1990, p. 849). These points may be significant for those considering curricular reform that requires teachers to change their teaching behaviours.

However, despite increasing research on PBL (Albanese and Mitchell, 1993; Norman and Schmidt, 1992; Vernon, 1995; Vernon and Blake, 1993), it remains unclear the ways medical educators experience the phenomenon of this type of curricular change and its relationship to identity and role as teacher (McAuley and Woodward, 1984), regardless of the importance of these issues on adopting change (Rogers and Shoemaker, 1971).

To date, although people have noticed faculty resistance toward a case/problem-based learning (C/PBL) curriculum (Abrahamson, 1992; Boud and Feletti, 1992; Todd, 1992; Wilkerson and Hundert, 1992; Woods, 1992), these observations have not occurred from the educators’ points-of-view. We do not know how educators experience the phenomenon of curricular change and how change relates to identity and role as teacher. Empirical inquiry into this phenomenon can help administrators, faculty developers, and teachers themselves, to understand better how curricular change is experienced, and plan effective and appropriate faculty development to facilitate a smoother transition and promote a more successful change.

Research Statement and Purpose of the Study

This study investigates the phenomenon of a sampling of medical educators’ experience of anticipated curricular change to case/problem-based learning and its relationship to identity and role as teacher. The site for this study is The University of British Columbia (UBC), which is experiencing such a change. The Strategic Planning

Committee from the Faculty of Medicine has proposed changes in their medical curriculum to improve the education of medical students. The Committee asserts that a general professional education should prepare medical students to learn throughout their professional lives rather than simply mastering current information and techniques. As a result, to foster independent, self-directed learning and problem-solving skills, the Strategic Planning Committee is proposing to introduce a case/problem-based, student-centred learning programme in their curriculum. The medical faculty will undergo a series of development workshops to introduce and prepare them for this change.

The case/problem-based, student-centred curriculum to be implemented in medical education at UBC asks educators to make a profound shift in the way they teach. Although organizational and institutional impediments to a student-centred curricular approach have been reported in the medical education literature (Abrahamson, 1992; Bernstein, Tipping, Bercovitz and Skinner, 1995; Boud and Feletti, 1992; Todd, 1992; Vernon, 1995; Wilkerson and Hundert, 1992; Woods, 1992), the issues surrounding complex interactional processes and epistemological positions that affect educators involved in a curricular change of this nature have rarely been examined systematically in this setting. The focus in the literature has primarily been on the comparison between PBL versus the traditional curriculum, PBL curricular development, tutors' content expertise, or organizational implementation and learning outcomes (Cf. Barrows, 1985, 1988; Barrows and Tamblyn, 1980; Coles, 1990; Eagle, Harasym and Mandin, 1992; Kaufman, 1985; Mackenzie, 1980; Maxwell and Wilkerson, 1990; Ramos and Moore, 1987; Schmidt, 1982; Silver and Wilkerson, 1991). This has occurred regardless of the inference that failures in curricular innovation may be affected by a failure to recognize the role of faculty during reform (Creedy and Hand, 1994; Olson, 1980; Wilkerson and Maxwell, 1988).

One basic assumption that guides people's understanding of the idea of change is that normal human response to change is resistance (Abrahamson, 1992; Lancaster and Lancaster, 1982; Turner, 1978; Woods, 1992). However, without knowing what

“resistance” means from the educators’ perspective, it would be superficial to take this assumption for granted and to use it as a basis for interpreting faculty reactions, especially when little is known about medical educators’ personal epistemologies and their experience of curricular change. To discover the meanings educators give to the phenomenon of *their experience of curricular change* requires a scientific method based on an interpretive perspective, using qualitative research methods (Creedy and Hand, 1994; Eisner, 1991; Marton, 1981, 1983, 1986, 1988; Patton, 1990; Popkewitz, 1984; Giorgi, 1986; Glaser, 1978; Glaser and Strauss, 1967; van Manen, 1990; Wilkerson and Maxwell, 1988). A qualitative approach can reveal the underlying factors associated with a phenomenon about which very little is known (Field and Morse, 1985; Strauss and Corbin, 1990).

The purposes of this research, therefore, are to describe how a sampling of medical educators at UBC interpret their experience of a curricular transition to problem-based learning, and to describe their understanding of identity and role as teacher within the changing curriculum. My aim, then, is to explore and describe the phenomenon of participating faculty members’ *experience* of anticipated curricular change and its relationship to identity and role as teacher. The empirical evidence of this will be the participants’ *telling of their experience* of curricular change. As stated earlier, this will be done by exploring the educators’ points-of-view, the meanings they attach to their experience of curricular change and their understanding of identity and role as teacher.

My intention is not to make global truth statements about curricular change, nor the teacher’s identity and role, but to articulate people’s interpretation of these issues within a specific setting.

By asking educators how they see the curricular change, I expected to get a range of responses based on the respondents’ points-of-view. These points-of-view direct ways of interpreting change, thus revealing what is understood by people and what ultimately guide their behaviours and expectations (Kelly, 1955; Marton, 1981). This study can be seen as exploratory as it investigates the phenomenon of curricular change and how it is

experienced by those who teach within one curriculum and are being moved to another. Simply, this study is aimed at exploring and describing the educators' sense of place in the curricular change, how they explain and deal with change and how they frame their experience and make sense of it.

Research Questions

1. How do medical educators experience the anticipation of the phenomenon of curricular change to case/problem-based learning?

What is their experience of this phenomenon; how does it appear to them?

2. How do they think curricular change will affect their identity and role as teacher?

How does anticipating change relate to their understanding of who they are as teachers; and what it means to them to teach and learn?

My intention in asking these research questions in such ways is to find out the educators' viewpoints, their "taken-for-granted" ways of looking at curricular change (Marton, 1981). I was interested in their thoughts about their identity and role as teacher as they thought about curricular change to case/problem-based learning. As such, my focus turned to the educators' *ideas* about their identity and role as teacher, as *they* saw it, in a curriculum that requires teachers to consider a certain epistemology that determines how teachers think about teaching, learning, content, evaluation and so on. As researcher, my aim was to explore and describe where certain medical faculty are in the position of anticipated curricular change and how they see their place, function, and role in change. The premise of this research is that a successful curricular transition is highly dependent on the teachers who will participate in such a change.

The Interpretive Perspective

An interpretivist perspective is effective for investigating phenomena from the point-of-view of those who bring meaning to them (Denzin and Lincoln, 1994; Guba and Lincoln, 1986). A key tenet of interpretivism is that people construct their own realities within the context of their social interactions (Berger and Luckman, 1967). Essentially, interpretivists decline the idea that there pre-exists a discoverable external reality (Smith, 1989). On the contrary, interpretivists maintain that people's realities are created through their interpretations of the events around them (Guba and Lincoln, 1994, p. 110). Consequently, an interpretivist approach to inquiry enables the researcher to understand better people's experiences within the context of the phenomenon under study. To understand educators' behaviours within the context of curricular change, this research is conducted precisely within that context because the multiple factors influencing educators occur there (Goetz and LeCompte, 1984). The rationale for viewing this problem using a method of discovery and exploration vis-à-vis a qualitative research approach is precisely the ability of this method to answer questions from the respondent's point-of-view. Qualitative methods are ideal for exploration, discovery, and inductive reasoning; aspects that are appropriate for this project.

Research in education indicate that teachers' behaviours are guided by personally-held belief systems and a disregard for this seriously hinders attempts to change teaching behaviours (Clark, 1988; Creedy and Hand, 1994; Munby, 1982; Pratt, in press; Wilkerson and Maxwell, 1988). Therefore, providing "a careful account of the different ways people think about a phenomenon can help uncover conditions that facilitate the transition from one way of thinking to a qualitatively 'better' perception of reality" (Marton, 1986, p. 33). This has significant implications for educational administrators and faculty developers who have traditionally focused primarily on logistics and actions of teaching as the basis for faculty development (Bowden, 1987; Oberg, 1986; Zahorik, 1977, 1986).

Chapter 2

A SELECTIVE REVIEW OF THE LITERATURE

When to Conduct a Literature Review

Depending on the qualitative research focus taken, the researcher can make a conscious decision when to conduct a literature review (Morse, 1994a). One view is that the literature review be delayed until data analysis is complete so that the analysis is truly inductive and findings have emerged from the data alone. The aim is to have the researcher remain uninformed and undistracted by other studies during the analysis process. Findings can then be related to the literature afterwards. This argument posits that the analysis process should be inductive and unbiased (Glaser, 1978, p. 31).

Another perspective is that researchers do not necessarily bias their study by being informed. This perspective asserts that the researcher should be an informed instrument who recognizes when something is significant. However, by being informed as such, "the researcher is not forcing data into a set pattern or into prescribed categories, but neither is the researcher a passive by-stander" (Morse, 1994a, p. 4). The aim is for researchers to hold their knowledge and viewpoints aside, in abeyance, throughout the data collection and analysis phase, with the intention of conducting the research inductively and from the participants' points-of-view.

Both views were considered for this study. At the initial stages of this research the literature was used as a guide in the evolutionary process of developing a research question. Also, given the nature of the qualitative methodology chosen for this study (Phenomenography), it was appropriate to learn more about the subject matter involved (Saljo, 1988), that is, curricular change to PBL; the reason being that prior knowledge can be important in helping the researcher to see the world as the participants see it. Furthermore, "one of the prerequisites for analyzing data [in phenomenography] is that the researcher is acquainted with the subject matter in question" (Saljo, 1988, p. 41).

Review of Selected Literature

There is documented evidence that a paradigm shift in medical education has forced educators to think about different ways to present and organize material to be learned (Iran-Nejad, McKeachie and Berliner, 1990; Patel, Groen and Norman, 1991; Schmidt, 1983; Schmidt, Norman and Boshuizen, 1990; Schmidt, Dauphinee and Patel, 1987; Schmidt, De Grave, De Volder, Moust and Patel, 1989; Wilkerson, Hafler and Liu, 1991). Medical, dental and health science educators are witnessing the adoption of an 'innovative' teaching methodology called problem-based, student-centred learning. This teaching method has flourished due to the unprecedented demands on health science education to prepare students to think critically, to be self-directed learners, and to be good problem solvers (Barrows, 1985; Norman, 1989; Schmidt, Norman and Boshuizen, 1990). The introduction of a problem-based learning curriculum has permeated health science schools all over the world (Boud and Feletti, 1992; Des Marchais, Bureau, Dumais and Pigeons, 1992; De Volder and De Grave, 1989; Thomas, 1992; Yang and Zhang, 1991).

Problem-based learning. Ever since McMaster University introduced problem-based learning (PBL) as an innovative approach to medical education, an increasing number of schools throughout North America have adopted some form of this method. Schools such as the University of Limburg at Maastricht, and New Mexico and Harvard Universities have now become leaders in this area (Feletti and Carver, 1989; Schmidt, Dauphinee and Patel, 1987). Problem-based learning has matured considerably since McMaster first introduced it (Boud and Feletti, 1992). The process of 'maturity' in this area has created an amalgam of definitions of PBL.

Albanese and Mitchell (1993) found that "defining what exactly constitutes PBL was a confusing and somewhat contentious task" (p. 53). Barrows (1985), in his explanation of the problem-based learning method, concedes that there are many varieties of PBL. He contends that PBL, when closely examined, is "complex, carefully designed, highly structured, efficient, and based on studies in cognitive and educational psychology

as well as carefully considered educational objectives" (p. 52). Universities such as Harvard and Limburg have modified Barrows' approach to PBL. For instance, Harvard's programme includes a lecture format that comprises one-fourth of the curriculum's organized time (Feletti and Carver, 1989). At the University of Limburg, on the other hand, students are required to attend approximately one lecture hour per week (Schmidt, Dauphinee and Patel, 1987). The University of New Mexico has also introduced a hybrid of PBL. They state that a student-centred, problem-based curriculum may not be appropriate at all stages of medical education (Kaufman, Mennin, Waterman, Duben, Hansburger, Silverblat, Obenshain, Kantrowicz, Becker, Samet and Wiese, 1989). They suggest that PBL is a teaching strategy that should be supplemented with traditional, lecture-based methods to ensure that the essential content of medical education is covered. Given the varied approaches to PBL, researchers are concerned that adopting PBL without ensuring proper faculty preparation could inhibit a successful curricular change (Holmes and Kaufman, 1994; Maxwell and Wilkerson, 1990; Wilkerson and Maxwell, 1988).

A principal concern among health science educators is that the basic sciences curriculum is incongruent with the clinical component of health science education (MacKenzie, 1980; Tedesco, 1990). The literature indicates that the curriculum as it exists is a relic of the past and in need of change (Tedesco, 1990). It is argued, however, that merely changing the curriculum cannot foster the acquisition of specific learning skills (Barrows, 1985). Some researchers say that curricular change to PBL must be accompanied by a "radical" shift in pedagogy (Barrows, 1985; Schmidt, 1983; Tedesco, 1990). A major concern, however, is that educators may be blindly adopting 'innovative' approaches to pedagogy without really understanding what these approaches mean based on their beliefs about teaching and learning. Tedesco (1990) points out that enough theory and data exist to guide decisions about new pedagogy in health science education; but educators may not be cognizant of these theories and even if they are, theories are not being utilized to guide the use of new teaching methodologies in the classroom. This has been

confirmed in the observation that educators have been adopting PBL without fully realizing that their understanding of PBL differs from their colleagues in other schools (Arseneau, 1993). If the educator's understanding and adoption of an 'innovative' curriculum are of concern, then further inquiry into educators' interpretations of this phenomenon would prove valuable.

The educator's role in PBL. Problem-based learning relies heavily on the function of teachers as tutors. It has been suggested that the role of the educator in a PBL environment "is to probe student thinking" (Heliker, 1994). The teacher no longer determines what is to be learned, the extent and sequence of learning, and the strategies for teaching. This responsibility belongs to the student. The role of faculty members is to function as facilitators of the small group learning process (Barrows, 1980; Eagle, Harasym and Mandin, 1992; Schmidt, Van Der Arend, Moust, Kokx and Boon, 1993; Silver and Wilkerson, 1991).

The role of the educator is a critical issue in problem-based learning (Moust, 1993). Barrows (1985) suggests that the "skill of the tutor is the backbone of problem-based learning" (p. 93). However, focusing merely on teachers' actions excludes the meaning and intent behind teaching. Understanding meaning and intent behind one's teaching is important for understanding teachers' beliefs about teaching and learning (Pratt, 1992). When investigating the change to problem-based learning in nursing education, Creedy and associates (1992) found that educators are less likely to accommodate new ideas if the desired changes are perceived to be too great or too fast for them to understand under their present epistemology. Researchers who examined the characteristics and beliefs of faculty tutors in a problem-based curriculum at Harvard Medical School reported that faculty's willingness to adopt an innovative curriculum "is heavily influenced by his or her perceived need for change and the benefits that might result from becoming involved in this change" (Wilkerson and Maxwell, 1988, p. 892). These authors also found that research in this

area of inquiry was lacking despite the need to discover educators' understanding of the role change required for a problem-based curriculum.

Despite the dramatic change required in teaching roles, when schools change from traditional forms of teaching to PBL, there may not be an appreciation of the role change that needs to occur (Wilkerson and Maxwell, 1988). Lortie (1975) explains that teachers have gradually lost the autonomy to manage pedagogical theory within the classroom because they have become functionaries in hierarchical organizations. Consequently, it is argued that without decision making prerogatives teachers may face role conflicts, thus creating a stressful working environment (Dalton, 1970). Lancaster and Lancaster (1982) found that stress will cause resistance to change resulting in teachers maintaining teaching behaviours that are consistent with their beliefs.

It is difficult to change educators' epistemological beliefs (Hand, 1993), which is crucial if meaningful change in teaching practice is to occur (Pratt, in press). Lester and Mayher (1987) point out that "change in practice depends upon change in belief" (p. 208). However, exploration into medical teachers' experience of curricular change and how this affects their thoughts and beliefs about teaching and learning has been largely ignored, regardless of the observation that teachers' beliefs of teaching may be in conflict with recommended curricular changes (Wilkerson and Hundert, 1992; Wilkerson and Maxwell, 1988). Rather, the focus of inquiry during a curricular transition to PBL has been the content expertise of the facilitators of PBL sessions and its affects on teaching and learning outcomes (Davis, Nairn, Paine and Anderson, 1992; Des Marchais, 1991; Eagle, Harasym and Mandin, 1992; Moust, 1993; Schmidt, Van Der Arend, Moust, Kokx and Boon 1993; Silver and Wilkerson, 1991). The issue of tutors' content expertise remains contentious in PBL.

Barrows (1988) defines the tutor's role to be the planning, monitoring, and evaluation of the small-group learning environment. He suggests that the tutor need not necessarily be a content expert to create a successful learning environment. This finding,

however, has been a matter of contention among various researchers in the field. Studies by Silver and Wilkerson (1991) and Wilkerson and associates (1991) reveal that tutors with content expertise can have negative effects on the learning group. The researchers report that content-expert tutors are more directive, speak for longer periods of time, and tend to provide direct answers to students' questions, thereby impeding the process of problem-based learning. Eagle and associates (1992), on the other hand, demonstrate that students facilitated by content-expert tutors are more efficient during the small group learning process. They found that student groups facilitated by expert tutors generated more learning issues and spent more time on self-directed study in comparison to those students without content-expert tutors. Moust and associates (1989) also found a significant difference in student performance when led by content-expert tutors. Follow-up studies, however, failed to replicate these findings (Moust, 1993). Schmidt and associates (1993), on the other hand, showed that there was no difference in achievement levels between students working with or without content-expert tutors. Overall, research on this topic is inconclusive. Researchers have cautiously agreed that both content expertise and tutorial process-facilitation skills are necessary to produce the best results (Barrows, 1988; Schmidt, 1983; Silver and Wilkerson, 1991). However, there has not been a discussion of the teachers'/tutors' perspectives of such issues, nor has the literature in medical education adequately considered teachers' understandings of what it means to teach and learn in a PBL curriculum and how this may affect curricular change. This raises the point of whether the issue of content expertise alone should be the underlying focus of examining teaching and learning effectiveness in PBL settings. It seems that a critical factor may have been overlooked, namely, the teachers' beliefs about teaching and learning and subsequent teaching behaviours.

Zahorik (1977) found that teachers' beliefs guide decisions about teaching actions. Consequently, an important consideration during curricular change should be the teachers' conceptions of teaching and its effects on their roles as tutors (Holt and Johnston, 1989).

Pratt (1992), for example, using a phenomenographical research approach, discovered five substantially different conceptions of teaching that teachers held based on their personal situations, beliefs, and intentions. The term “conception” is defined as an “abstract, cognitive representation of some phenomenon” (Pratt, 1992, p. 220). Each conception of teaching varied in its relationships of actions, intentions and beliefs; and one of five elements: teachers, learners, content, context, and ideals. A teacher’s commitment to aspects of the five elements and their relationships began to reveal that teacher’s perspective on teaching. Each conception of teaching emphasizes various elements and relationships, which provides a particular view of teaching. For example, one conception of teaching that teachers hold emphasizes the delivery or transmission of content. Within this conception the teacher and the content form a dominant relationship within the educational environment such that the teacher believes s/he possesses the ‘commodity’ of knowledge that learners need. The content of teaching was to be simplified and broken into digestible pieces for efficient delivery and testing. This conception then, was teacher-centred (Pratt, 1992, p. 210). On the contrary, another conception that existed formed the dominant relationship between the teacher and the learner. This conception was learner-centred, such that the teacher regarded knowledge as something “to be interrogated and never taken-for-granted, and authority (including the teacher’s) was open to question” (ibid., p. 213). The teachers’ role within this conception was to facilitate “the intellectual development and personal autonomy of their students ... and the content [was a] vehicle by which teachers could help people learn how to learn and achieve higher levels of thinking” (ibid., p. 213-214). Likewise, Pratt discovered three more conceptions in his study: apprenticeship, which modelled ways of being; nurturing, which focused on facilitating personal agency; and social reform, which focused on seeking a better society. The point is that people’s conceptions about teaching will define the limited ways they think and act in relation to teaching, learning and knowledge (Pratt, in press). Consequently, in terms of curricular

change, the extent to which a teacher will consider different teaching practices may be dependent upon the consistency of the change with the teacher's beliefs (Munby, 1982).

Creedy and Hand (1994) examined the changes in nursing educators' thinking about teaching, learning and knowledge during the implementation of PBL. During this time nursing educators participated in several professional development workshops designed to help with the implementation of a problem-based curriculum in nursing education. The study used an interpretive case study approach to examine the changes in participants' thinking in areas of teaching and learning through attending a professional development programme. The programme introduced participants to constructivist philosophy, which asserts that people's realities are constructed as they interact with their social environments (Lincoln, 1990). During the faculty development programme, various teaching techniques were introduced, accompanied by discussion and debate focused on challenging participants' actions and beliefs in teaching and learning. The researchers discovered that educators' conceptual change toward a different epistemology was "developmental in nature" (Creedy and Hand, 1994, p.700), meaning that change takes place over time through "a series of struggles and successes." Therefore, although the educators had developed an understanding of some aspects of problem-based, student-centred teaching and learning approaches, they had "not fully integrated these approaches into their existing philosophy." The researchers suggest that the integration would take time and would more likely occur as educators practiced and implemented the new approaches to teaching and learning. Also, stress was found to be a compounding factor against conceptual change, especially when change was imposed rather than adopted out of personal choice. Overall, it was concluded that the process of change required personal and professional reflection within a supportive environment.

Observations of faculty reactions to PBL. Discussions about a student-centred curriculum (SCC) seem to emphasize that the teaching of higher order cognitive skills, such as critical thinking, problem solving, and decision making are distinct from the

teaching of basic course content. However, studies reveal that as teaching and learning take place, what is taught and learned regarding cognitive skills and basic course content occurs simultaneously (Cf. Chickering and Gamson, 1991; Irby, 1994). In other words, content cannot be learned without applying thinking skills. This has specific implications for the educator who may see teaching from the perspective of knowledge transmission with emphasis on recall. However, we know very little about what educators know, think, and feel about issues of teaching and learning in a problem-based curriculum. Only general observations about consequences of curricular change have been made by individuals involved in problem-based programmes (Boud and Feletti, 1992).

Educators engaged in a PBL approach to curriculum have noticed the significance of the teachers' role in this curriculum. For example, Woods (1992) finds that in selecting and preparing teachers to operate in a problem-based learning course faculty must be willing to take risks and will have to give up the sense of 'control' that one is familiar with in a lecture setting (p. 127). Wilkerson and Hundert (1992) state that becoming a problem-based teacher requires a desire to change and an increased awareness of self and others (p. 167). Todd (1992) says that the major difficulty in implementing problem-based learning is the teacher's inability to understand thoroughly the extent of the role change they are going to have to make, and to see how this might affect the satisfaction they find in teaching and their feelings of being valued as teachers (p. 132). She also observed that those who have taught competently and efficiently using lecturing techniques, and who prize that competence and efficiency, find the change especially hard to adjust to, and implementing problem-based learning sometimes proves to be too much to accept. Abrahamson (1992), on the other hand, has observed that curriculum planning is not a logical or educational process, but an emotional and political one. He says that it is only through emotional nurturance and political dexterity that "this educationally sound and logically correct problem-based learning curriculum can be successfully introduced" (p. 64). Lastly, Barrows (1985) has observed that basic science teachers complain that they

have no identified or important role in student learning. He responds that educators who feel this way tend to “take sadistic pleasure in showing how complex and difficult their field is for students to learn” and that “there is tremendous satisfaction in being an expert and demonstrating to students [one’s] erudition and extensive knowledge” (p. 107).

To assume that these observations hold true for all teachers in all institutions may be unfair, especially when these teachers’ thinking and viewpoints are not available to understand the perspectives that underlie such observations. It follows, then, that schools that choose to adopt a problem-based, student-centred curriculum may need to first discover and organize the different ways their faculty see curricular change and its effects on their identity and roles as teachers.

Inquiry into post-secondary teachers’ conceptions is emerging in the literature on higher education (Dall’Alba, 1991; Fox, 1983; Larsson, 1983; Martin and Balla, 1991; Menges and Rando, 1989; Pratt, 1990, 1992; Samuelowicz and Bain, 1992). These works may be of considerable significance for those initiating curricular change which requires the teachers to consider differently what it means to teach and learn. The conclusions in most of the above research suggest that making explicit one’s beliefs about teaching and learning enables teachers to consider different understandings of education and what it means to teach and learn. In this way the move is toward deeper understandings of the meaning and intent of teaching, rather than just the behaviour of teachers.

Summary

The selective review of relevant literature has provided a context for this research. The review reveals some primary issues that form the background for this study. There is a continual struggle to integrate the basic sciences and clinical expertise in a way that reconciles the lack of learning transfer that now exists in many traditional schools of medicine. This has resulted in major attempts to shift medical education to a learner/learning focus. Consequently, curricular revisions to a PBL approach have

dominated reform efforts. Along with such efforts, however, reformers have observed faculty resistance to such change. Nevertheless, reformers have not empirically determined reasons for resistance. There is a need to examine the issues surrounding complex interactional processes and epistemological positions that affect educators involved in a change from traditional ways of teaching. The importance of understanding teachers' experiences of anticipated curricular change and how this relates to their identity and role as teacher has been largely ignored, regardless of the observation that teachers' beliefs of teaching may be in conflict with recommended changes.

Chapter 3

METHODOLOGY

Qualitative versus Quantitative Approaches

Initially, it seemed unnecessary to defend the choice of using a qualitative research approach over a quantitative one as it is customary to do in many such theses. It may even be inappropriate, just as it would be inconceivable for a researcher using quantitative techniques to defend that choice over a qualitative approach. However, during the interview process a few participants casually questioned my research methodology, implicitly stating their doubt that this approach could reveal their thinking in a manner worthy of science. After explaining my research method, one participant bluntly commented in wonder, "and they are going to give you a Masters for this!?". This reaction is somewhat understandable given that all of the participants in this study have been influenced only by a positivist perspective where established theories and hypotheses are tested deductively and results are expressed in numerical forms using statistical analysis to prove causal relationships between measured variables (Giorgi, 1986; Patton, 1990; Tesch, 1990). Consequently, positivists see qualitative methods as 'subjective' and lacking in rigorous measurement (Krefting, 1991). However, the criteria for demonstrating rigor in quantitative research is not appropriate for qualitative approaches where the focus is on the credibility of the research in representing the participants' realities. Nevertheless, ultimately one's view will depend on the theory of knowledge one espouses. If these paradigms are not appreciated for their distinct epistemologies then the tension between the merits of qualitative versus quantitative research will continue in people's minds. So that the participants of this research, and interested others, may appreciate the rationale for choosing a qualitative approach for this study it is appropriate to briefly address this topic.

Two schools of thought have introduced very different philosophies of science within the past century. Between the years of 1940 and 1960 the prevailing theory of

science dominating the philosophy of science was referred to as positivism. This term was later coined as the "Received View" of science (Chinn and Kramer, 1991). This view held that the world is made up of absolute truths. Science was defined from the realm of quantification and took a reductionist approach to problem solving. A reductionist, as the term implies, will strive to reduce or "boil down" gathered information to arrive at a "true" theory about the world. Historically, the Received View developed out of the seventeenth century world view that held the belief that the world was like a clock and that only God understood clearly the laws that governed the planet (Darby, 1985). As a result, scientists identified truth through deduction, such that theories were formulated and tested experimentally to verify or falsify different hypotheses. Clearly, this view sees science as a logical tool used to discover laws existing in nature and the purpose is to use these laws to achieve perfect predictability (Jacox and Webster, 1992). The pre-eminence with which the Received View was held was eventually challenged by emerging revolutionaries.

More recent philosophers of science saw an inherent flaw in the strict approach to the acquisition of knowledge. Critics of the Received View argued that the history of science is an essential yet ignored element within the Received View. This led to the emergence of the "Revolutionary View" (Tinkle and Beaton, 1992). This view gave birth to the idea of interpretivism. Historical relativism, naturalism, and interpretivism are all used interchangeably in the literature. In contrast to the Received View, which states that the meaning and truth of scientific theories are absolute, the Revolutionary View posits that both meaning and truth are important to the social and historical context within which theory is developed and asserted (Sampson, 1980). The influence of culture and social environment, according to the Revolutionary View, are seen as an integral part of the components of science. The premise is that what people believe to be true will determine how they act in certain situations and derive meaning from it (Fetterman, 1988; Goetz and LeCompte, 1984). Consequently, the interpretivist maintains that avoiding the necessary, contextual element of science prevents scientists from taking a holistic approach in the

search for meaning and truth. Accordingly, the Revolutionary View asserts that it is equally valid and at times necessary that research be conducted in naturalistic settings and that investigations be unguided by any hypotheses and uncontaminated by structured experimental designs (Silva and Rothbart, 1992).

The conflict between the two views can be quite dramatic. Guba (1990) states that, essentially, the two views can be distinguishable by the way their proponents respond to questions of ontology (what is 'reality?'); epistemology (what is 'knowledge?'); and methodology (how can one find 'knowledge?') (p. 18). Without delving extensively into the philosophy on these questions, it suffices to say that positivists approach research with established theories and hypotheses that are tested deductively (Babbie, 1992; Bryman, 1983). On the other hand, interpretivists approaches may use inductive methods aimed at discovery rather than verification (Goodwin and Goodwin, 1984). Regardless of the approach taken, the point that remains clear is that the chosen perspective must be compatible with the scientific questions and aims of the phenomena under inquiry (Miles and Huberman, 1994; Silva and Rothbart, 1992).

According to Patton (1990), "a qualitative-naturalistic-formative approach is especially appropriate for developing innovative, or changing programmes where the focus is on programme improvement, facilitating more effective implementation, and exploring a variety of effects on participants. This can be particularly important early in the life of a programme or at major points of transition" (p. 53). Consequently, an interpretive perspective using a qualitative research focus is well suited to the exploration of faculty members' experiences of curricular transition and its effects on identity and role as teacher. Interpretivists set out to study complex areas of social inquiry about which little is known (Glaser and Strauss, 1967; Lincoln and Guba, 1985; Popkewitz, 1984). Within this perspective a qualitative research approach, which is phenomenography, was designated to explore empirically the ways in which medical educators experience, interpret, understand, give meaning to and sustain aspects of their world during a curricular change.

Introduction to Phenomenography

Webster's dictionary (1964) defines 'phenomenon' as "an item of experience or reality" (p. 1696). Phenomenography then, would imply the *description* of such items. According to Marton (1986), phenomenography is an empirical research method to explore the qualitatively different ways in which people experience, conceptualize, perceive, and understand various phenomena (p. 31). Consequently, people's *telling of*, and *words about their experience of* a phenomenon constitute the empirical evidence of their experience of that phenomenon. Using this research approach, the researcher focuses on how others make sense of some aspect of the world, in contrast to how things are in the world (Marton, 1981, p. 177). For example, a researcher may be involved in describing

"the previously unknown flora on some distant island. The finding and describing of new species would correspond to the aim of finding and describing the different ways in which people may think about a certain aspect of reality" (Marton, 1988, p. 183).

The aim of phenomenography, then, is to discover and describe "the world as perceived [rather than] the world as it is" (Gibbs, Morgan and Taylor, 1982, p. 139). As such, this perspective contests the existence of an unbiased, independent, objective reality (Saljo, 1988); the contention being that people always look at the world through a filter that provides meaning to that world. In other words, people interpret their experiences based on what they believe, which ultimately guides their behaviour (Fetterman, 1988). Phenomenographers do not concern themselves with the philosophical differences between a reality independent of one's perception of it and the reality of one's experience (Stalker, 1989). Consequently, inquiry is oriented towards understanding and describing how people explain a significant phenomenon that they experience, explanations which they take for granted (Marton, 1984).

Describing people's ways of looking at the world is a key outcome in using phenomenography because people act on their interpretations of situations as opposed to the 'objective' characteristics of situations (Saljo, 1988, p. 36). Revealing how things look from others' points-of-view is important because "we tacitly believe that we simply see the world as it is and we also believe -- without any further reflection -- that our fellow mortals do just the same" (Marton, 1988, p. 2). These beliefs hinder us in understanding the actions, intentions, and beliefs of others (Pratt, 1992).

A significant aspect of phenomenography, however, is that whatever phenomenon is investigated, there is a limited set of qualitatively different ways in which it is imagined by those who experience that phenomenon (Beatty, 1987; Marton, 1981, 1983, 1986, 1988; Samuelowicz and Bain, 1992). As such, phenomenographic researchers attempt to reveal people's conceptions, or the filters used to make meaning of a phenomenon, by exploring the distinctly different ways in which that phenomenon is understood (Cf. Pratt, 1992; Svensson and Hogfors, 1988; Lybeck, Marton, Stromdahl and Tullberg, 1988). Conceptions are specific meanings and values people attach to a phenomenon (Pratt, 1992, p. 220), and as they are discovered they are distinguishable from each other through the "logical relations between categories of description corresponding to different conceptions of the same phenomenon" (Lybeck, Marton, Stromdahl and Tullberg, 1988, p. 97). In other words, the goal of phenomenography is to discover the skeleton or framework which supports different levels of understanding of a phenomenon.

The experience of curricular change is a broad and complex phenomenon. Unlike studying a specific aspect of a phenomenon and examining changes in people's conceptions of that phenomenon, such as the mole concept in chemistry (Lybeck, Marton, Stromdahl and Tullberg, 1988), or teachers conceptions of teaching (Pratt, 1992), this study explored more generally the phenomenon of curricular change in terms of how it is experienced by those who teach within one curriculum and are being moved to another. In this case, the *experience* is "the situation as it is known and lived by the [educator]" (Boud and Walker,

1990, p. 62); hence, the research question(s) for this thesis: how medical educators experience the phenomenon of curricular change to case/problem-based learning and its relationship to identity and role as teachers. In essence, the experience is “an interaction between [the educator] and a social, psychological, and material environment” [of education and curricular change] (ibid., p. 62).

In phenomenography, discovering fundamentally significant ways a phenomenon is experienced requires that it be separable through a corresponding set of descriptive categories which are logically related to each other and form a system called an “outcome space” (Marton, 1986). This study, however, did not set out to look for the distinctly different ways educators understand the idea of *curricular change*. Had it done that it would have found an “outcome space” exclusive to a set of conceptions (meanings and values) the educators attached to *curricular change*. The researcher did not ask people questions of curricular change in that way. I did not ask the educators what the idea of *curricular change* meant to them, or what it meant to go through *curricular change* per se.

Instead, this study aimed at using the phenomenographic approach to explore the educators’ sense of place in the curricular change; how they experienced, explained and dealt with change, and how they framed their experience and made sense of it. As such, this study found how at times participants resisted change, how they supported it, and shifted ground within it. Consequently, this study is a departure from traditional phenomenography. In essence, this study set out to explore and describe the educators’ experience of curricular change to determine where they are in the position of this change and how they are trying to find their identity and role within it. Phenomenographic techniques were used to explore ways of experiencing and interpreting change, and consequent reactions to change, with the point of departure being the teacher’s identity and role.

Selecting a Sample of Educators

In qualitative research, where the interest is in meaning, understanding people's viewpoints and interpreting the setting, the researcher is required to "maximize opportunities to obtain the most insightful data possible, ideally selecting informants according to their knowledge base and receptivity" (Morse, 1986, p. 183). Consequently, the participants are not chosen to be representative of the general population as in quantitative approaches to research. When using qualitative approaches the chosen sample is selected purposefully, in order to understand the phenomenon being studied (Beck, 1992), that is, educators' experience of curricular change.

For this research purposive sampling was not possible. Given the time constraints placed on medical faculty, especially during a time of curricular change, a volunteer sampling strategy was selected. Volunteer sampling, also known as opportunistic (Agar, 1980; Morse, 1986, 1991), or convenience sampling (Patton, 1987; Diers, 1979), provides easy access to potential participants. This strategy allows the researcher to choose informants who are available and willing to participate in the study. Contact letters (Appendix A) were mailed to twenty-five medical faculty members and ten of them agreed to participate in the study.

The Researcher as the Instrument of Research

In qualitative research the researcher is the measurement instrument and findings are constructed through the interaction between the researcher and the participants of the research (van Manen, 1990). The researcher's experience and qualifications enhance the credibility of the research (Morse, 1994; Patton, 1990). As a result, it is appropriate to share personal perspectives and conceptions that influence how the phenomenon under investigation is seen by the researcher. In phenomenography, the researcher's understanding of the phenomenon under study is important and needs to be made

personally explicit. This is fundamental for listening to, and accurately *hearing*, the participants' experience of the phenomenon. In other words, the researcher must be able to consciously hold personal bias in abeyance during the research process.

As researcher, I bring to this research a background as student, dental hygiene practitioner and educator. Consequently, I look at the phenomenon of curricular change with interest because it influences the education of dental professionals. I have studied and taught preventive dental sciences within both a traditional curriculum and within a C/PBL setting. As a result, I have experienced what it is like to teach in different settings. I have used approaches where my primary aim has been to provide learners with ideas of how to think about the content within the context of its application, relying on transmission and apprenticeship models of teaching. I have also experienced teaching in small-group, case/problem-based learning settings, where teaching becomes more than the "passing of information." I have realized, with the help of my graduate course work on teaching perspectives, that a teacher in higher education *can* be a guide, helping students move from one way of understanding something to more sophisticated ways of understanding. This requires that the teacher/guide first understand the learners' current ways of knowing and then challenge their understanding constructively and supportively in ways to help them, through a process of critical reflection, move toward more sophisticated ways of thinking.

My experiences as both "teacher" and "learner" have enabled critical reflection on personal epistemic beliefs (beliefs about knowledge) and normative beliefs (involving relationships, role and responsibilities), which guide my ways of thinking about education (learning, teaching and evaluation). My experiences have not been devoid of institutional and professional pressures to ensure the "giving" of knowledge, and for developing 'objective' evaluative procedures as required. Yet, there have been many occasions while teaching in continuing dental education settings and in dental and dental hygiene education that I too have struggled to find ways to integrate the basic sciences and clinical expertise.

Sometimes, it is only when I am in the position of student that I begin to truly

reflect on my beliefs about teaching and learning. I often draw on my experience teaching in elementary school where I first began to form certain beliefs about teaching and learning. In essence, I believe that teaching and learning are reciprocal activities and occur most effectively within a reflective, challenging, and stimulating, yet safe teaching and learning environment. What is to be taught, learned and evaluated become negotiable activities toward a common goal. Most importantly, there can be no compromise to the dignity of the learner, nor the teacher. Therefore, my perspective is based on these identified beliefs, responsibilities, and commitment to learners, content, and teaching.

My background, experience, and knowledge as teacher and learner give me an increasing understanding of the process of phenomenography. During my research, it was not uncommon for a few participants to ask me what I thought about the curricular change and how I considered "effective" teaching and learning. I realized that by asking me these questions it was reasonable to assume that my biases had been kept hidden. My task throughout the interview process was to hold my biases hidden so as to not influence the participants' responses. I used a reflective journal to record my thoughts to help me respond to the participants' questions without compromising the relationship.

Data Collection

In naturalistic inquiry the researcher is actively involved in the interview process, unlike a structured, predefined questionnaire with set categories and choices. Data were obtained through two open-ended interviews conducted in each faculty member's office. Interviewing is the most common way for phenomenographers to obtain data and is valuable for researching a phenomenon from the participants' points-of-view (Marton, 1988). One hour was scheduled for each interview, but this varied according to each respondents' time constraints. All the interviews were tape-recorded and transcribed verbatim.

Open-ended interviews allow the researcher to enter the participant's world, to understand that individual's perspective (Patton, 1987). In this way the researcher is free to converse about a particular topic with the participant, to be spontaneous in questioning to pursue relevant information, and to explore and probe the topic of discussion. An interview guide served to begin and, when needed, direct the interview. The interview guide was tested in two pilot interviews with two faculty members from the Faculty of Dentistry who were aware of the curricular change. The pilot interviews enabled the refinement of the interview guide to ensure that the questions asked related to the research questions, were not leading, and were clear and unambiguous (Goetz and LeCompte, 1984).

Each interview session was open-ended with questions that moved from the general to the specific. The aim for the first interview was two-fold. First, to explore and understand participants' experience of the curricular change; and second, to explore and understand the participants' identity and role as teacher, and the relationship of this to curricular change.

To begin the interview conversation the following questions were considered as the opportunity arose: "What do you know about the curricular change to take place?"; "How did you find out about it?"; "How do you think this change will affect you?"; "What do you think it will mean to you in terms of teaching and learning?". The intention was to bring the participant into the topic of interest by asking these general questions. These questions were not asked in any particular order; neither did all of them have to be asked. It depended upon each participant's response. The questions merely guided the interview discussions.

Gradually, within the interview, I moved to general and probing questions about teaching. For example, I would ask: "Tell me about a typical course you teach"; "How you plan and prepare for it, what you do"; "How long have you been teaching that?"; "What have your experiences as a teacher here been like?"; "What does the word 'teaching'

mean to you?"; "How about the word 'learning'?"; "How would you describe your approach to teaching?". The intention here was to explore each person's understanding of his/her role as teacher. Eventually, I would also explore the implications of the new curriculum on the individuals' emerging conceptions of identity and teacher's role. Again, the substance and direction of each interview were influenced according to each participant's responses (Eisner, 1981; Marton, 1986; Sandelowski, Davis and Harris, 1989). Some general questions were: "How will your teaching change in the new curriculum?"; "What does it take to be a good teacher in either curriculum?"; "What do you enjoy most about teaching?"; "What does it mean to teach in the new curriculum?"; "What are your convictions or beliefs about teaching?"; "What advice would you give to someone beginning to teach in either curriculum?".

Between the first and the second interview the participants attended a faculty development workshop designed to introduce the rationale for curricular change, the idea of problem-based learning in medical education, and to provide hands-on activities simulating the tutorial processes in a problem-based learning environment. The workshop was directed by two faculty members from The University of New Mexico who had experience in planning and implementing a problem-based curriculum. Throughout the three-day workshop participants were given the opportunity to engage in hands-on activities simulating the small-group tutorial process. Participants watched video-recordings of their tutoring activities and later participated in analyses, discussions and critique of the processes. Nine out of ten participants in this study attended the workshop. I also attended and participated in the workshop. I kept a journal to record my thoughts during the workshop, as a reflective tool (Eisner, 1991). When possible I wrote down participants' comments and reactions for future clarification. I made casual observances of faculty reactions and comments for the purposes of guiding my second interview, not to include my observations as formal data.

The workshop focused on teachers' actions as tutors within the tutorial process. It concentrated primarily on prescriptive ways of facilitating small group sessions within a PBL setting. In a discussion with one of the workshop leaders about faculty development strategies, I was told that teachers like to *do*, not *philosophize*, during faculty development workshops. The focus, therefore, was to provide the participants with a prescriptive approach to tutoring and case writing. The workshop leaders felt that it was not entirely worthwhile to engage teachers in a reflective process of making explicit their beliefs about teaching and learning. Nevertheless, my aim was not to assess the effectiveness of the workshop. Rather, my aim was to consider the workshop as a landmark within the participants' experience of change.

The second interview followed this workshop and was scheduled according to the participants' convenience. During this interview I began with a general question asking participants about their experiences thus far. I wanted to be as open-ended as possible so that the participants would feel comfortable beginning the discussion with any issue that was important to them (Morse, 1994b). My aim was to discover the evolution of participants' thinking since the first interview. Also, during the second interview, at opportune moments, I reviewed with the participants my impressions of the first interview. I wanted to clarify issues that were raised to ensure that I was representing the participants accurately.

Questions that guided the second interview were generally the same as the first, but with an emphasis on how things might be different for the participants. Also, I had established a much more trusting relationship with the participants. Consequently, the second interview flowed more like a discussion. Nevertheless, I continued to be aware of my own involvement in the discussion, always ensuring that my biases were held in abeyance.

Data Analysis

Pratt (in press) suggests that to help make visible people's perspectives one has to look for people's belief structures. He outlines three types of beliefs that need to be revealed: 1) Epistemic beliefs -- regarding knowledge, learning and evaluation of learning; 2) Normative beliefs -- regarding role, responsibility, and relationships; and 3) Process beliefs--regarding tactical knowledge (routines, procedures and techniques) and strategic beliefs (for justification). These were the 'tools' used to guide data collection and analysis.

Data collection and data analysis were not separate activities (Glaser and Strauss, 1967; Kratochwill and Levin, 1992). Data analysis occurred throughout the research activity and as data were analyzed emerging issues became increasingly evident. These issues were separated and categorized and were used to guide subsequent interviews (Huberman and Miles, 1994; Jones, 1985). Throughout the research process transcripts were carefully reviewed to determine if probing and questioning techniques were effective in revealing the participants' views about curricular change and their identity and roles as teachers. Emerging issues that pointed to some aspect of the research questions were highlighted in each transcript accompanied by reflective notes in the margins. At the same time, data were constantly organized by physically separating and sorting similar and dissimilar phrases that pointed to issues the participants focused on. As stated previously, these issues would then be revisited with the participants during the second interview to ensure that the analysis had accurately captured their perspectives. A computerized database (Excel) was used to store electronically parts of quotations and related codes and categories for easy retrieval.

Throughout the data analysis process, each interview was read and reread many times to find distinguishable quotations that pointed to the ways in which the participants interpreted and understood "aspects of the world around them" (Marton, 1986, p. 31). These "aspects of their world" included curriculum, teaching, learning, and education in general. Distinguishable quotations or units of analysis, termed *utterances* (Marton, 1986),

were then sorted by their similarity. Similar quotations were grouped and eventually each group revealed its own meaning that could be identifiable through a definite category (ibid., p. 42-43). This process is similar to the constant comparative method of analysis where the researcher moves back and forth from individual transcripts to combined statements from different transcripts that point to a specific theme (Glaser and Strauss, 1967, p. 101-116; Huberman and Miles, 1994; Pratt, 1992).

Following the completion of this stage, there was a pronounced shift from description to explanation, wherein the account of the educators' experience of the phenomenon of interest is told (Strauss and Corbin, 1990).

Ensuring Rigour

Research of all kinds must have regard for the community of scholars and practitioners that will read it. Therefore, rigorous inquiry must be answerable to questions of validity and reliability. However, these constructs, as used in positivist traditions, rest on certain assumptions about the nature of reality or that which is being studied, and forms of data or evidence that are necessary to substantiate claims or findings. Positivist traditions require that findings be statistically generalizable to a population and that findings be replicable and valid in relation to an external reality (Mishler, 1990; Smith, 1983, 1989).

However, when the phenomena under investigation is socially constructed the nature of scientific inquiry changes as do the criteria for making and substantiating claims to "truth" (Berger and Luckman, 1967; Bryman, 1983; Sandelowski, 1986). Neils Bohr could have easily been referring to this when he said, "[t]he opposite of a correct statement is a false statement, but the opposite of a profound truth may well be another profound truth" (In Heisenberg, 1971, p. 102). As such, trustworthiness and believability replace validity and reliability as conventional standards of rigour (Brink, 1987; Bogdan and Biklen, 1982; Glaser and Strauss, 1967).

Believability refers to the validity of the findings. The aim, however, is not to determine causal relationships, but to represent accurately people's social realities within the context of study (Field and Morse, 1985). Consequently, it is inappropriate to expect the findings to be statistically generalizable. However, not using probability theory to generalize findings does not trivialize this study. Trustworthiness of this study is dependent upon confidence and credibility in the findings.

For qualitative research to produce credible findings, the researcher must collect and capture data in a consistent manner (Goodwin and Goodwin, 1984). An audio tape-recording device enhances credibility. Consistency and credibility in data collection guide the potential of the study to render accurately the participants' understandings of the phenomenon under study (Leininger, 1985). This process is enhanced when the researcher allows the participant to control discussions as much as possible. Thereafter, the researcher ensures that participants are involved in validating the data (Sandelowski, Davis and Harris, 1989). In this way, the researcher aims to ensure that the data and the emergent categories are dependable and representative of participants' experiences (Burns 1989; Chenitz and Swanson, 1986; Sandelowski, Davis and Harris 1989).

Within the positivist tradition it is the researcher's responsibility to generalize findings to other cases (Brink, 1987). However, from the interpretivist perspective the researcher's main goal is to reveal participants' points-of-view to help explain a particular phenomenon as it exists in the minds of its perceivers. Thus, findings become applicable in other similar contexts through "transferability" (Lincoln and Guba, 1985). Nietzsche (1969) explains that knowing from such a position requires

"an eye turned in no particular direction, in which the active and interpreting forces, through which alone seeing becomes seeing something ... these always demand of the eye an absurdity and a nonsense. There is only a perspective seeing, only a perspective 'knowing'; and the more affects we allow to speak about one thing, the more eyes, different eyes, we use to observe one thing, the more complete our 'concept' of this thing, our 'objectivity', be."

Therefore, others can learn from this study and analytically (by comparing findings with their own experience), not literally, take what they learn to different settings for which they want to apply the findings (Krefting, 1991). Thus, in qualitative research it is the readers who can recognize and confirm general applicability of the research (Cobb and Hagemaster, 1987); the premise being that understanding others can help one understand one's own thinking.

Ethical Considerations

This project was accepted by the Ethics Review Committee of The University of British Columbia. The ethical standards of this investigation were ensured by obtaining informed consent (see Appendix B) from participants, and maintaining confidentiality and anonymity. Each informant was made aware of the study, its purpose, and the level of involvement required. All informants were assured that their interview data would be kept confidential and that the only use of the information would be for the stated study.

Informants reserved the right to refuse participation, the right to refuse answers to any questions, and the right to withdraw from the study at any time. Anonymity was achieved by assigning codes (ID1-ID10) to the data instead of the informants' names. Informant names and codes were kept confidential. Any names that were recorded on tape and/or transcript were blanked out. No information was identifiable as ascribed to any particular informant in the final thesis report.

Chapter 4

RESEARCH FINDINGS

There can be no significant innovation in education that does not have at its centre the attitudes of teachers and it is an illusion to think otherwise. The beliefs, feelings and assumptions of teachers are the air of a learning environment; they determine the quality of life within it.

Postman and Weingartner, 1971

This study explored the ways of thinking of a group of medical educators who were experiencing the initial phases of a curricular shift to PBL; and it explored the relationship of the experience of change to identity and role as teacher. However, it is important to remember that the study focused on educators' views at a particular time when the new curriculum was evident in name only. Few details were actually available to faculty. Thus, the findings must be interpreted within this particular time and context. Historically and contextually, this is important in understanding how and why these educators thought the way they did regarding this particular change.

The educators' interpretations of curricular change and their understanding of identity and role as teacher were facilitated by and dependent upon their criterion for judging the legitimacy of change, that is, *effectiveness*. There emerged two sides to this criterion. First, the legitimation of change, that is, the support of it, why it is reasonable, and why it may be important; but there also emerged the second side of it, the negative or resistance side of change, which included the reasons why change should not occur. Issues of legitimation provide a lens for ways of seeing what these educators were experiencing and how they were making sense of change.

The theme of *effectiveness* touches on various dimensions associated with the change from a traditional curriculum and ways of teaching. Within this theme, participants held viewpoints that were influenced by their beliefs about education, and their understanding of what it means to be an educator in their world of medical education. For

most, this meant 20-30 years of teaching in a traditional curriculum. Within this time the educators inherited and contributed to the development of the disciplinary, departmental and institutional norms and traditions, all of which contributed to their identity as teachers, what it meant to educate, and what examination and certification requirements were to be adhered to. Consequently, participants' beliefs and their personal experience of teaching within the UBC environment of medical education guided their *views* about education. In other words, their experience from within the more traditional curriculum directed their thoughts about the various aspects of curricular change and their own role and position within this process. In articulating their thoughts about **effectiveness**, participants focused their discussions on their views about **(1) teaching, learning and assessment; (2) time commitments required to plan, implement and sustain the new curriculum; and (3) administrative and political influences affecting curricular change.** These were the three different yet interlinked categories or influences that mediated the educators' responses to the different situations within the phenomenon of curricular change.

Views of Curricular Change Based on "Effectiveness"

When participants first discovered that there was going to be a curricular change to problem-based learning, their reactions revealed some of their views toward change. The term "effectiveness" emerged as a theme that captured and revealed participants' interpretations of curricula in general; and their understanding of the consequences of curricular change to themselves as teachers, to students as learners, and to the quality of the educational environment arising from the change. This section will elaborate and illustrate this theme by referring to it specifically and by weaving in other related categorical

dimensions, as all this emerged and evolved during each interview. Discussion will then move to the second interview and will revisit this process with the focus on highlighting changes in thinking. The aim is to take the reader through the findings in as sensible a manner as possible, always using participants' words to verify findings.

In the first interview, many participants expressed caution in anticipating curricular change to case/problem-based learning (C/PBL). Some could not understand the rationale for change. Their interpretations or sense of the need for change were based on their understanding of the effectiveness of the traditional curriculum compared with what they anticipated from the new curriculum. The following interpretations, made by the participants, will reveal their understandings of effectiveness.

The participants held particular views about curricular change. One view was based on the belief that the traditional curriculum works well, so why change. The expression that emerged was (1) **"if it ain't broke, don't fix it!"** This interpretation was revealed best through ID1's responses to curricular change. Some participants (ID1, ID2, ID5, ID6, ID7) believed that the traditional curriculum had served the medical school for a long time -- it had graduated top students in medicine and it would not have been around for so long if it did not work. Reasons for change were not fully understood by them. It was felt that, unlike the new curriculum, the traditional curriculum had measurable outcomes based on student performance on examinations. The following quotation describes an understanding of the view of change among some participants:

[ID1:#1, 1164-1176] "I really don't know! Our students, I understand, I don't know the details, I'm not a clinician, but I understand that on LMCC's and other exams that our students have done and are doing very well. The philosophy if it ain't broke don't fix it, comes to mind. Maybe our system is antiquated, maybe it is old fashioned, but maybe this system has worked, maybe it is not innovative, maybe it is not jazzy and maybe it is dry or whatever, but I think it

is doing the job. I think it remains to be seen that the new curriculum will do as good a job and I think many of us have grave doubts that it [will].”

A unanimous interpretation among the participants was that a method of formal student testing through traditional examinations was a strong indicator of the effectiveness of education. This view guided the participants’ interpretation of both curricula. Their belief was based on many years of experience teaching in the traditional curriculum. Having lived, worked, and developed a sense of identity and role within the traditional curriculum, participants held certain beliefs about knowledge, teaching, learning, and role and responsibilities of the teacher that were consistent with that curriculum. Consequently, it was difficult for most participants to understand the new curriculum, as this required a shift in ways of thinking about education. There was an understanding that the new curriculum would compromise the quality of medical education and compromise faculty satisfaction in teaching.

[ID1:#1, 072-080] “So I feel that in many ways the victims or the people who will be short-changed in this new curriculum will not be the teachers, who may well be frustrated and not as fulfilled as teachers, but rather, the students who I don’t think will end up with as good an education.”

Most of the participants, in one way or another, clearly expressed concern with the effectiveness of the new curriculum. ID1 said it best when s/he revealed his/her doubts about it. The criterion for legitimizing the lack of effectiveness of the new curriculum was seen through beliefs about learning and its evaluation.

[ID1:#1, 1180-1125] “[Effectiveness of the new curriculum will be measured] by accreditation examinations, by external examinations, by the way, by the quality of physicians--

count the number of lawsuits! And I'm now being a little facetious, but there are many ways of seeing the quality of medicine that is being practiced, whether it is in a formal way of examinations or whether it is in an actual perceived or documentable quality of medicine; and as I say, in something like lawsuits or attitudes of patients to doctors or people who have had very, very bad side effects; cost of health care because of trying to repair damages that the doctors have done so far because of iatrogenic diseases. You know there are many, many indicators of how good the practice of medicine is or how lacking. Short term indicators are things like examinations. There are people, I guess, still on the old curriculum and there are people on new curriculum and you can say that all people at UBC used to be doing very, very well and now suddenly they are doing poorly. Negative results will have to be viewed thoughtfully and perceptively. But I think certainly there would be indicators if there are problems, there would be indicators as to a major change in the way students are performing on these examinations and also in the way interns and residents perform in internships when they go for example, from here to other areas; how our students were perceived before and how they are being perceived now. People might say oh these people are much better prepared, these are really bright, thinking ... or these are just a dead loss and if we can possibly help it, the last thing we want is an intern or resident from UBC. I think very soon, very, very soon these kinds of attitudes become very evident."

ID1 makes some powerful comments that reveal how many participants (ID1, ID2, ID4, ID5, ID6, ID7, ID8) also felt when speaking about their concerns and anxieties associated with ideas of the new curriculum. Ideas of curricula became personal matters to educators and elicited responses that seemed true to their beliefs. Many participants used the traditional curriculum as a point of reference to measure the effectiveness of their teaching and student learning. They based 'effectiveness' on the 'evidence' that physicians practicing in the community today, who graduated from the traditional curriculum, were good, competent doctors. Consequently, the traditional curriculum was seen as successful,

that is, it was effective in being able to meet the required competence expected of students. It soon became clear that for many participants their understanding of effectiveness was rooted in over 20 years of teaching experience within the traditional curriculum. Consequently, many could not understand the reasons for change.

A prevailing concern among some participants (ID1, ID2, ID4, ID5, ID6, ID7, ID8) throughout this study was that there was no 'evidence' that would satisfy them that the new curriculum worked. Consequently, to determine the effectiveness of a PBL curriculum required evidence that it worked; evidence that, in most cases, was firmly rooted in the participants' understandings of how learners come to know the content. These understandings had evolved from having taught in the traditional curriculum where knowledge was primarily seen as that which was possessed by the teacher and given to students through lectures. Results from student examinations provided a form of evidence that the transmission of knowledge was a successful teaching strategy. Therefore, even though an improvement in the traditional curriculum was warranted according to some, this precluded a change to PBL. In this case, participants' understandings of how people come to know things provided them with the belief structures by which they eventually judged the effectiveness of the new curriculum. As a result, by using their beliefs about teaching, learning and evaluation as a foundation and a lens through which to judge effectiveness, some participants felt that **(2) there was no evidence that PBL worked.**

[ID2:#1, 19-24] "I've been aware for a need for change for a number of years. For our school needing to be convinced that problem-based learning was the route to go, and some people, including myself have serious reservations about a holus bolus complete conversion to that style of teaching. Evidence that it was better was not all that convincing."

[ID5:#1, 837-844] "... I am not convinced passionately that this [PBL] is going to produce necessarily a better practicing physician and I wouldn't ... I have not seen any evidence that can

prove conclusively that this is going to produce not just a better physician five years after graduation but ten years after graduation. Um, I just don't know."

Another dimension that emerged within the theme of effectiveness was the view that the curricular change was being initiated because other schools were changing; and those who did not change would be left behind. This dimension was, again, based in participants' (ID1, ID2, ID5, ID7, ID10) concerns over the lack of evidence of the effectiveness of the new curriculum. For example, ID5 and ID7 expressed the belief that change was not being introduced solely for educational reasons. The legitimacy of change was being questioned. The view was that **(3) UBC was changing because everybody else was doing it.** In other words, the change was seen as a trend that would come and soon go because of the lack of evidence that it really worked. The new curriculum was not seen as effective in providing the necessary educational standards that the traditional curriculum did.

[ID5:#1, 703-709] "[UBC is introducing a curricular change] because everybody else is doing it. ...[W]hen you ask that question at high places the answer is, very often, because we don't want to be left behind; which I find rather pathetic and amusing even. Um, because the thing is successful in New Mexico or Calgary or McMaster is not a very good rationale I think."

[ID7:#1, 1311-1319] "... the fact that we have followed a little late in this trend ... my concern may be it is too much of a trend as opposed to a really firmly based educational reasons. I'm alert to the fact that we have to keep a wary eye out that that we've got to make sure that we do maintain standards."

As stated by ID7, some participants considered change to lack sound educational practices. This view created the position that it was their responsibility to ensure that educational

standards were going to be adhered to. These standards, however, were not defined, but seemed to exist within the educators' own understandings of this. Overall, many participants doubted the educational merits of change. These doubts stemmed from the perceived effectiveness of the new curriculum in its ability to serve the educators' needs as teacher, and the needs of their students and the communities these students would serve.

However, a few participants seemed to accept the view that students needed to be prepared for life-long, self-directed learning, hence a need to improve the traditional curriculum. Nevertheless, in defense of the traditional curriculum, some disagreed with the perception that graduates never opened a journal or a book again after graduation. It was difficult for some educators to accept the idea, implied in curricular change, that *their* students were not responsible learners after graduation. ID2, for example, defended this as being "far from the truth," implicitly supporting the traditional curriculum; a curriculum s/he has taught in for at least 30 years. The participants' thinking became evident when the data ultimately revealed that people's perceptions of effectiveness were deeply rooted in their beliefs about teaching, learning, and evaluation. The following quotations from ID2, ID5, ID6, ID7 and ID8 highlight the point that beliefs are strongly rooted in a particular philosophy of knowledge, and in the participants' perceived role and responsibility as teacher.

[ID2:#1, 79-94] "I think it is important to bare in mind that what we're going towards ... it's not a wholesale conversion of the curriculum to problem-based learning. That is the kind of teaching that some of us have reservations about. If you want to be specific about it, the McMaster Model! I would not support conversion to the old McMaster Model. Absolutely not! I wouldn't support that at all! But we have essentially a case-based learning, as far as I'm concerned and there may very well be problems introduced as part of that, but I don't think anybody should look at our curriculum and say that we are going to a complete conversion

toward problem-based learning. That's, if that's the agenda of [w]hat's gonna happen, I'm outa here! I ain't doin' it."

Another issue that emerges is that of the McMaster system of medical education as being the reference point for many participants from which to interpret the change to take place at UBC. If change was going to take place many were adamant that it would not be the McMaster style of PBL because of their negative perception of its effectiveness; reasons for which many never fully explained. Many participants looked at the McMaster programme when thinking about the new curriculum. It was from this viewpoint that many raised significant objections. It was not clear what the change would look like, and the only basis participants had was what they perceived of the McMaster programme.

Reflecting on his/her past experience with PBL, ID6 was convinced that a PBL curriculum was not educationally effective. What is more important, unlike the traditional curriculum, effectiveness in PBL was not measurable, and this detracted from more effective and measurable ways of teaching as it occurred in the traditional curriculum. Eventually, all of the participants expressed this concern.

[ID6:#1, 62-67] "... while those who were keen on PBL were very enthusiastic many of the basic scientists were not. For the simple reason ... some problems came to light. Students' attendance of the PBL session was poor. The grading was thought to be slack. The PBL problems were recycled from year to year so after a year or two in this the students start passing down their notes and the answers so it got to the point where many people could avoid going to the sessions because they just ... any material that had to be handed in they could call from previous years assignments. So there was a feeling among the faculty that the amount of time that was being put into it, both faculty time and student time ... it wasn't effective and it was detracting from more traditional forms of teaching where the effectiveness could be measured. So those were the negatives. There was also a certain amount of resent ... I wouldn't say

resentment ... skepticism of the results of the McMaster's programme ... that was almost uniform through the faculty ... any clinician I've met in the older curriculum ... the comment was, 'gee if we get a McMaster grad they're two years behind,' or at a faculty meeting once there was a problem brought up about a resident who had gotten into some mischief and there was a crack from the back of the room 'it must have been a McMaster grad' and everybody gawfawed. So it [PBL] did have a reputation of being a little too loopy goosy. So there was a fair amount of skepticism ... about whether PBL would deliver the expertise that the traditional curriculum with its failures, and there are certainly failures in the traditional curriculum -- whether PBL could actually rectify those and deliver a better product."

ID6 interprets the new curriculum to be as the McMaster style of problem-based learning. On the surface, ID6's negative impressions of the new curriculum seem to arise from previous experiences with PBL and by others' reactions to PBL. However, the key statement that ID6 makes is focused on the effectiveness of measuring successful teaching in the traditional curriculum; this is rooted in ID6's understanding that effective education is dependent on 'teaching' and evaluation. From this comes ID6's concluding statement which, like ID2, asks whether the traditional curriculum is actually inferior to the new one, even though it may need some improvement. It was also evident among most participants that curricular change was interpreted from the point-of-view of their beliefs about their teaching role and responsibilities. This issue becomes more evident within the category of beliefs about teaching and learning, which appears in the next section.

Overall, among many of the participants there was a negative interpretation of the McMaster curriculum in particular. Reasons for this were not explored specifically; suffice it to say it was seen as ineffective and inferior to the traditional curriculum. This view seemed to influence the participants views of curricular change. Also, it seemed that those who expressed concern with the graduates of a PBL-type curriculum were equally as concerned about how their own students would reflect on the institution and its educators if

change was initiated. This was implicit among many of the participants and became more evident as the participants spoke about teaching and learning.

[ID7:#1, 1394-1401] "If you compare our students with those from McMaster, which is always titled as the prime example of PBL, the only index where McMaster students do better than ours do, is on what was referred to as the happiness index. In other words, they're quite happy not knowing what they don't know."

During my discussions with the participants throughout the initial phases of this study, a significant point that emerged was that although some participants did not have a comfortable idea of what the curricular change really entailed, they still held certain beliefs about its effectiveness. I found that the participants continued to make meaning of this phenomenon as they awaited change; but meaning was made using the McMaster system as reference and the traditional curriculum as a point of departure to judge effectiveness. The problems that arise from this have to do with people's perceptions of the McMaster system, as well as their beliefs about teaching and learning. As a result, when the participants interpret change from the point-of-view of the traditional curriculum they experience conflict. Undoubtedly, the new curriculum asks educators to espouse a different epistemology than the one most of them already hold. The analogy I would like to use is *trying to fit a square peg into a round hole*. Evidently, within the traditional curriculum most of the teachers take the role of lecturer. As lecturers, most participants expressed their commitment to the content of teaching and its efficient and effective delivery. From most participants' perspectives the teacher's content expertise and its efficient delivery were key to the success of university education. ID5 and ID8 elucidate this point most effectively while trying to reconcile their identity and roles as teachers in the new curriculum.

[ID5:#1, 652-654] "... So how do I find out! ... how do I get this stuff into their ... into them without me teaching them?"

[ID8:#1, 824-831] "Well what teaching [is] I think, is the active transfer of knowledge or skill from one person to another. The teacher being the transmitter and the recipient being the learner. Learning is a process by which knowledge or skill is developed in an individual partly as a result of their own efforts and partly as a result of knowledge or ... yeah. knowledge transmitted from [the teacher's] side."

It became obvious to me that when participants thought about the new curriculum and its effectiveness, they inevitably used their own traditional setting from which to draw conclusions about what it means to teach and learn. Again, it is from this viewpoint that many participants evaluated change. Using this as a point of departure obviously created tension in understanding curricular change to PBL.

[ID5:#1, 67-82] "Another concern I have, even though I don't know anything about how we're actually going to go about physically carrying out this curriculum, is the cracks between the planks all-right!. In the traditional curriculum I'm responsible for teaching a chunk of knowledge. So I know how much I've exposed the students to. I know that! ... I think I know that ... I've covered everything within my span. In [the new curriculum] my concern is who is going to look after or is there a mechanism to look after the whole picture and make sure that there's nothing being missed."

Like ID5, ID7 also feared that students would have gaps in their knowledge if knowledge was not provided by the teacher. ID7 was drawing on his/her understanding of what it means to teach, learn and evaluate learning when s/he considered evidence of the effectiveness of curricular change.

[ID7:#1, 76-84] "From our point of view the challenge is to maintain standards. The criticism of problem-based learning for example, has often been that the students do more poorly on, for example, board examinations. Their factual information is not very strong and they often have very large gaps in their information ..."

Two points are reconfirmed from the above quotations. First, in trying to make sense of what the new curriculum may entail, most participants used their understanding of the traditional curriculum and of their conceptions of PBL. For example, ID5 had stated previously that the rationale for change that s/he could accept was the need for life-long, self-directed learning to compensate for the quantitative increase in medical knowledge; yet s/he is worried about the "cracks between the planks" so nothing is missed. Again, this contradiction points to most participants' deeply rooted beliefs that teachers, hence curricula, must give medical students the knowledge to become a doctor. Therefore, as valid as the idea of student-centred learning may sound, for the participants change could not preclude the giving of knowledge by the teacher. However, this way of thinking may not be compatible with the perspective of the new curriculum. The new curriculum, which emphasizes the development of reasoning skills, and self-directed learning strategies, where the teacher's role is that of a guide or facilitator, is very different from the traditional way of thinking about these things. Inevitably, the identity and role of the teacher changes significantly, from lecturer to co-inquirer. Assessment methods for learning also change. But it would not be 'wrong', from most participants' perspectives of teaching, to be concerned about gaps in students' information, simply because this is *their* perspective of teaching -- to deny that their perspective was valid would be to challenge their beliefs about effectiveness. What seems obvious, however, is that their perspectives may be incompatible with the belief(s) put forth in the new curriculum; hence, the conflict which creates disparate expectations between two different belief structures about education.

The second point that emerges from the data is the admission of not knowing how the curriculum will unfold, yet having to make sense of it in anticipation of what may unfold. The importance of this point is the natural tendency for participants to want to *construct* meaning of the new curriculum in anticipation of change, serving as the basis for interpreting events that unfolded. This became especially problematic when participants' conceptions of the new curriculum were based on the McMaster PBL system. As the quotations reveal, the McMaster system was not held in great regard because most participants' views were that McMaster PBL students did not possess adequate subject matter knowledge. The participants' implicit reasons for this was the lack of "teaching" in the McMaster system. Consequently, for those that held the new curriculum in doubt because of these reasons, anticipating change created anxiety and a tendency to be resistant to change.

A lack of ownership and awareness during this process of change also increased anxiety and created an "us against them" feeling (them being those who initiated the new curriculum, and those who were perceived to have a more significant role in the new curriculum). ID7, for example, adopted the role of guardian of educational standards and preserver of the basic scientist's role in medical education -- from the belief that change may compromise the quality of medical education. To ensure standards, ID7 expressed the need to be closely involved in the planning process. ID7 was concerned that the basic scientists will not be consulted during the change process.

[ID7:#1, 184-90] "... So our challenge is to ensure that we as the expert [names discipline] are still participating in the undergraduate curriculum and that we are strongly represented on the committees that are going to establish the content for each of the systems and that we are in some ways still going to retain our, I think, very important role of the guardians of the standard of [names discipline] education as it impinges on undergraduate medical and dental students. So we would not want to see the clinicians take over completely ... that we still have a role!"

Reading the above quotation, it becomes evident to me that ID7 is concerned about the extent to which basic scientists will remain needed and involved in the development and implementation of the new curriculum. I draw your attention to the issue of role in this quotation -- it begins as "important role of guardians..." and changes to "that we still have a role." ID7, as did some of the others, clearly expressed a concern of not being needed as teacher in the new curriculum. Although this quotation is used to illustrate the theme of effectiveness, influencing the understanding of effectiveness are issues of ownership, along with beliefs about teaching and learning, all of which permeate ID7's thinking.

As pointed out in some of the above quotations, there existed an understanding among some participants (ID1, ID2, ID5, ID6, ID7) that certain changes within the traditional curriculum were imminent because improvement was needed. Yet these participants felt that there were better ways to improve than using PBL. This points not only to the participants' perceived effectiveness of the PBL curriculum, but also to their beliefs about how knowledge is acquired. This view is captured in the thinking that, (4) **if the traditional curriculum is broken, then there are better ways to fix it.**

[ID6:#1, 108-129] "So what the traditional curriculum then is, and this is viewed by its critics, is a set of boxes with disciplines, but not necessarily organized in a way that the practicing physician encounters medical problems. So everything is compartmentalized. Whereas the physician doesn't view the patient as a biochemical problem ... it's a holistic problem, that the patient comes in with a pain and the physician has to cull through all these boxes of knowledge to figure out the physiology and anatomy, biopathology, the pharmacology of dealing with this. So the downfall ... the plus of the traditional curriculum is it's usually fairly rigorous in the individual disciplines ... the downfall is that it isn't necessarily well integrated across the disciplines. So that the order in which biochemistry is taught isn't necessarily taught in the order that physiology is taught and the students will get some duplication. The physiologist will talk about ... lets say glucose utilization ... the biochemist

will talk about glucose utilization, the pathologist may talk about diabetes and another aspect of glucose utilization and the students will get sometimes, conflicting information and sometimes they'll get the same thing three times or they get nothing. So a major criticism here of the traditional curriculum is that it isn't sufficiently well integrated across disciplines. One of the ways of solving it is you go to a systems approach."

Evidently, as ID6 contemplates improving the traditional curriculum s/he favors an alternate solution to PBL. In other words, although ID6 concedes to the fact that the view of knowledge in the traditional curriculum is compartmentalized, and that physicians must approach medical problems holistically, ID6 does not doubt the rigour (effectiveness) of the traditional curriculum. The point is that ID6 remains committed to the traditional curriculum and contemplates improving *it* rather than transferring to a new curriculum. What is important, however, is the emphasis in his/her solution to the contextual isolation in teaching. However, this is not related to the teaching and learning processes themselves, but to the sequence and integration of teaching of similar topics, in which case, the emphasis still remains the efficient and effective delivery of content. If this is how knowledge acquisition is viewed, then in the new curriculum the view of what it means to teach changes significantly. The following quotations from ID7 highlight almost all of the issues that have been discussed so far.

[ID7:#1, 142-153] "we already were pressing for changes but we were going towards a more integrated programme but not necessarily small group teaching simply because of the lack of resources that we already had. We were very disappointed in the way in which the medical curriculum had evolved over the years that in our view tended to isolate the basic sciences as something ... some complete entity on its own as opposed to what it should be, which is an integrated course throughout the four year undergraduate programme... [In the traditional curriculum] the biggest problem was they [students] never used the information until sometimes

two or three years later. So we were teaching [names discipline] prior to Christmas of the first term and for many students the next time they ever needed to know that information was in their third year. That leaves to say they've forgotten it all. So the students, who unless they reviewed the notes to see what they were actually taught at one time, claimed that they'd either forgotten it or were never taught it. Invariably it was the former although they thought the latter, and the clinical people say meanwhile ... they were coming to us saying, 'what on earth did you teach these people? They don't know anything!' And so we were very unhappy with that isolation and what we wanted to do was to move to a systems-based course where an individual system was dealt with by all the different disciplines with regard to medicine. So a physiologist would have an important role and basically explain the basic physiology, a pharmacologist would tell you what drugs interact with the system and that would be associated with anatomy in mind that would deal with the cardiovascular system or would deal with renal system or would deal with the reproductive physiology or GI physiology or any of the major topics that can, in fact, be separated off as systems courses. And our view is that by teaching it that way and having the clinical correlation, and the labs, and the clinical skills all directed towards a thoracic cavity, for example ... we talk about cardiovascular or respiratory physiology ... we thought that they would by seeing both sides of the equation, the physiology and the pathology ... that they would have a much better view of the role [names discipline] in it. So we were very strongly in favour of most of the changes that are taking place. The next layer of this is how best to do that. Do we want them having a separate [names discipline] course which is examined in its entirety where they have to pass all those different topics in one exam? That's what we had, now we want to develop a system whereby each individual component has a [names discipline] component. So we would test them on [names discipline] and there would be a basic knowledge of [names discipline component] or [names discipline component] for example, incorporated into that, and then we would move on to the next system. But they also get clinical experience at that time in each block. Now that's what we're moving to."

I have presented a long quotation to illustrate, among other things, how the focus of teaching is on the *sequence* in which things are taught, rather than the *essence* of teaching. The message that is clear in the above examples is that, while there are some problems within the traditional curriculum, there are better ways than PBL to fix these problems. Although ID7 initially states that the reason for not going toward a small-group teaching model is a lack of resources, there is no real evidence that this is what ID7 truly believes. There is more convincing evidence that ID7's reasons are based on his/her understanding of teaching and learning. As a result, ID7, and some of the others had already contemplated solutions and intended to move towards implementation. However, the curricular change now created a dilemma for the participants as they were faced with a change that was not entirely in agreement with their own assessment of the traditional curriculum.

Another group of participants (ID3, ID4, ID8, ID9, ID10) held views of curricular change that were different from the views expressed above, that is, they were more positive in favor of change. ID3 and ID4, for example, have been teaching for over 20 years and are primarily involved in clinical aspects of medical education. For both, the curricular change was a positive step in medical education at UBC because it moved away from "child-centred learning to adult-centred learning." ID3 said it best that medical education should cater to the way self-directed, self-motivated adults learn. Consequently, for some, **views of (5) effectiveness of the new curriculum was based in the understanding of the adult learning process.** Essentially, according to two participants this meant that teachers would stop lecturing to students, that is, transmitting knowledge. As you read the following quotation, notice how the word "telling" takes on a different meaning as the quotation progresses.

[ID3:#1, 376-428] "... [The new curriculum] entails a whole slue of changes that ... the most important we felt as a committee was that it entailed a change in the thinking away from

child-centred learning to adult-centred learning. That was the single most important feature and that had a number of consequences to it -- one of which was that the students had to focus their learning around a set of objectives which the faculty had created but [the students'] were responsible for [learning], not the faculty. The faculty was responsible for telling them what they had to know and evaluating them and telling them that they had learned what they had to know and to helping them in the areas where the faculty felt the concepts and skill were particularly difficult; but beyond that it's the student's job to learn not the faculty's job to learn. It's the faculty's job to initiate and to assess."

The focus in the above quotation is the responsibility of the teacher as it changes from the new to the traditional curriculum. In the new curriculum ID3 sees the role of the faculty to "initiate and assess." Accordingly, the teacher's job is to: 1) initiate ("telling them what...") the learning objectives or to reveal to students the content to be learned; 2) evaluate if learning had occurred; and 3) indicate to the student if learning had occurred. Implicit in this is that it is not the teacher's responsibility to lecture; the word teach did not really exist in this way when ID3 used the word "telling". Consequently, the understanding was that the students were supposed to learn and not be taught using a transmission model. This distinction is what defines adult-centred learning for ID3. The only control the "teacher" still retains is over the decision of what is to be learned, the assessment of learning, and informing students if learning had taken place. The distinction for ID3 is in who does the learning. In the remainder of the quotation ID3 tries to differentiate between learning and teaching styles when comparing the traditional and the new curriculum, but this distinction is not entirely evident. In an attempt to explain the distinction, ID3 says that the traditional curriculum uses an educational approach that does not serve the self-directed, problem-solving adult learner. There is a strong belief that teaching/lecturing as it occurs in the traditional curriculum does not lead to learning, and that examinations in the traditional setting tend to be irrelevant to the purpose of education.

Evidently, the focus is on the ineffectiveness of the traditional curriculum, specifically from the viewpoint of teaching, learning and evaluation. In the remainder of the quotation, ID3 tries to explain the differences between learning within the two curricula, but the differences between the above explanation of what it means to learn, and what follows is difficult to determine apart from the obvious -- the teachers will stop lecturing because that outcome is seen as learning for rote memorization.

[ID3] "There's a big change in the whole teaching process. What's gone on always, traditionally, wrongly I believe, is that faculty believe that their job is to define what the students have to know, to tell the students what they have to know, and then to assume that they know it because they've told them, and then go ahead and evaluate them and say well you know it or don't know it -- which to me is ridiculous. I mean that's not ... so that's the most fundamental change is that we've moved away from what we consider a child-centred approach to an adult-centred approach."

The only difference evident between this segment of the same quotation is the position of the teacher 'telling' students. ID3 does not contend between the teacher's responsibility in laying the objectives, informing the students what is to be learned, or evaluating students. The emphasis is on how this is done, that is, through lecturing or allowing the student to learn on their own.

[ID3] "... I mean the best analogy that I use for all the students and for anyone who wants to hear is that I think we've all gone off and bought ourselves some kind of electronic instrument. And I don't know anybody who opens up the instruction book and reads it from [cover to cover] and in fact, I was just reading one book lately, instruction book for one of the software programmes that I had bought and in big bold letters in front of the book it said, 'do not read from page 1 to page 632.' Um because that's not how adults work. Adults basically know what

they want to do, or have an idea of what they want to do, and go out and try it and if it doesn't work they may try to find out about the instructions, or if it looks insurmountable they may go and read a brief bit of instructions and that's what adult teaching is about ... and that's what, in my mind, learning what medicine is about. So that's quite fundamentally a different approach than the approach of what we traditionally do and to me that's the biggest change in the curriculum, although there are lots of other corollaries that are consequences that follow from that."

However, when ID3 is asked how effectiveness is determined in an adult learning environment, the response was ambiguous. Oddly, this ambiguity is evident from ID3's belief that effectiveness is primarily measurable through some form of testing/examination. Many participants expressed similar views on instrumented measurement of learning, thus effectiveness. According to ID3, although the new curriculum is better, there does not exist a way to measure its effectiveness, and this causes ID3 to reflect.

[ID3] "I don't think it's actually possible for me to detect that [the effectiveness of the new curriculum]. I think that the problem right now is that, well it's possible to only partially detect that because there are, the instruments which we need to use to measure the effectiveness don't exist. Um, there aren't any instruments right now to detect whether or not if you confront two students with a problem and there is no information for that problem, no readily available information, and one of your goals is for the student to come back with a series ... to find effectively their, that information, in other words you're wanting them to be motivated enough to go out and do ... you know once, assuming you know the skills to searching the literature and searching this and searching that, and come back with a plan, if you don't evaluate that then how do you know if you've been effective, if that's one of your goals then how do you know and right now there are no instruments that we use to test that to let them know. If you believe students ought to be motivated so that if a nurse phones and says, 'I have a problem with a

patient and I need you now,' and the student takes 3 hours to come and answer that problem, I mean how do you, I mean I don't think that's acceptable. Um ... and that's to me not the kind of person that I would want, but if you don't evaluate on that, and you don't test that then how do you know if you've achieved it? So the problem that I have is that a lot of what many of us value and think is important to achieve we don't test on (chuckles), so we never know if we've achieved it or not, and that's the basic issue."

For ID3, teaching also means modeling ways of being as a physician where learners are expected to gradually demonstrate the relationship between content knowledge and its application in practice. Within this view, naturally, ID3 struggles with the idea of measuring effectiveness of learning within the new curriculum, although the belief is that the new curriculum is based on sound adult education practices. There also exists the understanding that evaluation in the new curriculum will take hard work because of the complexity and nature of what it is that needs to be evaluated.

Most participants felt that a significant amount of time and resources would be required to determine the effectiveness of learning within the new curriculum. The idea of evaluation across both curricula differed dramatically. A few participants stated that within the traditional curriculum students are lectured to and then given an examination that basically tests for information recall. Therefore, learning within the traditional curriculum focused primarily on rote memorization. The new curriculum focuses primarily on critical thinking and problem-solving. But, the challenge that many participants faced from the perspective of the new curriculum was in developing ways to determine or evaluate learning -- how does one test for critical thinking ability, or professional behaviour. ID3 tries to explain solutions to challenges of evaluation.

Researcher: "What do you think about as you try and think about solutions to this?"

[ID3] "Well, I think that, one of the problems is that there is that the kind of activities that we want to measure are very complex activities and in our society complex activities require often political solutions, mini political solutions rather than ... so they require negotiations between teachers and students and nurses and patients and all of that kind of stuff, which in order to achieve the kinds of things that you want to do you require enormous amounts of activity. That activity in general, is not rewarded, in the university setting. So that there's a great disincentive to kind of go the extra step to measure what you really want to measure. And I mean that's true for lots of things in society, not just medical schools and things like that. And there's a great incentive to minimize things and to make to do what's easier to do, so you, you know, so you do that. So I mean that's what I think about it, I mean I'm not, I'm neither discouraged or encouraged by it, I just know it's a factor of human nature that until you say I think this is terribly important for us to do it and we're going to put the time, resources and etc. into it, we'll do it. I'm not bitter about it, it's just that it's not ... you can't, you know, and you know that it has to be done, but unless there's the will to do it you won't do it and I think in the area of complex human activity, which is really what physicians do, unless you're willing to measure those complex, the complex activities you aren't gonna be successful in determining whether or not you as a teacher have been successful."

ID9 held views that were related to ID3's. ID9 also understood the new curriculum was to be designed to encourage students to take responsibility for their own learning. However, ID9 felt that although change was good it should not compromise the successful educational programme his/her department already had.

[ID9:#1, 12-21] "... We basically teach in various ways but mainly in small groups, clinical sessions, and also lectures, also seminars. So, we have quite a successful programme right now as far as [names discipline] teaching goes. So obviously anything that changes the

programme we're going to be very interested in ... making sure that at least we do as well as we are now."

In considering the traditional curriculum, ID9 explains the concern with lectures, stressing that his/her department stopped teaching using lectures because **(6) lectures alone are ineffective**. Support for change was based on the understanding that the proposed curriculum would reduce the number of lectures students received. Again, the theme of effectiveness continues to remain, but from the perspective of the effectiveness of teaching and learning using specified approaches.

[ID9:#1, 27-75] "... there [have] been real problems; the students used to get way too many lectures, in my opinion. And I'm all in favor of cutting that down. We don't give any lectures, well in [our department] we give one overall survey lecture, we don't teach with lectures at all.

Researcher: "I'm interested in knowing why you believe that lectures aren't as effective and why others might believe that they are?"

[ID9] "Well some people ... there can be good lecturers, I mean there can be a lecture on a topic that's not really accessible from books or maybe a lecture has very good visual materials presented like slides demonstrating what he's talking about. And so there is such a thing as a good lecture, but the idea of taking a topic and presenting it in a form of a lecture tends to make people try to put out too much information in a lecture and it just becomes ineffective. And this is particularly true when the students have too many lectures 'cause they just can't cope with such massive inputs. It's just not good for them. Well I think it's a combination of things, you see things, read about it, and good lectures are very, very helpful. A good set of notes and the person explains it and goes slow you can take notes. But there, well we found that in [our department] the students were learning very well without lectures because we stopped giving lectures about 20 years ago; so I have no trouble with the idea of cutting down lectures. You have to substitute it with students getting ideas that they must look up material on their

own and put it together and defend and then discuss it. And you learn what it's all about in a practical way ... [195-206] ... Even if you lecture to students you have no idea if they're listening, certainly unless you set up a great big exam in the end which means that they could memorize and maybe pass the exams, but still not understand the material very well. Yeah, I think the basic idea of the new curriculum is to encourage people to learn on their own and then test out what they've learned in the real world and go back and do it again to improve."

ID9's initial concern seems obvious. ID9 believes that lectures are not an effective way of teaching because the tendency of the lecturer is to provide too much information. In this case, learning is not viewed as the quantity of information one acquires, but the quality of its integration within one's experiences and practice. However, ID9 also holds the view that lectures, for the right purposes and done well, can be effective under certain circumstances. Nevertheless, from ID9's point-of-view reducing lectures was, overall, a good rationale for supporting change, as long as change did not compromise the present quality of education in ID9's department. The point to consider from ID9 and ID3 is that teaching is seen as more than just the transmission of knowledge. From this perspective the teacher's role as transmitter of content is not the primary force that drives teaching. Consequently, there is a different regard for learners who are seen as more than people who must 'soak up' vast quantities of information. The understanding of teaching and learning held by ID3 and ID9 seem to help them in accepting the need for curricular change. Their views of teaching, learning, and evaluation seem closer to the one that the new curriculum asks teachers to consider.

Finally, some participants (ID3, ID8, ID9, ID10) advocated change for the sake of change. The view that emerged was **(7) any change is good change, because the traditional curriculum was not improving the quality of medical education.** This interpretation also overlaps with the belief held by ID5 and ID7 that UBC is changing because everybody else is. However, ID8 has a positive view of this interpretation of

change, unlike ID5 and ID7. For ID8, the change did not necessarily have to involve a PBL approach. ID8 believed that change in itself was for the better because it would bring novelty to medical education at UBC, especially since there had not been any major improvements in the traditional curriculum for a long time. Concerning PBL specifically, ID8 believed that s/he already used this way of teaching with the third year medical students. The theme of effectiveness is introduced in ID8's reflection on the legitimacy of the PBL process as it is used in his/her sessions.

[ID8:#1, 307-324] "... And we've switched [the approaches to teaching and course work] so that now these are problem-based. This has turned into a bit of a Socratic session in that there's a problem posed for each of those areas with a number of questions. And I hoped or had hoped you know that when we switched to this method that the students that were given these things would do their homework, would go ... would think about the question, would look up what the right answer is! But I guess we're all like this you know ... maybe a third of them had done that and the other two-thirds sort of blundering and .. oh, is this what it's about ... sort of thing. Well I feel disappointed you know, I mean I think I put effort into it and I would like it if they did too."

ID8's understanding of problem-based learning, thus the new curriculum, is based in what s/he has begun to do in the classroom -- using a 'Socratic' approach to teaching. So although some kind of change is advocated, considering ID8's past experience with the students' attitudes, s/he begins to doubt if a change to PBL in particular can improve the traditional curriculum.

ID4 had an understanding quite similar to both ID3 and ID8. First, like ID3, the belief was that the new curriculum was a change to an adult-learning model, with an added understanding that there will be an increased emphasis on integrating the basic sciences and clinical medicine.

Researcher: "What does this curricular change mean to you?"

[ID4:#1, 5-19] "What it means is that we are going to change from a current curriculum to a more adult-learning model I guess ... and that there will be an opportunity for the curriculum to reduce redundancy and to improve cooperation between the basic scientist and the clinicians as well as among the clinicians themselves. [44-57] It ... is easier to describe what it isn't rather than what it is. What it isn't is the standard format of specialists, special interest groups delivering material that may not be connected in any way. That this would be much more case oriented, and for example, a person with liver disease will be explored from an anatomical, pathological, microbiological, pharmacological, psychosocial perspective. And that it will emphasize much more, students working in groups and working with faculty to problem-solve. So a lot more of the emphasis will be on the student doing the work than the faculty sitting there talking at them."

Secondly, like ID8, ID4 understood that s/he was already using the problem-based learning approach. Whether or not they "really" were using PBL was not questioned because this would presuppose that there existed one "true" way of understanding PBL. My aim was to find what participants thought about PBL, not to define PBL as such. ID4's understanding differs slightly from ID8's regarding PBL and also with other educators' understanding of PBL.

Researcher: "How would you describe yourself as a teacher?"

[ID4:#1, 71-83] "I try to be innovative, I've practiced problem-based learning in my lectures since I've been giving them. I've always used case-related material, 'cause I no longer give whole class lectures, I give seminars to students and ever since I've been doing seminars it's always been problem-based. I never try and cover the whole field, I expect and make it clear to students who get objectives before I hit the stand, what I'm expecting them to already know

before they come into that lecture and so I encourage them to actively participate and of course each group is different and some do and some don't."

Those familiar with the PBL approach, as it is described in the literature, may feel that ID4's comments sound contentious. For example, some might consider it contradictory to use the words, "I practice PBL in my lectures." The point that arises is that educators may hold different conceptions of not only PBL, but also of teaching, learning, evaluation, education, and curriculum.

[ID4:#1, 798-859] "I had some concerns that students would arrive in 4th year not as well prepared as they had been previously because my tradition, as you've just heard, is in a lecture format. Throw out at them as much factual information as possible and so there was concern that at the end of rotation examinations they would do less well and being in 4th year they would be less well prepared. And in a sense it would have been my fault that I would have been guilty of academic negligence. That did not occur. With this change the examiners felt that they were as good if not better than before and the 4th year instructors felt that they did fine. Some commented on their ability to think independently. ...Well, I have an academic responsibility to make sure that they are familiar with the material. In the old school that is my responsibility; [it] is to ensure that they are prepared for the exam. I have become a lot more comfortable in recognizing that that's not my responsibility."

ID4, in the small-group teaching setting, still maintains control over the teaching/learning environment where s/he has clear expectations of what is to be learned and creates a systematically controlled learning environment. Nevertheless, ID4's experience shows that s/he had made a significant change in understanding what it means to teach and learn after adopting what s/he understood to be a PBL approach.

Summary

The theme of *effectiveness* is very broad and encompassing. It focuses on the educators' understandings of the change process from their interpretations of its legitimacy. Just as important is that within these interpretations there are slightly different views of what it means to teach and learn, which seem to be rooted in participants' experience within the traditional curriculum. The participants' views of change are captured through the different ways they thought about or interpreted the effectiveness of the traditional and the proposed curriculum. Fundamental to this portion of the research are the findings that the participants' viewpoints are based on their identity as teachers and their beliefs about what is effective education. Up to this point, the points-of-view that have emerged have been categorized under the theme of effectiveness -- whether it be the effectiveness of one curriculum over another, or the effectiveness of teaching and learning outcomes in general. The following is a summary of the different interpretations or dimensions that emerged from the theme of effectiveness:

1. There is nothing really wrong with the traditional curriculum, so why change.
2. UBC is changing its medical curriculum because other schools are doing it -- otherwise there is no need to change.
3. There is no evidence that PBL is better than the traditional curriculum.
4. If there are things wrong with the traditional curriculum, then there are better ways to fix it than PBL.
5. The new curriculum reflects a change to a much needed adult-centred learning environment;
6. The traditional curriculum is taught using lectures; lectures are ineffective.
7. Any change is good change, because the traditional curriculum is not improving the quality of medical education.

The above ways of thinking move from participants' concerns about the overall quality of medical education in both the traditional and new curricula, to their beliefs about how change will effect students and teachers. These interpretations seem to come from the participants' understanding of the nature of knowledge, teaching, learning, assessment and their identified role and responsibilities as teacher. The theme of effectiveness was the point of departure that gave rise to their views about teaching and learning, time involvement and administrative and political influences affecting curricular change.

The Participants' Views about Teaching and Learning

Arising from participants' concerns about "effectiveness" emerged their views about teaching and learning. Teaching and learning are complex phenomena. Teachers have varied understandings of what it means to teach and to learn and what roles and responsibilities they hold as teachers. These understandings influence how teachers function in their environment. For example, when participants reveal their understanding of effectiveness of the proposed or traditional curricula, their interpretations are probably guided by their personal philosophies about knowledge, and teaching and learning outcomes. These are based on participants' epistemic beliefs and normative beliefs which, together, form the basis for one's point of view (Pratt, in press).

In the discussion that follows, participants' epistemic and normative beliefs are addressed together, given the position that views of role and responsibilities arise from beliefs about knowledge (Pratt, in press). This section of the thesis, taken within the context of all the other categories, provides the key to understanding how and why the participants experience and interpret the curricular change the way they do.

On average, the participants had been teaching in a university setting for about twenty-five years. Throughout this time their beliefs about knowledge and their roles as teachers evolved as a part of their identity within their teaching specialties. From the participants' perspective they did not just teach in university, they taught *something*. The teachers' specialties, along with relationships with other teachers, students, administrators, department heads, etc., helped to form their identity as teachers. Identity emerged as an important aspect influencing the interpretation of curricular change.

One view that emerged from the data was the idea that **(1) good teachers are "natural" teachers**. Some (ID1, ID6, ID8) believed that the "natural" teacher had innate teaching abilities and taught the way they did because of who they were as a person/teacher. There was a congruence between the self, the teacher, and the content. ID1 explained this view effectively, a view that most of the participants espoused with some typical differences. As a result, many found it difficult to answer questions of teaching because of these reasons.

[ID1:#1, 102-126] "I think [teaching] is innate and kind of instinctive and I say this is why in some ways I find it difficult when I talk to you. These are things I hadn't thought of before and I say to myself, 'how do I do this, how do I analyze what I do because it's not something that I do consciously.' There may be people who do things you know, whether it is a job or some activity that they do and they've been trained to do something and they've been explained, it has been told to them why you do this, this is what you do, you almost like go through a mental checklist and you must do this, you must do that and you must do that. So in that case it becomes very easy when someone asks you why you do that--well you've been trained and this is how you do it and this is how it is. But if you do something instinctively maybe as is the best way to do teaching because it becomes you ... it's not something that you've acquired but it's something that kind of is you. And if it works, so much the better and if it doesn't work that's unfortunate--maybe you are in the wrong profession or whatever. So I'm saying as I try to

think of these things and analyze what it is that I do instinctively, it's difficult. I'm finding these questions difficult."

According to ID1, teaching was not something s/he did consciously. In other words, as most participants explained what it meant to teach, they inevitably looked in at themselves while explaining this. ID8 had similar thoughts when reflecting on what it meant to be a good teacher, wondering if good teaching was innate. ID8's thinking also expresses the strong connection between the teacher and self as person.

[ID8:#1, 188-205] "Well I've tried to model myself on one of the guys there who was a pathologist, who you know, I mean a pathologist! And he was an unlikely pathologist too because he was a very gregarious kind of guy who would have made an excellent clinician. But he was just plain friendly, non-threatening, and if you didn't understand anything, you just went back and started again and do it together. He was endlessly patient and nothing ever was too much trouble or took too much time. Um just the kind of guy you'd like to know more about. The students who had passed through were still in contact with him, finding out about the problem about something or other. He always had time for that. I've always wondered if people like that are born, not made ... whether you can just ... you can't turn out like that! You just either you're gonna be like that or not."

From the view of the 'natural teacher' emerged the understanding that natural teachers were good because they had a superior command of their subject matter and they could explain difficult concepts in uncomplicated ways. ID6 states it best when explaining the understanding that natural teachers were those who could inherently take complex material and explain it in simple and concise ways. This responsibility provided clear parameters for most participants to define their identity as teachers. The view that emerged then, was that **(2) good teachers can explain difficult concepts in ways that**

are easy to understand. Given this view, it was difficult for many participants (ID1, ID2, ID4, ID5, ID6, ID7, ID8) to accept a role that precluded this view of teacher, as it was seen as happening in the new curriculum where the teacher's role was confined to that of facilitator.

Researcher: "What is a good professor?"

[ID6:#1, 793-860] "Well, the enthusiastic ... who conveys enthusiasm for his or her topic [note the ownership of content]. Who can, who can take a complex, what seems superficially to be very complicated, break it down into easily understandable steps and then reconstruct it so that people now have the complications demystified. That's what a good teacher should be able to do--is take a difficult subject and make it seem effortless -- just like watching a good skier going down a hill. [S]everal of the profs bring in simple props to explain difficult physical concepts like resonance. One faculty member took a guitar and illustrated the principles in nuclear magnetic resonance using a slinky and a guitar. Students just loved it. He got just rave reviews on that. And obviously made a deep impression that you took a very difficult concept, used simple objects and got the whole class with him. I mean that ... and he had an intuitive feel for how to do that. So the guy is a natural teacher."

Researcher: "Tell me about what it means to be a natural teacher."

[ID6] "Well, I can't. I mean you either have it or you don't and the people who are naturals can look at a complex phenomenon, see analogies, and this is one of the best ways to teach actually, is to use analogies that are familiar to everyone, and get it across and then you say 'you understand that analogy now instead of the carburetor you have this, instead of the spark plugs you have that and this is how the cell does this process,' and the lights go on."

Explaining difficult topics becomes an important responsibility for the teacher in the traditional curriculum. However, what was also important, is that for some being a natural teacher also meant not having to take a course to learn how to teach.

Researcher: "Would you consider yourself a natural teacher?"

[ID6] "I've been told I am. You'd have to ask somebody who knows and again I've never taken a course in teaching! Except I have to take this PBL training course so I'll do that reluctantly."

It was also understood that good teachers had the responsibility to strive to find out what students did not know so that it could be explained effectively by the teacher.

[ID1:#1, 128-367] "Ideally you would want to test them after each lecture but there isn't the time to do that ... well generally, I [evaluate] I guess in two ways. After each section ... I use a lecture slot, I actually sacrifice one lecture slot to give an in-class tutorial. And in that tutorial session what I ask the people, who give the lectures, to do is not to go into the class and say 'does anybody have any questions?' ... [But], give the class an indication of the level of material that they expect. They may well have given a lot more detail in the lecture than they expected the class to know. [The teacher] would give these as a handout ... and then to go over them and to ask the students to volunteer answers, again with the atmosphere of trust saying you know I give 2 points for a wrong answer and one point for a correct answer because the wrong answers allow me to explain! You know, so then people will volunteer answers and sometimes the answers will be right and sometimes they will be wrong. And very often the questions are designed with a little bit of a trap in them to catch people who may not have understood the concept and who may have fallen into the trap that the concept entails or whatever. And I know what those are now, pretty well, after years of experience. So if somebody bites I say 'thank you! that's good, you've bitten and now we're all gonna learn something here,' and then I go over the thing. So that's the first way and second of course, is on the actual exams..."

It was important for good teachers to be able to explain difficult concepts because that fulfilled the teacher's intrinsic responsibility of ensuring that students received the

understanding of the teacher's subject so that they could pass their exams. Teaching to examinations formed a dominant aspect of teaching for most participants. Sometimes it did not matter if the examination tested for the students' ability to practice adequately clinical medicine. Both teachers and students had been enculturated to live by examinations.

[ID4:#1, 840-846] "I think that we clearly, we teach to the exams, no matter what those exams are, even in small group settings. I know that I cover off all of the areas that I know they will be examined in, I cover off those areas for sure. Whether that's right or wrong in terms of whether that translates into clinical ability, I don't know, can't tell you!"

However, for some, the responsibility as good teacher went beyond explaining things effectively, rather it also included being a caretaker. The seriousness with which this responsibility is discussed by ID6.

Researcher: "How would you explain to me your role or responsibility as a teacher?"

[ID6:#1, 873-881] "That's hard to know ... uh ... (pause) I guess my role is essentially to ensure that a group of young people entrusted to my care enhance their understanding of a given subject. That's the basic minimum -- that they acquire certain material. In the process, I like to think that they've acquired also a way of learning the material and thinking critically."

[ID5:#1, 1331-1336] "I'd like to get all the objectives out of the way. In my group people are put responsible to me. And I'd like to want to move on. You know if time ... time is available, we've got the objectives, then let's move onto something that's interesting you, right?"

It became obvious that for many of the participants the primary responsibility as teacher was to find out what students did not know about the subject matter and then to

explain/teach it thoroughly so that students could pass their exams. This view was supported by the feeling of sincere commitment to provide students with knowledge. Consequently, the focus of good teaching was on the effective and efficient delivery of content; and the dominant relationship was between the teacher and the content. The examination was an important hurdle that teachers had to teach to. It was the subject matter knowledge that the teacher possessed that was given to the student. The subject matter was a critical component in this setting because its possession allowed students to pass their exams, enabling the them to move that much closer to being a physician.

[ID1:#1, 574-589] "... the content itself is extremely important! Of course, secondarily I'm using it as a vehicle to teach how to approach these things, but the material ... because it's [names discipline] that's being taught to dental hygienist, to dentist, to physicians ... I mean the material is not incidental. I mean I want them to know the material. And if along the way, hopefully by the way I've presented, they are able to learn something about the reasoning process, about evaluating evidence, about challenging others--how do I know this is true? What is the evidence this is true? -- well so much the better. That would be something to aim for, but first and foremost I want them to understand [names discipline]. OK, do you follow?"

A majority of participants expressed similar views in discussing their role as teacher. Again, the teacher had the responsibility to increase the students' knowledge about the subject being taught by effectively delivering the content.

[ID7:#1, 589-595] "I think I'd like to answer that my role is there to present, hopefully, to the student, new knowledge in a digestible understandable form; to excite the students, to get them interested in the topic; but also to maintain the standards of the department."

Similarly, in the next quotation, ID2 sees the ability of being able to explain things effectively as a responsibility not only to students, but also to their parents who paid the student's tuition. There exists a clear role expectation in both cases.

[ID2:#1, 447-462] "I mean I can go into a class and totally ignore all the noise going on and just talk about [names subject] and don't give a damn if there's noise or not, I'm just gonna keep on talking. I don't care! I'm being paid either way! I can't do that! 'Cause in that classroom 99.9% of them pay, their parents paid to have them learn and they're expected to get from me the best that I can give them. The best that I can do is not talk about the subject, talk at the walls, that's not the best I can do! And I do the best I can which means I talk to the students, talk about the subject to the students and I can't define it very well. But you must have seen people that rattle away and nobody cares! They don't care whether people hear them or not!"

Many participants (ID1, ID2, ID4, ID5, ID6, ID7, ID8, ID10) expressed that for natural teachers to be able to explain difficult ideas required that they needed to "be one with their content," and "to have enthusiasm and love for the content." The view was that students were constantly seeking knowledge and it was the responsibility of the content expert to provide the knowledge they were seeking. Knowledge was seen as fixed and outside the learner and the teacher's responsibility was to organize effectively and efficiently their subject matter into digestible pieces of information so that students could learn. Learning became a predictable activity that was measurable through testing. Within this frame of mind, participants tried to reconcile how teaching and learning might occur in the new curriculum. However, problems arose because participants saw that the new curriculum seemed incompatible with their own ideas. ID5 demonstrates this struggle and confusion very effectively as s/he explains how things will be different in the new curriculum. ID5 is unsure of his/her role as teacher in the new curriculum and cannot

understand how students will learn without him/her telling them, giving them the answers, or explaining concepts; things ID5 has been doing for over 25 years within the traditional curriculum.

[ID5:#1, 619-677] "What is going to be different [is that] I know the material! I know the material [and] they don't -- it comes from me to them. What is going to be different is that I, in the new situation, so I see it, I know the material at the beginning and I know what they are supposed to know at the end. At least I think that's the way I'm supposed to be thinking, I don't know yet, and accept ... now the difference is between the beginning and the end they have to find the material. All-right!?"

Researcher: "And how will they do this?"

[ID5] "Again you're asking what are my perceptions of ... because they are perceptions because I have no knowledge yet. Um they have to be ... again I don't know, I'm just ... I'm ... this is ... I'm at a guess. They [students] will be presented with a case per week and I suspect that I will be involved in the designing of the case, although again I'm unsure what any of us ... the role of any of us is going to be in all of this. So it will be laid out ... there will be a plan. There will be a master plan that all of the tutors will through that given week make sure that the students are exposed to the so and so, so ... so, and some how at the end of the week, to assess whether they've got it all. So my ... how do I find out! ... how do I get this stuff into their ... into them without me teaching them? All-right!? I'm busy ... I'm gonna find this very hard. I really am because ... All-right!? I'm going to find it very hard to not give mini lectures and to not run a mini oral examination."

Researcher: "Why will you find it difficult?"

[ID5] "Cause that's what I am! (laughs) That's what I am ... Okay? Maybe I won't find it hard. I just don't know. But that's what I think. I will have a difficulty because I think I'm a pretty competent teacher. And I've also got twenty-five or so years in teaching this subject. And I've ... I have a hell of a lot of knowledge from a physiological, anatomical, clinical, and

psychological ... I've got a lot of input and I will find it difficult not just automatically sharing, all-right!. And I and I suspect I'll be told next week, you're not supposed to do that ... right? But I think I'm a natural giver of the stuff that I've built up ... okay!"

[ID5:#1, 438-446] "And I also ... you know I'm pretty damned experienced as well. I've been around a long time..."

These participants' views of teaching were rooted in what they had been doing for a long time within a curriculum that was implemented on a particular understanding of what it meant to teach and learn. Within the traditional curriculum the participants developed an identity of teacher (ID5: "that's what I am"). They acquired a role and a commitment to the subject they taught to students and to its effective and efficient delivery. This has become an important and significant part of most participants' identity, so to ask them to change was to ask them to give up what they believed in, thus creating a role conflict. If education meant that the teacher gives knowledge, it was irreconcilable for some to understand this any differently. This is why ID5 struggles with the idea of "teaching without *teaching*" within the new curriculum ("...how do I get this stuff into them without me teaching them?").

Among most of the participants, effectively explaining or teaching complex aspects of a subject was a passion that could not preclude the teacher's mastery over his/her discipline. In other words, natural teachers not only communicated effectively, but were masters of their subject matter. Related to the idea of the natural teacher and effective communicator then, emerged the view that **(3) content expertise is a critical component in what it means to teach.**

Most participants (ID1, ID2, ID4, ID5, ID6, ID7, ID8, ID10) considered subject matter expertise a major responsibility and a commitment to education. As university educators, most participants engaged in research, which helped develop knowledge in their field of expertise. Understandably then, the belief that most participants held was that the

teacher needed to be an authority on the subject being taught. Consequently, teaching became closely related to content expertise. This view created an inner conflict when imagining what the role of the teacher would be in the new curriculum, where the word tutor replaced the word teacher, suggesting a very different role and responsibility from the participants' points-of-view. Some participants could not find meaning as teacher if the 'teacher' could not 'teach' the subject of his/her expertise. More significantly, most participants were not comfortable teaching in areas that they were not "experts".

Also, the ideas of role, responsibility, identity, self-esteem, the nature of the student, and the educator's commitment to the educational process were closely linked to their expertise in the subject being taught. The understanding that emerged was that the word teacher meant one who taught a specific subject/content; from this emerged the teacher's identity, and the meaning of education and learning. ID7 highlights this point effectively.

Researcher: "What would you say it means to teach?"

[ID7:#1, 143-186] "...most of us in this department, the faculty members, have invested a huge amount of time in their education by becoming, in most cases, world experts in one very small area and given half a chance we'd just love to show off that we know what we're talking about and I think in many cases we really like teaching because we can do that, it gives us an opportunity to show off. Now, aside from that gratification of course I think a more overpowering reason is that we're all in the teaching department and we've come here deliberately, we haven't gone to research institutes, we haven't gone to drug companies, we've wanted to go to an academic teaching department and the teaching will always be right at the beginning ... a part of what we do, what we want to do. If you didn't want to teach you should never have been in an academic teaching department, you should have gone elsewhere and the one or two people who made that mistake, they didn't realize that teaching departments are precisely that, they are teaching departments. So I think most of us have gone in because we

enjoy teaching, we enjoy interacting with the young people, we enjoy seeing them succeed, you know ... we start off with a crop of raw students in their third year ... and we end up with a crop of well educated, beautifully dressed people at the end of the fourth year and there's a huge sense of achievement there that you know, all that they've learned in that two year period as far as [names discipline] is concerned has come from us and so I think that's very rewarding."

Many participants (ID1, ID2, ID4, ID5, ID6, ID7, ID8, ID10) were concerned that the new curriculum would cause them to lose their identity, their roles as experts -- as teachers of *something* and not just teachers. This affected their self-esteem because they prided themselves on doing what they do, especially when they saw their students graduate, as explained by ID7.

Some participants found it unjust to be asked to teach in areas beyond their expertise. Participants who equated teaching with subject expertise could not imagine teaching in areas outside their expertise, and to be asked to do so was inappropriate. It was seen as inappropriate to place a non-expert in a teaching position because it would cause embarrassment, thus compromising the teacher's dignity.

[ID5:#1, 963-979] "So am I concerned about my being a non-expert? I don't really know the level to which I'm going to be embarrassed. All-right!? Nobody has defined to me what is going to be the end point of the phase in which I'll be operating -- phase two, part two, Part two, phase two. I don't know what is going to be expected of the students and I don't know whether anybody has come to grips with that yet. Do you know, you know what ... what ... what is going to be the end point? (Pause) Now I ... I'll ... I could not ... I could not operate in a system in which I am going to be expected to teach students to make decisions about course of treatment! All-right!? That would be certainly be beyond my training and my knowledge and experience and it would be wrong to expect me to be teaching beyond that level!"

There was also a sense that if teachers lost their identity as experts, as was understood to happen in the new curriculum, they would be anonymous beings in a world that they had worked so hard to be experts. There existed an inherent need to protect against this 'extermination' of the subject expert teacher, not only for self-preservation, but also for the sake of education. This understanding had a significant impact on how the curricular change was viewed because change seemed to challenge the purpose and existence of the 'person as teacher'. Among a few, the 'person as teacher' was seen as no longer needed or worthy of continuing as teacher.

[ID7:#1, 320-357] "My feeling is that as a lecturer ... [M]y concern is that we'll become a little bit more anonymous to the students, that we'll be just a tutor."

Researcher: "Which means?"

[ID7] "Which means that you know you're sitting in that group directing them in some way which I'm going to find out on March sixteenth and seventeenth or whatever the dates are [referring to the faculty development workshop on PBL] and I'm not sure that we use or we will be using our expertise anymore. I've spent twenty odd years becoming a world expert and some of the other faculty have spent huge numbers of years becoming very, very good at what they do. It seems to me that you learn much more from people who are good at what they do than people who know nothing about what they're doing and my concern is that there's ... that we head to a lower level of mediocrity. That's putting it bluntly but that's my concern. So I want to be convinced that that's not going to happen!"

[ID10:#1, 270-284] "You know, you're a dentist right, presumably, so you're going to get a second year group together and try and discuss gold inlays, that's the topic for the week, gold inlays, and you don't have a dentist to talk about how this ... 'cause I've come along and run the group 'cause I'm a health professional, it doesn't have to be my area of specialty to talk about gold inlays. I'll have the students ferret through the library, the stuff, and help them go through

the reasoning process - nonsense! A certain amount of that is important, I mean you go away and read up what gold consists of, you've got to do a certain amount, but have the expert there! Have an intermediate, but don't have a non-dentist there. And that's how I see it you know, if you have a pulmonary person doing [names own discipline] medicine you might as well just have a dentist there!"

Others also felt that if they lost their identity as teachers, as they understood "teacher," then the educational environment would suffer or worse, students would think that the teachers did not know their material. This would create embarrassing situations for the participant who was believed to be, and was in the traditional system, the expert -- the one who possessed the knowledge. This is how things had evolved over many years of teaching in the traditional setting.

[ID6:#1, 975-979] "I don't think I've mentioned that, that the instructor seemed sure of the material, obviously is familiar with it, hasn't just memorized it the night before, but conveys a certain level of authority, not authoritarianism but authority, that is, they're comfortable with the material and somebody asks a question out of left field they can come back and answer it. That often distinguishes the well prepared from the ... and particularly in medical class the students look for authority, somebody who knows what they are talking about. It seems [students] detect waffling, frequent errors and back-tracking and you lose your control of the class. That requires preparation and that's why my knowledge of the [names discipline] literature is important to my teaching skills because it gives me that authority and I don't want to mean dictatorship and putting down the students, but the ability to respond to a question with an answer which is probably factually correct."

Researcher: "Can a good teacher teach a subject matter they are not familiar with and be successful at it?"

[ID6] "They can if they recognize, they have to recognize their limitations so they can't BS their way past a difficult point. They have to be willing to let the students know "I don't know the answer to your question but I can look it up and I'll try to get back to you in the next lecture, come on up and see me before or after the next lecture" - that's the way you have to deal with gaps in knowledge. This is crucial to the PBL because you're having tutors who are non-experts who are going to be leading students who are also non-experts. And one of the big concerns is how succ ... are we throwing away the talent of the faculty here by putting them in situations where they have to be by definition non-experts. And the only hope is that some of their training will help them to sort through the problems as to convey to the students how you attack problems that they don't know the details to, but it's going to cause problems because students who are sharp are going to catch areas where the faculty don't have the knowledge. I mean I have had students come here to see me after another person's lecture that they didn't follow and I have to explain it to them and there were some obvious anatomical implications of the lecture--well I've never taken anatomy and so I know -- yeah the liver -- a big blob, well they knew a lot more about it than I did and so that was good and once I started explaining some of the implications of the [names discipline] side so they could draw the implications from the anatomy side. So I was pleased they were on top of things. But I was sort of embarrassed that I couldn't do that you know ... what do I know about connective tissues outgrowth and cirrhosis of the liver!"

Embarrassing or humiliating situations of "not knowing" compromised the teacher's dignity in a world where subject matter expertise or authority in a topic is the norm rather than exception.

These participants also strongly felt that it would be senseless to waste the teacher's expertise. ID1 says it best when explaining how the new curriculum will shadow the talents of the good teacher and cause teachers to lose their identity. Although the quotations that follow are lengthy they capture the essence behind these participants' interpretations.

[ID1:#1, 904-921] "I think we as teachers will in a sense lose our individuality and there will not be the opportunity to impart our individual collective wisdom of our experience to the students and rather we will be more like caretakers guiding them through the mazes and you know people have to be guided through mazes and if the mazes and hurdles have to be overcome then you need someone to do it, and I'm not saying that that's not important but that shouldn't predominate. And I think that direct influence, that passionate commitment to a particular discipline I think is going to be very, very much reduced, and it will all be kind of homogeneous rather than have highlights and lowlights it will all be kind of a general influence without highlights without details, without definition, but rather just a general competence as opposed to anything else."

[ID1:#1, 602-656] "Well I feel [PBL] will probably erode my effectiveness as a teacher. Because I guess the curriculum in a sense will be predetermined. I gather that the system will be based in such a way that they are in fact discouraging experts from being the leaders of tutorial sessions. They are encouraging facilitators. We are all here learning and I don't have all the answers ... that aspect is good, but in some ways the feeling blind leading the blind comes to mind. We are all kind of bumbling in this together and aren't we having fun and aren't we dumb and then at the end of it all oh! haven't we learned a lot. I mean that in a way, a little bit of that is good, but I think that when anybody is to be a teacher they should be some kind of a role model and I guess in a sense we are a role model, but not only a role model but someone who is enlightened, someone who has more knowledge than the people who are actually teaching. And I think that in this particular situation, the way it's set up, it can, I think be such that the expertise is there and you have someone putting people on the right track and not only that but emphasizing and highlighting certain things. If you don't have an expert ... unless you have experts training the non-experts, but you're not to really lead but you can only facilitate, then I think that mainly what I am is just a ... is just a monitor! Somebody who is kind of keeping things going and I really feel, my concern is, I feel my individuality and effectiveness as a teacher will be severely compromised. So that I think it will be a leveling process such that

people that are highly individual and are highly committed and teachers who have spent many, many years finding those things that work and those things that don't work and being very sensitive to students' questions and so on and so on, and have developed a way of effectively transmitting information -- they will be less effective and people who are less effective teachers who may have difficulty organizing material this and that, will appear to be more effective teachers. Because everything is provided for them, they don't have to do that much, and they can do their readings and they can kind of facilitate things and they will appear to be more effective than they actually are; and good teachers will appear to be less effective than they actually are. That is my feeling about it, I may be wrong, but I really believe that the way the system is currently constructed that's the way I feel it is. So I will give it my best shot, I'll try to do the best I can but I don't expect to be as effective a teacher as I was in a more traditional curriculum. Maybe because I was trained and have experience for 25 years or whatever in the more traditional approach."

ID1 effectively articulates the inner conflict when imagining what the role of the teacher may be in the new curriculum, where the word tutor replaces the word teacher. Some participants could not find meaning and identity as teacher if the 'teacher' could not 'teach' the subject of his/her expertise.

Summary

The new curriculum, as the participants understood it, is asking them to abandon themselves as teachers -- their beliefs about 'truth' in what it means to teach and learn. They are told to adopt very different meanings, very different 'truths'; something that cannot easily be done as has been evident thus far. For most participants imagining what the new curriculum will mean for them in terms of teaching and learning was a conflicting experience. Their interpretations and understandings reveal a struggle similar to fitting a square peg into a round hole, which was inappropriate to do from the participants'

perspectives. Participants were facing disparate expectations -- one set of expectations from their own beliefs and another from the change.

The following subcategories emerged from the category of the participants' beliefs of teaching and learning:

1. I am a natural teacher and have innate teaching abilities.
2. The natural teacher can take difficult concepts and make them easy to understand.
3. Content expertise is a critical component in what it means to teach.

Views of Curricular Change based on "Time and Resources"

The issue of time was a significant concern among the participants (ID1, ID2, ID4, ID5, ID6, ID7, ID8). It permeated their beliefs about teaching and learning, and their perceptions of the commitments required to plan, implement and sustain the new curriculum. Concerns about time began to appear as the participants first started to consider how the new curriculum would affect them, as *they* conceived it. One emerging view was that **(1) the new curriculum would compromise one's time to do other things.**

[ID5:#1, 9-33] "I think I ... well I am involved in teaching not only medical students but also science students, [and] graduate students. I think that I need to be careful, or at least I know to be cognizant of the fact that if we spend too much time and physical and emotional energy in this curriculum something's got to be lost in ... other endeavours. So that is certainly got to be brought in mind. I find it's impossible at my age to be able to be three places at the same time. I could do it when I was young but I can't do that any more. And it depends on how this curriculum is structured in terms of blocks of time. I feel that this curriculum as I see it, will

be very, very time consuming and energy consuming and I think it's gonna take all my ... one's life and so ... to be devoted to the medical class at this for a period of time and during that time one will not be available to do the other parts of one's life. So that worries me a lot."

[ID6:#1, 1026-1034] "Problems I can see in the future is that I'll have less and less time available to prepare material, particularly at the graduate level where you have to read the papers yourself first, and if you need 10 papers to get a lecture that's a lot of time and time is my most precious commodity. This is not aimed at you but a statement of fact for any [one] ... you have just more and more demands on your time. So teaching suffers that way."

ID5 understood the new curriculum to be physically and emotionally taxing because s/he perceived that it would require a greater time commitment for teaching. Similarly, some of the others also felt that the new curriculum would require a commitment that would compromise their other teaching and research responsibilities. ID6, for example, imagines that his/her actual teaching in other areas would be jeopardized given the lack of time that was going to be available for preparing the content to teach. The emphasis was still on the idea of efficiency in preparing for lectures for accurate representation and delivery of content. The problem was that the participants, although moving toward a new curriculum in medicine, were still required to spend a significant time in areas where the traditional curriculum would remain. This further complicated participants' experience of change. An environment of disparate expectations had again emerged, leading to role conflict.

Another view that emerged was that **(2) time and resource commitments in the new curriculum were understood to increase.** This was seen as logistically challenging. The term "resources" is used differently among the participants. Some used the word to mean resources of time, while others used it to refer to the number of teachers. ID7 for example, indicates a concern with the number of personnel that s/he believes will be needed to teach in the new curriculum. There was also an implication that people will not be able to dedicate the amount of time that the new curriculum was believed to entail.

[ID7:#1, 252-256] "Um the problem I think with problem-based learning is the sheer number of resources that we need to do it and the amount of time that people are going to be willing to spend on it."

Others referred to *time* as a resource itself. ID2, for example, interprets the new curriculum to require teachers to offer more time for teaching. Also, ID2 considered it the administrators' responsibility to ensure that certain resources to facilitate these concerns were going to be available.

[ID2:#1, 105-133] "I think the first and almost overwhelming sense is that this is going to require an enormously increased amount of time by faculty. We may be doing less teaching in one sense but we're actually going to be doing more. We're going to have far more tutorials, far, far more tutorials. And far more hours of case-based instruction. And we have to make ourselves available I think as resource people to students who are going through a self-directed learning exercise. We can't just say go out there and learn folks, and we as far as you're concerned we don't exist. I don't think that works. I think we have to say to them this is an area of my discipline, or that discipline that you're going to have to learn. Here's a bunch of faculty members with whom you may ... you may phone up and ask for help or for clarification or something. So I think the most overwhelming thing is that it's going to be more expensive in, I believe, time. I perhaps take it on trust that the administrators in the Faculty of Medicine are prepared to make those resources available if they don't exist, to sustain the curriculum. I ... I hope that! I don't worry about it though. Either they will or they won't! Either it'll succeed or it'll fail! And I don't think the administrators of this university faculty should be prepared to contemplate failure in this conversion. They shouldn't be contemplating that. That means that they have to put the resources in place to make it work."

Clearly, ID2's vision toward change may be very different from the administrators'. It seems that the lack of ownership in the change process heightened many of the participants' concerns. A view that also emerged is that the efficiency in teaching in the new curriculum was being compromised because of the inefficient use of time in teaching. It is seen as more efficient to teach a hundred students at once through a lecture than to cater to individuals and small groups.

[ID2:#1, 160-165] " ... you can have one faculty member teach 120 students at one time, now we have 10 faculty members teaching 12 students each at a time. So the teaching load for a faculty has gone up 12 fold. And you're going to see more and more of that as the new curriculum comes in."

Some participants understood that teachers would be required to commit to the many tutorials that would be in place and that this would require teachers to put in more time in "teaching" the new curriculum. What gradually becomes obvious among many of the participants is the imposition of a previous conception of teaching on the new curriculum. There was no clear evidence among many of the participants of an understanding that this curricular change will also entail changes in one's role as teacher.

People could not conceive of how the new curriculum would be implemented considering the limited number of hours in the day, and the finite number of faculty available. The beliefs about teaching efficiency is also raised. This belief not only considers time efficiency, but also the efficient delivery of content. ID6's thoughts encompass the views held within the category of time.

Researcher: "How will this change affect your work?"

[ID6:#1, 226-293] "It won't effect me personally that much, except that I may have to put in ... I may have to be one of the PBL tutors as part of my teaching. The big concern in the basic sciences as a whole, and I'll stick to my department, is the number of hours -- the faculty

won't have the time that this is going to entail because you're breaking the medical class into small groups ... at the present time we give seventy-five lectures, approximately, to the medical students -- that involves three faculty members from this department to do most of the lecturing and a few guests from the clinical departments... So essentially four faculty members are tied up, but we are dealing with a hundred and twenty four students at a time so its a relatively efficient use of our time on a per student basis. What it will mean though in the new curriculum is that at any one time there will be ... 20 to 21 tutors, plus [dentistry] which is another 42 students or so. So there could be a 160 students simultaneously requiring 24 tutorials. Seven hours a week, I believe, is the tutorial time planned give or take an hour. So right away you've got 24 faculty members tied up for six hours in the tutorials, plus what ever time is necessary to talk to students, prepare, grade. So the number of hours is actually very frightening and why that's a problem is that we have other obligations--we teach a large number of science students--to give you an idea we teach 1475 science students and a 124 medical students so basically the medical hours are almost in the side for our department. We teach a large number of graduate students and post-doctoral fellows on a one-to-one basis within a research context and that is the most time-consuming of our duties. So where we're apprehensive is in the time requirement to do this correctly. You either do it or you don't and even if you're an apathetic tutor you still have to be there six hours and for the programme to work the tutors have to be something better than apathetic. So we are very concerned about that."

There also emerged occasional comments about the time needed to apply properly the new curriculum. It was felt that there would be a lack of time and resources to "do it correctly." However, in further discussion with participants it became evident that the new curriculum was deemed ineffective regardless, thus negating the view of "having the time to do it correctly."

Time also became a significant and more pronounced issue within the context of teaching and learning. The emerging categories were **the inefficiency and ineffectiveness of (3) the time to teach and (4) the time to learn in the new curriculum**. Since both were usually addressed together, they will be discussed together. The following quotations encompass the link between the participants' ideas about time within their understanding of what it means to teach and to learn.

As you read this section and subsequent sections, you may notice that in previous sections what participants said in other categories contradict the views expressed here. It is not unusual for the participants to go back and forth between what they espouse and what they dismiss as they consider different ideas and viewpoints about teaching and learning. In the process of understanding and reconciliation, participants made statements about a particular idea that at one instance was an affirmation and at another a refutation of that idea, sometimes in the same interview. Reflecting out loud allowed the participants to express beliefs and ideas that were in conflict. For example, in the following quotation ID7 begins by affirming that PBL may be better, but qualifies this by stating that it is a slower process.

[ID7:#1, 116-123] "Now in problem-based learning, while it may be a better way of students understanding and learning information, it's a slower process. It takes longer for a student to learn something themselves than it does for someone to stand up and give a one hour lecture summarizing all the information they know. So the result of this is that I think inevitably, the amount of information that is from the pros in the four year period under problem-based learning is going to be less and that's one of the sacrifices of it."

ID7, like most others, holds strongly to a transmission model of teaching where knowledge is seen as a "commodity" possessed by the teacher which is to be delivered to the learner. This process is understood by ID7 to be more efficient than a PBL-type teaching. Some

participants, therefore, interpreted the curricular change to be a “sacrifice” because it precludes the teacher from giving information in a timely and efficient manner.

[ID7] “The question is whether they're, from an educationist's point of view, whether the students are better off knowing a little bit less, but a little bit more thoroughly and not relying just on rote memorization and the multiple choice type mind.”

A key finding that emerged during this research was that many began to question their understanding about teaching and learning. In the above comment there is evidence of the reflection that, for many, accompanies curricular change. For example, ID7 questions the difference between the quality and quantity of learning outcomes.

[ID7] “...we already were pressing for changes but we were going towards a more integrated programme, but not necessarily small group teaching simply because of the lack of resources that we already had...” [237-256] “... the problem is small-group teaching! Problem-based learning, case presentation, they're all subtly different here. Problem-based learning is a very different approach to just simply making more use of cases. So we ... I think we probably favour more a case-based system and that's what we've done already in our course prior to any of this. We've introduced case presentations, we did our lecture blocks that are relevant to the material that we've taught or just about to teach. So we've tried to put [names discipline] into a clinical context already and there's always room for improvement in that direction.”

ID7, as did others, momentarily considers the merit in the quality of learning in the new curriculum, but reverts to previously held beliefs about what is effective. His/her reasoning is that it takes longer for students to learn the *amount* of information in a PBL setting compared to the traditional teaching setting. Some participants concluded that it is

more time efficient and more effective for students to learn from lectures than it is for students to learn on their own.

The following quotation illustrates the idea of time as it relates to beliefs about effective teaching and learning, and the overall theme of effectiveness in curricular change.

[ID1:#1, 762-817] “ ... [PBL is] maybe somewhat lacking because of constraints of time and so on in how you put the blocks together. [The students have] got all the blocks, but how do you build, like how do you build something with this, like how do you build a house, how do you build a bridge with these nice blocks that you’ve been given.”

Researcher: “So, right now you, because of time constraints, you build it for them?”

[ID1] “Basically! Or show them how one approaches the building of a bridge or a house or whatever it maybe. And as I say the constraints are mainly those of time. I think the whole problem approach is that my concern is that the students at the beginning of it will not have the blocks. If the students acquire enough blocks to be able to build something, not two or three blocks, you can’t build much with two or three blocks, but a large number of blocks, for example that they might acquire over one or two years, then maybe at the level of midway through second year or at the end of second year or whatever it may be, then they can start really building something because they’ve got something to work with. But the idea is, as I understand it, is that from day one they get this kind of mental approach, this kind of academic approach to learning [referring to PBL], right from day one, with minimal or no information or very, very little information, except with what they come to medical school with, which is a whole diverse array of information because they’re encouraging people to come from different disciplines ... and how you can really construct anything meaningful out of that, that’s my concern. So the idea as to whether or not it’s a valuable thing to do, I don’t have any doubt of that, I think it is a valuable thing to do, my major concern with it is that the whole curriculum is designed this way and it’s designed this way from day one, without allowing a transition from a more classical traditional approach, which has been shown to work for years -- t wouldn’t be

around for so long as it has if didn't have some value. Maybe it's antiquated, maybe there are better ways, but I think as a starting point it is very useful and then make the transition. That to me should be the ideal way it should work and not from day one right off the bat we are going to have minimal information but we'll try and get a case that illustrates it and we'll talk about cases and we'll get the real stuff and we'll be really doing medicine [all said with a tinge of sarcasm]. I think it's hypocrisy. And I think its selling the students short really!"

In reflecting on an understanding of possible positives of the PBL process, ID1 explains how self-directed learning is a useful but slower process. As a result, ID1 believes that teachers need to play a more active part in the teaching/learning environment. The quotation begins with the understanding that in PBL students may obtain content knowledge about a subject or topic, but because they have not been taught the material by a teacher they would not know what to do with that knowledge. This problem is attributed to that lack of time for the students to learn effectively in the new curriculum. Moreover, if PBL was understood to mean problem-solving, it was difficult for participants to understand how students could do this without possessing the 'quantity of knowledge' needed to solve problems. Evidently, the belief that emerged was that students needed to be taught the content first before they could solve problems.

Many participants made powerful statements that revealed the conflict they faced in understanding and reconciling the perceived positive aspects of self-directed learning. At times they supported the idea of students taking responsibility for their learning, but became frustrated when trying to reconcile the role of the teacher in this process. One reason for this may be an understanding that teaching means delivering knowledge.

ID1, ID2, ID5, ID6, ID8 showed strong evidence of the belief that students must establish and possess the 'commodity' or 'chunk/block' of content knowledge (which comes from the teacher) before they could begin to be self-directed learners. This way of thinking and understanding may have evolved from over 20 years of teaching in a

traditional curriculum that, according to them, had been shown to work for years. The idea of time for teaching and learning is based on the belief that the teacher has the knowledge that students are trying to acquire, and although students can acquire or discover it on their own, that was not a time efficient way to do it.

Some participants had difficulty reconciling curricular change with the issue of time that would be required to 'cover' the material. Again, the predominant view was that there was a course to give, and information to get across from the teacher to the student. This understanding was in conflict with a possible teaching environment that gave students the responsibility to discover the information.

[ID8:#1, 430-449] "But one of the things that's bothered me about the programmed learning idea or switching over completely to a Socratic method is that I've felt you know we have this much time to get this much information across and it's very difficult to fold your arms and let students stumble through to find what information they're going to need. I mean, I know that's what they're supposed to do because they'll remember it better, but I hope with a ... with a Socratic method and questions at a level above where they're prepared for, that they will, by much the same process, be able to remember what we're talking about. I mean I know you learn best if you start with a problem from the beginning and work right through to the solution because there's the glory of satisfaction that you've walked through all the steps. But when you have only this much time you've got to do some pointing to say this is ... this is how you get to the solution. And that's been one source of my anxiety that we've only got so much time to get through."

Also implicit in participants' statements was the teacher's role in the learning process. From the viewpoint that teachers were responsible for providing answers and information, many felt that this would be difficult to do in a PBL situation because of their understanding that the teaching and learning environment was constrained by time.

According to many participants, there just was not enough time for them to 'teach' and make sure that the curriculum was covered within a PBL session. As a result, many participants found it difficult to relinquish their responsibility to cover the material to be learned. This way of thinking stemmed from responsibilities that had evolved within the traditional setting and this was entrenched in the teacher's traditional ideas about teaching. Consequently, when speaking about the apprehension with self-directed learning, ID8 explains:

[ID8:#1, 1023-1031] " ...because I think I can't always be sure that they're going to be bothered with finding the answer. So if the question's there I like to make sure we've covered it. So that's why I guess, you know, that rates higher because I always try and cover everything. That's the difficulty because you ... you know if you've got constraints of time too you don't know how much time they've got and whether they want to keep going or not ... [1045-1063] ... Um but I think what you do want to know is that people better come up and ask you questions. You know, if I haven't given you all a hold of the answers that you'll come up and try and get them. I mean sure, I should be happy with them going away and looking it up themselves, but I get more reassurance out of them asking me because I'm their resource. You know I'm supposed to be there to answer questions. And if I can answer it satisfactorily then it's probably a seal on showing that they'd better grasp it there at the subject. I mean maybe they should be left with questions that aren't answered and some of them of course aren't answered, some questions aren't answerable at present. But if they're unanswerable, there's still an answer, which is -- we don't know the answer to that! So, in other words, I don't like to leave things hanging. [192-280] ... As I understand with problem-based learning you're starting at the beginning you know you've got a text book somewhere and somebody comes in with the problem and you have to figure out how ... what is the problem, how to approach it, what systems does it involve, what pathophysiology, what options for treatment would there be, how do we put the options for treatment to this individual, how are they going to decide, if we decide

how do we measure outcome, all of those I mean so much that is going to have to be left for students to discover. It just takes longer. I mean my concept is it just takes longer. The thing that's kind of worrying me is how long it's going to take with me sitting on my hands with presumably answers and guidance, but I have to wait for them to ask. It's going to be like Twenty Questions and I can only answer yes or no. That's what bothers me about problem-based learning is that it's not time-efficient. It's probably better in the long term, but so far as I'm concerned my time is going to be spent a lot of time maybe doing less than I would like just because you know if I think of myself as a teacher I have thought about this and I can you know because you look at Continuing Medical Education Programmes for people in the field, you don't present them with a problem and say you figure it out and ask me what to do. You go there with a package and say here's a problem, here's what you can do. Take this, remember it. I mean maybe they don't. Maybe it is inefficient and everybody does tend to learn best if they're just working on their own particular problems. I mean if students were allowed to take as long as it took to learn what they're supposed to learn ... by objectives that would be best. The trouble is we don't do that 'cause we have a finite student time and a finite teacher time and I think that's our anxiety that we understand we have to for the sake of the community get these students to a certain level of competence by a certain time. I mean I'm not thinking selfishly, but I'm not thinking about what kind of doctor they'll be in twenty years time. I'm thinking about what kind of doctor they'll be in their first year in practice and that's maybe wrong you know. I should be thinking ahead, but I'm just worried if they learn entirely at their own pace just dealing with problems and using their own resources it will take longer than I can afford. It will be an inefficient use of my time as a resource unless there's another way to occupy me while they're fumbling their way through the problem."

The above quotation clearly shows the struggles that ID8 is experiencing. There is a tug-of-war between his/her beliefs and those that the new curriculum proposes. ID8 effectively states what many of the others also revealed in their thinking, that is, people's struggle with

the concept of time is rooted in their beliefs about effective and efficient ideas about teaching and learning, the role and responsibility of a teacher, and the institutional and societal pressures on the time it should take to produce a physician. An important issue that also emerges is that in the process of student learning in PBL, many participants could not find a meaningful role.

Many participants tried to reconcile if PBL may be a better way to learn, but most had difficulty doing this. Matters were further complicated when people began to reflect on their own learning environment, as did ID8 for Continuing Medical Education, where the transmission mode of teaching dominated, and they could not understand why this method still prevailed if it was seen as ineffective. The participants' experiences and issues of identity and role as teacher, and beliefs about teaching and learning kept nagging at people's attempts at reconciliation.

After many interviews it became evident that participants perspectives on teaching had been formed from teaching in a traditional curriculum where classes were organized in 50 minute sessions, teaching occurred through lectures, and students 'learned' by listening and taking notes. From this perspective the issue of time for teaching and learning took on a specific meaning. Obviously, participants' understandings of time within the context of teaching emerged from having been enculturated in a university educational setting which implicitly, or explicitly, adopts an understanding that knowledge is something that is possessed by professors who have developed an expertise within a particular discipline; an expertise derived from mastery of content and from research activities that create new knowledge.

[ID6:#1, 501-527] "... in theory you want to make your lectures 50 minute packages that stand on their own ... it never works. And you never get ... you never come to the ideal breakpoint. Some things take longer, you get questions, there was a snow storm and people kept traipsing into the class late and so you got -- and that happened a lot -- so you'd often find

yourself midway through a topic and that would be the end of class and the next class would be breaking down the doors. So you'd have to start in the next lecture reminding people where you were. And also I think that's a valid strategy, in any event, to bring the students back into the mind set that you want them."

[ID2:#1, 191-230] "The other thing I do is if I give a series of lectures, I refer back to my previous one's and make sure that everybody remembers what we spoke about before and then it's the new lecture contents. So I build on what I've done before. That's what I do. Now, there are two things that can happen in one of these lectures: One, well there are three things that are possible, one is that I give them too little information in the 50 minutes; the other is that I give them the right amount of information in 50 minutes; third is that I overload them in 50 minutes. And I know that, in some cases, I overload them. Because I throw a whole lot of stuff at them, because I want them to at least to get the headings and if they get confused then they'll go and look it up in the book. Sometimes if the material assigned to me to teach isn't all that huge then what I do is instead of going the 50 minutes, I just say, well I've covered everything, it only took 40 minutes instead of 50, get outa here and I'd like to think that most of the time I hit it right, the right amount of information. What that means is that in 45 minutes I should be starting to recap of what I've already told them, so for 5 minutes -- these are the important things that I've talked about today, any questions? Good bye!"

The efficient delivery of content within an allotted time segment is an important issue for ID2. Many had an understanding of effective teaching based on the efficient use of lecture time, within which the teacher had to ensure that the right amount of information was delivered in simplified, easily digestible ways. This way of understanding teaching was very different from ways in the new curriculum. The differences created a role conflict. Conflict was more prominent among those who considered themselves 'natural' teachers, as revealed in the following quotation.

[ID6] "I've been told I am [a natural teacher]. You'd have to ask somebody who knows, and again I've never taken a course in teaching. Except I have to take this PBL training course so I'll do that reluctantly. Because I don't think it's worth three days of my time. I have a lot of demands on my time and so it's a sacrifice. But I'll do it. And it may make me a better teacher in some ways, I'm willing to grant that and I'll see, but I see it as a huge investment in time to do that. [Going back to natural teacher] Yeah, certainly in terms of teaching ratings, evaluations ... I was always one of the top one or two people in the department. And in the top couple of percent in the whole university!"

Summary

The issue of time played a significant role when the participants thought about curricular change. The overall concern was with the time that would be required to plan, implement and sustain the new curriculum. As participants envisioned the commitments required, they could not help imagining them from their experiences of the traditional curriculum -- the source from which most participants made meaning out of the changes to take place. The new curriculum was seen as an obstacle to fulfilling the myriad of responsibilities the teacher already had within the traditional curriculum. From a logistics point of view, some participants could not reconcile how the new curriculum would be sustained. Most importantly, the idea of time to teach and learn took on a different meaning in the new curriculum. In the traditional curriculum the professor was seen as having the knowledge that students needed, and it was the professor's responsibility to teach the student. Some participants considered the role of the professor as a resource for information. Time was set aside every day throughout the year whereby students could come to a classroom and listen to the teacher teaching -- delivering knowledge. From the participants' interpretations this configuration was efficient, it had been shown to be effective, and it was logistically sound. This was the foundation upon which many of the participants established their teaching. However, this was in contradiction with their

understanding of what the new curriculum entailed. Some participants could not understand how effective learning could take place in an environment that was seen as ineffective and inefficient, where the teacher's role and responsibilities were disadvantaged.

In summary, the following viewpoints prevailed:

1. In the new curriculum there will be no time to do other things.
2. Time and resource commitments required for the new curriculum are enormous.
3. Time to teach and to learn will increase in the new curriculum and this is not efficient, nor is it effective for education.

Views of Curricular Change Based on Perceptions of "Administrative and Political Influences"

This category emerged during the first interview and became more salient after the second. It reveals the participants' struggles with ways in which change was initiated. Many participants (ID1, ID2, ID4, ID5, ID6, ID7, ID8, ID10) viewed the curricular change as an imposition by the administration. There was little feeling of ownership, thus creating discord. Although only one participant explicitly revealed this viewpoint during the first interview, it soon became evident that other participants were not happy with the way the change was introduced.

Researcher: "How did you hear about the curriculum transition?"

[ID6:#1, 6-13] "Probably because I got a memo from the first draft of the strategic plan in July and that was the first I knew about it. I was horrified! I can tell you what I didn't understand ... some of the rationale for changing the curriculum wasn't fully explained."

This way of discovering change may have negatively influenced some participants. ID10 in particular, was not happy by the way the process was unfolding. ID10 expressed a serious concern with administration and politics. This concern dominated this participant's first interview. Curriculum change was seen as an imposition from the "top". The initiation process was viewed as undemocratic and territorial. Some disciplines were seen to be favoured over others within the new curriculum. The educational aspects of change were linked to the political environment.

One view that emerged was that **(1) the curricular change was seen as an undemocratic process.** Within this view, ID10 felt that his/her discipline was a victim of dictatorial politics. When asked about the curricular change, ID10 responded with frustration and anger. The entire health care system was implicated as being politically controlled, to the detriment of ID10's discipline, the students and the patients' needs. There were implications of a power struggle favouring one discipline over another.

[ID10:#1, 26-79] "...[My thoughts about the change is that] there were a few individuals' collected opinions and that it was inflexible, and that this was not a democratic process, that the decision has been made, how it's gonna be carried out has been made, the committee has not been democratically picked so it's just who of the faculty were thought would be good people, and they got *paid* to be on it, and then when it comes to suggestions the decision has already been made, for example [refers to own discipline] has got three weeks, that's it, and we're put in with [names another discipline]."

ID10 was particularly concerned that his/her discipline was being undermined within the new curriculum. ID10 understood that only three weeks were being allocated to the study of his/her discipline while other disciplines were given more time. ID10 interprets this as a reflection on inequality within the health care system at large. The emerging view was that

(2) the medical education system was perpetuating the interests of those in political power.

[ID10] "That means that in terms of the undergraduate student they would learn all of [names a few disciplines, including his/her own] in three weeks and they're going to have one case-based thing a week, so you're going to have one case ... I mean it's crazy! And it's totally inappropriate, and look at neurology, neurological sciences, they get a whole pile, and pulmonary and cardiac services get a whole pile, so you see once again areas where politics, as far as I'm concerned, enter into change. Politics at least at the moment, I mean research money goes into heart disease, 'cause it kills you, cancer and HIV disease. Now, I've no problem with that except if you're looking at how to spend our research dollars, maybe that's not where the most human suffering is. And what's the bang on the dollar there? Um, [my discipline] gets virtually no money for research and it gets sort of trivialized, and yet, it's the most likely reason why you're not working, and it's the most likely reason why you're not enjoying your leisure activities. It's not cancer and heart disease. And so here you're having the medical curriculum, once again, with the same kind of bias. Which is just terribly irritating. So I look at that and I think three weeks, here we go again. Now is there a [names own discipline] doctor on this system--NO! So the kinds of people who are picked for this committee, there's a pulmonary person, and a GP, not GP practicing person but a GP academic person, who's practicing academic, you know, paper medicine as opposed to real medicine. So, you know, I find it very frustrating ... you know, I was quite a bit frustrated."

ID10's anger is obvious. In addition feeling a lack of ownership in the process of change, ID10 feels that other specialties are more favourably disposed regarding time allocated for study -- an outcome that is seen as politically motivated. ID10 feels that his/her discipline is seen as trivial by the curricular administrators and s/he is insulted by this.

[ID10:#1, 730-736] "...but don't just give them [names own discipline] along with [names another discipline] in three weeks ... it's an insult, a total insult to me. You know, [my discipline is] going to be, you know, barely a week, it's going to be one case and it's going to be a complete insult to me! As a [names own discipline] it makes my area and interest and expertise a joke for an undergraduate student. You know, it's not fair!"

ID10 was asked if these concerns had been raised with the administrators. The question elicited a response on the merits of the new curriculum, but the response was overshadowed by ID10's anger with the injustice within the change process.

[ID10:#1, 83-145] "Absolutely! And then I was told, that everybody feels the same way, and everyone thinks their side is important and this isn't the final number of weeks, it's gonna be negotiated. Well that was a crock, it won't be negotiated, it won't, no one's going to give up any of those hours. And you know, it's inappropriate. I've nothing against problem-based and case-based learning, that's how it should be, that's how we learn in medicine. You, in grand rounds you get a case, everyone listens and then take the principles from that. There's no problem with that. But you can't do all of medicine like that. You can't do that in terms of [my discipline]."

Researcher: "So if you were in charge how would you prefer that the learning..."

[ID10] "I think case-based and problem-based learning is essential, essential! But you don't do the whole curriculum like that! And you don't have as inflexible a system where you have three weeks of [my discipline] -- absolute nonsense! If you train GP's (General Practitioners) then they're gonna ... a majority of the stuff they see is going to be [my discipline]. That and depression. So if you're gonna cover ours anyway, it should be on what the role of the physician's going to be in the next century. It should be on computers, they should know, they should have a course on informatics, and that should be a high priority, you know ... we're not going to practice medicine like this in another 10-15 years, medicine will be totally different,

totally different! I'm thoroughly convinced of that -- the utility of computers. If this system was, you know we're the last medical school to change in terms of the curriculum, great! But we're at the bottom of the line again, here we're just gonna reproduce what everybody else is doing and we're going to be 10 years behind -- that's nonsense! We should take the good parts of case-based learning so it should be part of the system but it shouldn't govern the whole big 18 month block. That's foolish! ... [L]ook who recommends should be in charge of this, you know, you know, that's not up for grabs -- you know, suggestions -- "who does that course?", it's all crock, you don't plan things like that. [315-321] They don't care if I'm a good teacher or a bad teacher. They don't care if I'm interested, they've politically picked out certain people with certain jobs--it's perfectly obvious. And I could be one of the shitiest teacher around. Um, that's true! [But] I happened to be a good teacher!"

[706-713] "I sound very negative but I love to teach, it's very important, the new curriculum is going to be much improved, they need to have it flexible and the guy in charge is not flexible. They're making political appointments and all these other things, the director, doctor-patient nonsense. The director of faculty development has already been picked and no one knows about it except through the grapevine. I'm, I'm angry about that."

ID10 stated that s/he had been to a problem-based learning workshop in the past and did not find meaning in being a tutor. ID10 did not understand the reasons for non-intervention while students drew incorrect conclusions during a PBL session. However, ID10 was apprehensive about speaking out and being perceived as being against change. Consequently, ID10 felt that **(3) the curricular change was being imposed on the faculty.**

[ID10:#1, 406-408] "...[T]hey're imposing it on the faculty, they're going to do faculty development workshops, where I don't get paid! I mean give me a break!"

[486-536] "If I make any comment like at this workshop, I'll be perceived as somebody who's not into the, who doesn't want this curriculum, who's against it. It's very, very difficult. I went to one of these problem-based learning things and ... another thing, they had a patient who was 27, who was supposed to watch the students go through this, a mixture of students and it was a 27 year old young man who appears to the GP's office with acute shortness of breath and they had to figure out, you know they didn't know anything from a hole in the mouth -- first year students, in physiomedical, and they're supposed to figure out what's wrong and they picked facilitators, you know and I was about #4 facilitator. And so they're going through this and I just say to the person in charge and said I'm not facilitating this! You can pick somebody else for #4, I'm not doing this! Period! I mean (laughs) but then you were supposed to sit there and not ... when they came up with information that was incorrect and they went through this thesis you weren't supposed to interrupt. They'll find that out in the library, well you know so they had a discussion at the end, I mean if I'd interrupted I wouldn't be facilitating I'm teaching you know and this is the old style (sarcasm in voice)."

Researcher: "What's the difference then?"

[ID10] "Well, who knows! You're supposed to be facilitating like an enzyme -- it's let what's flowing flow! You know, the teaching is like steering, you know."

Researcher: "How did you feel about that?"

[ID10] "Oh it's silly! I mean you know, it's common sense, I mean my 6, 7 year old could ... you know it's common sense, it's crock! I mean you know just common sense tells you it's silly and you know you get to the end and if you're using the system rigidly and then that, the system's fine, but don't say the facilitator must just sit there and not correct the information and just facilitate and make sure everyone chats. I mean if you know it's incorrect information there are ways of handling that, I mean we do it all day. I mean, you know, I got to the end and I said well I'm just not ... I'm not going to be judged by my peers 'cause I can't sit and do that! It's silly that's all. So I was seen as being in an aggressive position. So we got to the end and I was asked for my opinion and obviously I had you know, a different sort of ... you could see

this! Everybody else thought I was being ... that I was criticizing them and the system and I said, no! I said look, those people have got away with incorrect ideas about physiology of the lung and no one's corrected it."

The viewpoints of "imposition" emerged strongly among other participants during the second interview. Like the other participants who were also concerned with "misinformation", ID10 could not reconcile his/her understanding of the teacher's role within the new curriculum. From ID10's point-of-view, a teacher was someone who corrected the students' misinformation and it was inconceivable to do otherwise. This contradicted ID10's statements in support of change. Yet, ID10, at times, also seemed to agree that change was needed, but felt that its application was inflexible.

Summary

It became clear during the second interview that many of the participants held similar viewpoints. Most participants also felt that because the new curriculum was being imposed upon them they had no choice but to comply with doing things they did not believe. In summary, the following categories emerged, mostly from ID10's understanding of curricular change:

1. The process of curricular change is undemocratic.
2. The medical education system, including the new curriculum, perpetuates the interests of those with decision-making power.
3. The new curriculum is an imposition on the faculty.

Views of Curricular Change and its Relationship to Identity and Teacher's Role : The Second Interview

The second interview followed the faculty development workshop and was scheduled according to each participant's convenience. During this interview I began with a general question asking participants about their experiences thus far. I wanted to be as open-ended as possible so that the participants would feel comfortable beginning the discussion with any issue that was important to them (Morse, 1994b). My aim was to explore the evolution of participants' thinking since the first interview. Also, during the second interview, at opportune moments, I reviewed with the participants my impressions of the first interview. I wanted to clarify issues that were raised to ensure that I was representing the participant accurately.

The faculty development workshop was designed to introduce participants to the rationale for curricular change to problem-based learning in medical education, and to provide hands-on activities simulating the tutorial processes in a problem-based learning environment. I kept a journal, as a reflective tool, to record my thoughts during the workshop. When possible I wrote down the participant's comments and reactions for future clarification. I made casual observances of faculty reactions and comments for the purposes of guiding my second interview, but not to include my observations as formal data. My aim was not to assess the effectiveness of the workshop. Rather, my aim was to consider the workshop as one landmark within the participants' experience of change. The intention was to continue the exploring of the evolution of participants' thinking since the first interview.

The following section of this thesis begins with participants' emerging views of administrative and political influences and its effects on their interpretation of the curricular change. This is followed by the participants' evolving views of curricular effectiveness in terms of teaching, learning, time, the teacher's identity, role and other related issues.

Views Of Curricular Change Based on Educators' Perceptions of "Administrative and Political Influences"

In the second interview the issue of "imposition" began to emerge strongly from other participants (ID1, ID2, ID4, ID5, ID6, ID7, ID8) as well. What is important is that some participants referred to these influences when reflecting on role change. It seemed that thoughts of role change were being affected by the participants' views of the "politics" of change. Most participants did not feel that they had ownership of the decision to change. This was a crucial point raised by some people.

[ID7:#2, 725-729] "If people are forced to teach this way and their fundamental opinion is that this is not the way we should be going, that they're very happy the way they've been doing things the last 30 years, we have a potential risk for a disaster here." [746-750] "... And putting people, forcing people into a tutorial system that they have virtually no commitment to or even conviction that it's going to be the way to do things is not going to work! Some people just will not adapt to that mode of teaching."

[ID1:#2, 782-799] "I mean anytime you take away someone from a traditional curriculum and put them into a new ... you transplant them, you're bound to expect some sort of animosity or concern or whatever if they haven't had a say in it. If they've had a say in it, say well this may or may not be a good idea but I made my bed so I'm going to lie in it and I'm just gonna do the best I can. I mean the whole ... they may or may not believe it's the best way to go but at least if they've had a say in it then they feel less negative..."

Consequently, some of the participants (ID1, ID2, ID4, ID5, ID6) took on the role of willing, but unconvinced participants. For example, ID6 continued to doubt the educational merits of the new curriculum, but gave the change a "benefit of the doubt."

However, ID6 still saw the change as a demand on faculty. Consequently, thoughts of role change became a secondary issue.

Researcher: "PBL is telling you something very different from what you already believe. I'm trying to see how you perceive your role as changing and why."

[ID6:#2, 1244-295] "Okay. Well if the faculty adopts a PBL model I don't have any choice in the matter. You either swim with it or ignore it and since the faculty of medicine is going to go that way, basically like it or lump it, I have to participate and put aside my disagreements and jump into it. I mean I can choose not to participate for example, but somebody from the department does have to participate. We have to pull our weight. Um so basically one way or another, if that's the faculty's decision, we have to swallow it. We can't go ... we can't say [we are] out of PBL, we'll teach it traditionally and everything else is in PBL. It's an all or none phenomenon. We've been given an ultimatum that's not ours to debate. Now yeah, ... as I pointed out, if after a year or two we see problems we will be loud and we'll consult with our colleagues. If we see their support generally, make an issue of it and if we're not getting anywhere we'll probably just retreat further and further from the PBL curriculum. In other words, if my colleagues and I feel that having made a good shot, an honest good faith attempt to participate according to the rules that others set for us ... and to be good sports, that its not succeeding by our standards, we're going to raise issue and questions about it. And if we can't succeed in having our concerns answered then we have the choice of just swallowing it and going on with the system we believe to be inferior or bailing out all together. I can't anticipate what the answer would be. But I think certainly from a personal point of view, like it or lump it, I will go on and be a member of the team. And I won't try to subvert the process because I believe it's inferior. But it also means that I've other teaching duties which I ... I'll do them my way, where I have the choice. That's the nice thing about the traditional curriculum is it is teacher-centred to the point that the teacher sets the curriculum and the style."

Clearly, ID6, as did some of the others, found solace in knowing that their teaching responsibilities were not confined to medicine; and that they could still find fulfillment in teaching courses within a more traditional setting. Similarly, ID5 also found comfort in realizing that only a part of his/her "teaching life" will be affected.

[ID5:#2, 1579-1586] "Um well, I don't think I'm going to be changing as a teacher. I'm going to be take ... changing my responsibilities in only half of my life (laughs). Half of my role as a teacher is going to stay the same way. This is only going to be in my responsibility to medical students, am I going to be doing this. Okay? But maybe it will come to all being PBL in everything down the line, I just don't know."

Regardless of how participants felt, many saw change as inevitable. It was obvious that those participants who viewed change as an imposition, tried hard to resist feelings of apathy that the circumstances engendered. ID4, for example, insisted that s/he was excited by the change, but revealed the struggle to find positives within change.

Researcher: "What do you think about when asked to make a role change to a tutor?"

[ID4:#2, 261-304] "Well, the fact that somebody has made this decision, let's say an irreversible decision, the faculty is determined to do this, and so for me ... my approach when presented with that type of situation is you don't do it or do the best that you can. So I've sort of in a sense stripped myself off from the question is this the right thing to do, is it the right time to do it, do we have the resources to do it and so my approach is it's here and how can we ... how can I maximize my effectiveness and help the students in the best way. So how I've approached it is I want to learn the skills of being a tutor and learn the skills of setting up a problem case so that when it comes our turn in this department we're quite clear in doing this. I don't have ... I'm excited by it, and I've met 4 or 5 people who participated in the practice and training sessions and who are not excited by it and are pissed off that it's happening, but I don't

think ... I mean it's happening so let's get on with it and do it. I should say that in my department people are not happy with my approach and they feel that we should be protesting and taking this to the streets and obstructing this in some way, which to me seems to be a waste of time, I mean this is a decision that's been made and for better or worse we've got to run with it."

Researcher: "Does this affect a teacher undergoing this transition?"

[ID4] "...Um, well ... it affects me ... the way I've resolved it is that this is a decision that has been made and we have to put our energies into making it work. And I don't think ... It's not going to be helpful to say well I've taught the anatomy of the small intestine better when I did it as a lecture. That's not going to be helpful. I've got to find a way within this model to get that sort of information across. I think ... my sense is that ... a change of times within a department or faculty becomes a focus for a whole lot of different agenda issues in trying to resolve long-standing conflicts and bitterness that have existed and certainly when this comes up in our own department one can see that and people who feel that they're put upon are protesting this because they're afraid that they're going to be put upon more. Actually I see it that they're probably going to be put upon less in terms of how this is eventually going to pan out for some of them, for some of them. So I think all you have to do is to accept that this is happening and go for it as best you can."

Researcher: "What do you mean by "put upon?"

[ID4] "Demands! ... Our clinical faculty feels very stretched and our academic faculty is very thin and I would say that 20% of our academic faculty are interested in the process of teaching itself. And learning! I think the remainder are interested in research. So we don't have a body of people who are going to say gung-ho this is great, we've got an opportunity to learn a new teaching technique. They're going to see it as an oppressive change."

Clearly, this change is seen as oppressive and an imposition according to ID4 and apparently others in ID4's department. The resulting attitude is that it would be futile to

complain because the decisions regarding change had been made and “for better or worse” there was no choice in the matter. The elements that emerge from this viewpoint are, first, as ID4 stated, traditional teachers felt the need to look for other ways to deliver information to students; and second, that people’s past negative experiences with administration affected the way they interpreted this change. Regarding the first issue, it seems that when teachers truly believed that it was their responsibility to deliver knowledge, regardless of the push to change roles and/or responsibilities, they instinctively directed their behaviour to comply with their beliefs. Regarding the second issue, ID4 stresses in the following quotation that one must relinquish past “political” differences if any progress toward role change will occur. Also, ID4 hints to aspects of ownership of change, indicating how mutual benefits and decision making can prevent issues of “turf”.

[ID4:#2, 339-367] “I don’t have much experience of this except that I think that there is a political struggle going on. Because I try and keep myself away from political issues and as I said earlier, oftentimes they are disguised formats for handling old issues so I try to take the fresh approach that this is where we are and this is what we have to do and try to ... and I think this political issue is coming up in other areas -- from what I’ve heard from other faculties as well.”

Researcher: “I’d like to understand how these issues affect role change.”

[ID4] “I think probably resolving these issues are ... is a process. And as people get more information and more understanding of what the process is that they will handle it better. You have to give up long-held beliefs and you have to give up issues of turf and issues of faculty who feel that, I’m not talking about my own faculty particularly, I’m just giving an example, faculty who feel that they have not received their share of goodies over the historical past in the Faculty of Medicine, and that they’re being asked to do more and more with less and less, you’re going to get an obstruction! And that is, the behaviour is obstructionism and it reflects a political conflict. Um and that’s certainly has been apparent in some of the discussion. You

have a sense that an issue is placed but there's an edge to the issue that doesn't relate to the issue itself but obviously relates to something else. And that's a part of our lives. What you need to be able to do is say that's that and this is this and you are and we're both made of a belief that that can be done and it can be done. It requires people giving up the bold stance and that's the hardest change of it all and it's relatively easy to become a proficient PBL tutor but, it's not easy to give up long standing grievances or attitudes or feelings that you've had."

From the above quotation, the view is that if "political" issues are not resolved, a focus on the role change would remain secondary. Although, ID4 commented that it would be relatively easy to become a proficient tutor without the political conflicts, there still remains unresolved the issue of beliefs about teaching and learning. The point is, however, that all of these influences during change are compounding factors which hinder a move toward a different role.

One significant category that gradually emerged was that of participants who did not support the change, even after the workshop, but did not want to be seen as antagonists or adversaries against those involved in initiating change. These participants (ID1, ID2, ID4, ID5, ID6) revealed that **(1) they did not believe in the new curriculum, but wanted to be willing participants.** Consequently, some participants went along with the change although they did not agree with its underlying epistemology.

ID5, for example, previously held the view that change was being initiated because "everybody else was doing it." ID5 continued to feel this way during the second interview, but did not want to be seen as an unwilling participant. ID5 adamantly stated his/her lack of conviction on the merits of the new curriculum by referring to change as fashion or a fad. Yet ID5 insisted to be understood as a willing participant and did not want to be seen otherwise. What was of concern to ID5 was that I, as researcher, was not detecting antagonism toward change. The point of legitimation, however, was still a strong factor in determining the effectiveness of the new curriculum.

[ID5:#1, 639-646] "Um I, ... I, ... I, ... hope that you know, there ... I hope you're not recording or detecting for any sort of serious fear in or an antagonism? No, because there there shouldn't be antagonism!"

[ID5:#2, 917-974] "Fashion, fashion, fashion! Okay, so I was ... did you notice that it sort of ... my facetious tone in my voice when I said that? All-right, so ... so this is just ... this is my facetious tone. It is it is fashion. Um and I think there is a lot of fashion involved here."

Researcher: "And these are still unresolved in your mind?"

[ID5] "I ... yes they're unresolved! Um I have not been presented with any good evidence that this is the way to go. Even if it was in a perfect world with perfect resources and everything, I'm not a passionate follower of this because it is, as I am convinced it is not a good thing to go. But I don't mind it. I'm not I'm not objecting ... rejecting. I'm, ... I'm a willing participant. But I'm not going to preach and say, this is the way to go. [But] I ... I ... I'm an enthusiastic participant! All-right! So, so you ... know! I think you ... you've got to sum me up as an enthusiastic participant! But, I am not a true disciple of the technique. I am not yet convinced, All-right!? I ... how can I be!? After a two day workshop together with the other things that I see, that we have nothing to do with the tutorial setting. I'm on [a] committee designing nine cases. You know, and the work is ... it's interesting that I would be ... I'm designing the cases for the [names topic] module and I will not according to the plan, be a tutor in them. Right? Will I? If we go along with the scheme of non-experts being tutors? So I'm designing the cases but I won't be tutoring them. But I will be designing lectures that I can ... presumably will be given." (Laughs)

[432-435] "Um you can see that I'm not absolutely converted (laughs). A man convinced against his will is but a disbeliever still. I told you that last time."

From this point-of-view, the fundamental reasons for supporting change were obligation to the institution and fairness to the process. While the issues of teaching and learning remain fundamental for those conceptually resisting change, a commitment to the workplace was a

reason for being a 'compliant' participant; although it was only in practice and not in principle. ID1 also expresses these views and effectively articulates most of the points raised thus far. ID1 touches on issues of effectiveness, time, and teaching and learning in his/her explanation indicating that role change is a complex process and that one's beliefs about teaching are firmly rooted in one's understanding of self.

Researcher: "What about the teacher? As you explained how education has evolved, how does a teacher play a role in that and now what will the teacher have to do? How does a teacher make that transition in role?"

[ID1:#2, 911-966] "Well I guess I mean the point is that if an individual and I don't know how the ... what the mechanism's going to be for recruiting people. I mean as you know there are large numbers of people that are going to be required to do these ... to act as tutors and large numbers of people making large time commitments. This is not someone who will come in you know, twice a week for one week or two weeks and that's going to be it. I mean we're talking about a major time commitment for people who are busy clinicians and busy basic scientists. So there's a problem there and I think what I'm getting to is the fact that it may turn out that people will have to be kind of ordered to do it. It'll have to be ... it may have to be imposed. And if it is imposed, then you can either fight it and do it kind of begrudgingly or as I think I do whenever I'm forced to do anything, I try to find within myself something positive about it that that can keep me going. I think it's probably very much like a performer who has to act out a role that is very, *very* foreign to them. I mean you know, someone who's worked with malicious or somebody who's very, very good or very, very evil or very, very flamboyant or whatever and the individual may well not be that way. I think for a successful performance, I think you have to find something of yourself in that character and magnify it and find a way for it to be true otherwise it will come across as unconvincing and untrue. I mean I think I ... I ... I'm not an actor, but I think that's probably what they would have to do to really bring it across. Similarly, I think if you're going to do this ... if you're forced to this job and if you're going to

sort of minimize your losses if I can put it in so ... somewhat negative terms, which I don't usually do but you know, that ... you know, being ultra, ultra pragmatic for a change I think what you would have to do is to convince yourself that there is some ... there may be some limitation to the process, any process does have limitations, but that there may be ... that there *are* some potentially good things and to try to capitalize on those. What are those good things? You know ... contact with students, making students aware of the importance of their opinions. You know, whatever it may be and to really try to foster that and these will likely be ... undoubtedly be different things than you were used to doing in your conventional teaching. And I think fundamentally all of them are important. Respecting students, asking for their opinions, making them feel comfortable ... I mean we should always do that. [190-192] I mean I know myself, and I think as you know I *do* talk to a lot of students, I encourage it, I enjoy it, it's the kind of life blood of what I do."

As many participants thought about their role as teacher within the new curriculum they revealed a deep struggle and feelings of frustration in knowing that a change so contrary to their beliefs would be imposed. For example, in describing how s/he may feel taking a role that is "foreign" to him/her, ID1 provides a powerful analogy of an actor having to act out a role that is extreme in character. An example as such reveals how deeply ID1 may be affected with aspects of change that challenge his/her beliefs about teaching and learning. ID1 attempts to search for meaning within the new curriculum but continues to find previously held beliefs about effective teaching. This becomes more evident within the context of the entire interview. It is clear that ID1, as did other participants, felt that s/he was being "forced to do this" but would try to "minimize the loses" by looking for positives within the new curriculum. However, the point of significance is that the positives are not based specifically in issues of teaching and learning, which require a change in epistemology. Rather they are based in issues of having respect for students, which ID1 indicates should always be a part of teaching. Nevertheless, ID1 remains

committed to the workplace although s/he does not agree to the change taking place and sees it as an imposition. However, in the following quotation one can see that commitment was also combined with a need to reveal the new curriculum for what it “really was.”

[ID1:#2, 1075-1175] “I mean I'm very much a believer in playing a game by the rules. I don't believe in violating rules so no matter ... and if I choose to play a game or if I'm forced to play a game I'm not gonna make a statement about my objection to the game by deliberately breaking the rules. I mean I just don't ... no that's not ... I mean I think if you're gonna play a game for whatever reason, because you want to or because you're forced to, then play the game or don't play it at all.”

Researcher: “What's the rationale for not breaking the rule within the tutorial setting? [I was referring to ID1's previous response to feeling the need to provide the students with answers during the tutorial process].”

[ID1] “To maintain consistency! Yeah, to maintain consistency and I think that's really important. And I think ... I mean I guess I respect authority, I respect order, I guess ... just in general terms. And I think that if everyone plays by the same rules, then I think that the exercise, the process will rise or fall, will stand or fall I should say, by that and therefore this will be a mechanism either whereby the system ... any, any, *any* limitation in the system can be recognized and they can be corrected or if the system just doesn't work then well that can be recognized as well. I think it's just cleaner.”

A few participants (ID1, ID4, ID5, ID8) also expressed that they would have to resist the desire to teach during the small-group sessions. ID1, however, believed that teaching (as s/he understood it) would give the students an unfair advantage, which may attribute success to a method undeserving of that attribution. Essentially then, teaching intervention was perceived to benefit students. This gave rise to the viewpoint that (2) I

will not revert to “teaching” in the small-group, even if it is more effective, because doing so will not reveal inadequacies of the new curriculum.

[ID1:#2, 1058-1196] “So I think to have everything standardized and everything a level playing field I guess is what the term that some people use. Um I'm more comfortable with that ... I mean I think consistency and not breaking the rules or following the same kind of mind set that everybody has, that they're not going to break the rules and if things tend to go bad well, they'll probably go bad for everybody. But when it comes to the examination, there won't be students who do really, really well in one section because somebody broke the rules and other students who do because somebody played ... you know ... I ... it's just not, it's just not satisfying, I think it's not right, it's not fair, it's inconsistent, and so again it just gets back to the point that if I ... if I do something, I like to do something you know, by the rules or not do it at all. [1042-1051] I'd like to [teach], but I wouldn't want to violate the process ... I wouldn't want to violate the terms because I would say that if I were to do that, that would disadvantage the other students perhaps who hadn't had ... let's say that I was an expert in the area, that would disadvantage the other students relative to my group of students. Tempted though I would be to do it, I don't think that that would be fair and I would have to force myself...”

It became obvious that ID1 remained convinced that the traditional curriculum and the teacher's role in it was far more effective than the new one. Consequently, ID1 felt that this could never be discovered if participants reverted to “teaching” within the new curriculum.

Summary

In summary, the categories that emerged within the participants' views of administrative and political influences during the change process are:

1. I still do not believe in the new curriculum, but I will be a willing participant.
2. I will not revert to “teaching” in the small-group, even if it is more effective, because doing so will not reveal the inadequacies of the new curriculum.

The Participants’ Understanding of Identity and Role as Teacher in the New Curriculum

During the second interview, the participants were asked to reflect on the meaning of teaching as they considered the new curriculum. The first step, however, was to review with each participant, the findings from previous interviews for the purpose of verification. It was crucial to not misrepresent the participants’ meanings of teaching. This way it would be easier to look for evidence of reconciliation between the participants espoused role and their thoughts of the new role of “teacher”.

This section begins with a lengthy quotation because it reveals participants’ general response to thoughts of role change. Although potentially cumbersome, long quotations are appropriate at times because they allow the reader to see the context in which the findings are made. In the quotation to follow, ID4 best reveals a powerful struggle in the process of trying to understand and reconcile his/her new role as teacher within the new curriculum. ID4’s anchor in what it means to teach causes him/her to struggle back and forth between his/her beliefs and those that challenge his/her understanding of teaching and learning. Issues of time and content expertise also emerged in ID4’s thoughts. As you will see, others also revealed similar conflicts. You may remember that ID4 had indicated in the first interview that s/he used PBL in his/her lectures.

[ID4:#2, 30-113] "... my reflection was that I have used problems in ... clinical problems as a way of teaching, it is not problem-based learning, but it's ... I've used that technique and I find that a very exciting way. As one thinks about my area of specialty and the comments that we hear from others, particularly basic scientists, a concern that continues is, is this technique of PBL going to be sufficient to give the ground new people need in basic sciences? Is it going to be sufficient to give people a handle in clinical knowledge for them to be effective in third and fourth years? So you know, it raises questions and change always raises anxiety and those are the thoughts that I've had. I'm convinced it's probably a better way. I think a lot of the faculty are going to want definitive proof that it is a better way and I don't think that that proof is there yet."

Researcher: "You said you've been practicing..."

[ID4] "Using problems."

Researcher: "Using problems but not problem-based learning?"

[ID4] "That's right."

Researcher: "Expand on that a bit."

[ID4] "Well problem-based learning as I understand it, places a lot of emphasis on students going outside of the formal structured teaching sessions, gathering more information, and having an opportunity to come back, share what they've learned and in a sense, crystallize and consolidate it. When I use problems I've got an hour and a half seminar, I use the problems to make them think in the seminar, hopefully identifying areas that they perceive as being weak, but no follow-up. It's not like the tutorials. I don't have an opportunity to see you know, how far we've come from the last one. I don't get that type of exposure to the students so ... so it's not problem-based learning in that sense."

Researcher: "So what you're saying is what you did was very much different from what you do now and what ... what you did in the prototypical week?"

[ID4] "Yes."

Researcher: "Okay, because in the first interview you said, when we were talking about problem-based learning, you talked a little bit about it and you said you'd been practicing it in your lectures by giving them case materials and conducting the seminar the way you did. Now, how is it different?"

[ID4] "In my seminars, I'm much more directive and I'm much more the expert. And so that's the way that I enter that room. And I entered the PBL tutorial room as a facilitator and not as an expert. And in the prototypical week I was talking in an area that I had to look up and work on before the sessions. And my job was really to facilitate them asking the questions of each other. And that's very different. The way that I did it before was much more this is a problem I want you to think about and it's a problem I've selected because it illustrates some points."

Researcher: "What implications does the new curriculum have on you as far as teaching goes? Because it's a little bit different from what you did. Right?"

[ID4] "Yes! Well I ... I hope it'll ... I don't know, but I would hope that it'll make me an effective PBL teacher and I think there's still obviously a role for being a good lecturer and being a good seminar leader and the other things that one does because PBL is not going to be the meaning of life! It's not going to replace everything! Um but I think it allows me to sort of ... the thing that I was mostly aware of was the empowering of the student that occurs with this process. And that has positive and negative sides to it 'cause it assumes that the student knows what they should be taught and how they should be taught, in a sense it assumes that. And that may not be the case and there may be a ... there can be appropriate times for dictatorship if it's benign. And so I still have concerns about that but that ... as people become familiar ... it's a very seductive technique and that also worries me a little bit because I ... I'm worried about being seduced at the best times; but most certainly it's a very energizing technique and one can get, certainly I noticed that in training sessions, carried away by how energizing it is and how different that is to a typical classroom. I think we still are going to need more data to show this does the job."

ID4 best reveals a powerful struggle in the process of trying to understand and reconcile his/her new role as teacher within the new curriculum. Others (ID1, ID2, ID3, ID8) also revealed similar conflicts. There are instances when ID4 feels that the change is for the better and there are times when s/he feels to the contrary. Among the more obvious concerns of time and of the teacher's role as content expert and giver of knowledge, there emerge in ID4's words feelings of apathy towards the new curriculum ("PBL is not the meaning of life"). These are critical points and have been raised by others. Also, the effective and efficient delivery of content continued to remain a strong factor for participants who valued that in their teaching.

Some (ID1, ID2, ID5, ID6, ID7) continued to hold to the belief that the lecture method was still more effective. There seemed to emerge a tension between one's espoused beliefs versus those of the workshop leaders.

Researcher: "Did the workshop address any concerns for you?"

[ID6:#2, 269-296] "It showed me that when you have a very skilled facilitator, I mean Stewart really has the personality to do it, that you can get a lot out of people and you can make the method work, although I felt that a stimulating lecturer could in an hour get across the same material that it takes three, four, five hours because they have that ability to highlight, use analogies, to get a difficult point across. So I'm still ... but I think that there's certain kinds of things ... the problem-solving process, you have to do by doing problems and so there's a role ... there's a place for problem-solving in the curriculum. There's also a place for didactic teaching and laboratory exercises and all of that. I have a feeling that the idealists seem to think that case-based learning can really take over a whole lot of things..."

Consequently, a role that completely ignored the effective and efficient delivery of content, an essential aspect of teaching for some, made participants feel that teaching was being compromised and if teaching was seen as being compromised then surely learning was too.

ID1 states it best when stating that the tutorial process in the new curriculum created excellent opportunities to teach, but realizes that tutors are not *allowed* to “teach”. Many of the participants had difficulty reconciling this. Many also felt that it was just inefficient to let the students go out on their own to learn when they could learn effectively from a teacher. These issues remain unresolved in many participants’ minds as ID1 reveals below.

[ID1:#2, 409-424] “The other thing is that I felt that there were a lot of fundamental issues that I felt could have been integrated very, very effectively in the small group session and in the topic because it really had ramifications in a number of different areas that I certainly thought would have made a wonderful opportunity to do some teaching. Like, to really say, okay, now there's some really important issues here. These are the ... You can't do that! You know, you ... so whatever you gain in terms of intimacy of the small group and being comfortable and being together and being ... well so on, you lose by having a unique opportunity to teach to give some kernels of wisdom and you can't do that! You're not supposed to be! You're not allowed to do that ... [556-563] But I guess my concern is maybe the inefficiency of learning where students will ... may spend you know, twenty hours in the library whatever and come away maybe with a mistaken impression. Now that ... maybe that's valuable if that impression can be corrected but is that really optimal use of time!?”

Similarly, when ID2 was asked the reason for designing lecture slots within the new curriculum, his/her response was that it was a necessary component in learning and that teachers possessed the knowledge that learners needed. ID2 could not understand why I asked such a question because it seemed extraordinary -- like asking someone why they had a name. This illustrates how naturally the participants held their espoused beliefs about teaching and learning. According to most participants, teaching was understood differently from facilitating.

[ID2:#2,432-440] "I'm not sure I understand your question. Is the ... if the question is why give lectures, then the answer is you still have a field to cover around the cases. You know, you still have anatomy, physiology, clinical medicine to teach related to the disciplinary block, that system you're trying to teach -- stuff that cannot efficiently be delivered in a case based system. [464-472] Well how else could you do it!? How do you ensure that all the material that you ... well you *teach* them about cirrhosis and you *teach* them about neoplasia of the liver. I think it's far ... I think it's better for the students to have somebody stand up in front of them and say these are the important things in relation to liver disease ... rather than have them floundering out there!"

Many expressed similar thoughts as to the merits of having a lecture within a PBL type curriculum. The understanding was that difficult and important concepts needed to be covered or taught by the teacher who had more knowledge than the student. All of the participants believed that the teacher was an informed person with expertise and natural teaching abilities. Most felt that teachers were needed by students for knowledge. Apparently, the workshop made the participants feel that they would have to give up these thoughts and adopt the role of a passive facilitator, which caused much concern. The facilitator was seen more as a supervisor of the tutorial process and not as a teacher who could make a meaningful contribution.

[ID5:#2, 137-203] "Oh! It [lectures] is to provide the didactic meat to which the PBL will cling, you know? It's a skeleton if you like. Skeleton for the PBL. It's not all PBL. Had you been ... were you aware of that?"

Researcher: "Can you give me an example?"

[ID5] "We worked on a case on Friday. Um it was a case of infertility. You were around weren't you? [Yes.] What is fundamental in this case of female reproduction is that there's a lot of hard stuff. All-right!? Female reproductive endocrinology is tough stuff that it's so

fundamental that it has to be given and it's hard to understand. You know it is! It really is hard, that I want to see it given as a one or two lectures. And that's what I'm saying. And another one I would give you an example would be the ... the blood supply. The anterior, the middle, and the posterior cerebral arteries and the vein. They make a lot of sense. Put together and they're fundamental, they're absolutely fundamental. I would hate to see some knowledge that is as fundamental as that slip between the cracks because it just didn't surface in the PBL group. So there ... you see this is a ... this curriculum is going to be hybrid, it's not going to be totally PBL. It's going to be a hybrid which makes me ... you know I feel very comfortable with that."

Researcher: "So what does this PBL session require of students?"

[ID5:#2, 277-292] "Well it's a responsibility for their own education. It's up to you, right? Correct? Yeah? I'm not learning ya! You're learning yourself. Right? They've got it. We are there to help ya! We are there to point ya! But if this is the way you want it, this is the way we're giving it! Yeah? I don't think that things are as simple as that. You know, they're really not. I am quite sure that in enlightened centres of learning that have the PBL system that students will come to professors to talk and be enlightened, right? Because that student knows less than the professor and then the student knows that that is so. So they'll still come for knowledge, for information, for guidance in the good old fashioned way! I'm not talking about the classroom. I'm talking about the general flow of information."

The efficient and effective use of the teacher became an important issue for most participants. For example, as revealed in the first interview, ID3 was more an advocate for the new curriculum and saw it as a necessary move to an adult-learning model. Although ID3 did not entirely hold the view that the teacher was the transmitter of all knowledge, as did some of the other participants, ID3 did not feel, after the workshop, that the PBL approach was as efficient and effective as it could be. ID3, as did all the other participants, felt that a non-intervening approach advocated at the workshop did not make sense. ID3

expressed his concerns in an irritated and frustrated tone. Again, ID3 could not reconcile his/her own beliefs of what it meant to teach and learn with what s/he experienced at the workshop. ID3 truly believed that students had to be enculturated into the role of the physician and it was the teacher's responsibility to model ways of thinking in the field of medicine. According to some participants who had previously leaned positively toward change, there was some contention. The primary reason for this was that **(1) in the new curriculum the facilitator was not a teacher but a passive facilitator or supervisor of the small-group tutorial process.** Consequently, most participants (ID1, ID3, ID4, ID5, ID6, ID7, ID8, ID10) felt this to be a challenge to their identity and to effective medical education. Facilitator was not seen as teacher in the new curriculum. Rather, participants saw themselves as passive supervisors of the group process. For example, in the quotation to follow, ID3 reveals a powerful struggle in attempts to reconcile the teacher's role within the new curriculum.

[ID3:#2, 100-123] "... in these kind of sessions [PBL] we let the students kind of do whatever the heck they wanted to do to define the problem. They could define any bloody problem they wanted, whether or not it was relevant or irrelevant. We try to keep them on the more relevant issues but I mean one of the things about it was that to let them define the problems any way they wanted and they often define way more problems than the staff had defined in the tutor manuals. Way, way more problems. And our jobs was not to dissuade them from analyzing some of these more peripheral issues if they thought were important. Whereas when I do ward teaching I mean it's much more focused on the problems as I'd see them because I ... I mean ... it ... we don't have ... I don't have the time to and they [students] don't have the time for sure because I mean what they want to do is to find the solution right now. I mean they don't have the time ... we're making ward rounds and we're sitting and discussing a patient, they don't have the time to run off to the library and run back. They just don't have that time!

They want the issue defined so they ... you may use a sort of Socratic approach, but you keep much closer tabs on the limits of the problem.”

[ID3:#2, 358-415] “I mean the main emphasis of that workshop was that we were to be as withdrawn as possible. That we were not to be active participants in the actual session. So what I'm saying is that there ... I see two ways of being active ... well there are couple of ways of being active. There may be more than two or three ways of being an active participant. The one's you cannot participate, you can be a group ... you can regurgitate the textbook. Okay? Two, you can be an active participant in that you can talk about these sort of paradigms, the ways of thinking. Three, you can be an active participant in that you can just make sure they don't get off track and that they stick to the things and they go ahead and learn all these things ... that they go ahead and collect all this information on their own. And what I see ... and so and I saw that the emphasis was more on the third way of dealing with that and where I had some difficulty was ... I mean I have no difficulty with them going ahead and defining the problems and going ahead and learning on their own, but they'd ... they don't ... where they didn't ... what they didn't get out of it then, was any sense of your experience and knowledge of the field. Again not for the facts, but for the way to think about it. Okay! And there ... that's where I find the most difficult ... that's what I find the biggest conflict in my mind as a teacher, is whether or not I ... I will just sit back in a totally passive manner or whether or not I'll deal with the environment. So what I'm not ... I'm not saying that ... no, no ... they didn't ... I'm not saying at all that they suggested there was a single way to solve the problem ... not at all. But they suggested that as a teacher, I oughtn't to be doing anything in terms of the activities and so on. I mean I was meant ... not meant to be a teacher!? I was meant to be a facilitator for the problem-based session and that's all!! And I, again, I can understand that, but I have some difficulty with that. Um because you see, I mean if that's the case, then why'd they even have a professional there? Why not just ... well why not ... why do you have anybody? Why not ... what do you ... what do you need a facilitator for? I mean what's the point of the issue? Um so I ... that ... I there ... I mean I understand the facilitator is meant to keep the issue on track, but

why not have a high school teacher!? What do you have to have a professional for!? Why would we pay for anybody to be a teacher in medical school!? I mean it doesn't make sense to me. I can understand not using the person as an expert of knowledge, but I have some trouble with dealing with you know, the sort of ... not using the scientific method. I mean why would you ... I mean why have a scientist? Why not use a social worker? I mean the paradigms for learning in social work are completely different than they are in medicine. So you know ... so presumably we use scientists because we want to draw upon their understanding of the paradigms that scientists use. But it ... you know, do you understand what I'm saying?"

[434-453] "Okay? I mean I ... that's where I have my problem. My problem was that they were talking about a facilitator of the process, rather than as a tutor. Even a tutor I can understand, I mean I can accept the issue of ... in my mind a tutor is somebody who has an idea of what the knowledge is and makes sure that that the students are going to get there in the right way. Whereas in my mind a facilitator is somebody, I mean it could be off the street, who has an understanding of group processes. You know what I mean? And who conducts good group processes and I don't suggest use someone off the street, but I mean someone who is training in the group process function. And I don't think, in my mind, that's what I was meant to do. 'Cause if I was meant to do that, why would we even want ... me!? Why wouldn't we want someone who's better trained in group processes to do it? [662-664] ...[A]nd that's what gets the tension between the facilitator and the tutor that I have some difficulty with. I can't resolve it yet in my own mind."

All of the participants compared their own beliefs about what it meant to teach with what the workshop asked them to consider and adopt. This caused much internal conflict for nine out of the ten participants. This becomes evident as participants try to reconcile their views with those of the new curriculum. For example, ID8 begins to reconcile conceptually with his/her new role, but falls back on his/her previously held beliefs that a teacher cannot just be a supervisor, but one who possess and conveys knowledge.

However, further reflection brings ID8 to reconsider his/her role as transmitter of knowledge.

[ID8:#2, 67-103] "Just identify the learning issues and you can go along with that. Just maintain some direction. But again that's (chuckles) that's not teaching to me. You know that's, just being a pal and being a time keeper and in a way that's good and I mean as I said to you initially I have concerns about getting the objectives of any particular tasks, any particular course achieved! And you start to panic after a while if you've spent two weeks going off in tangents and saying oh that's good for them because they're learning what's right and what's not and what's relevant and what's not [said with a tone of sarcasm] there's a natural tendency to crack heads and say now shut up and listen, this is what you need to know!"

Researcher: "How does that make you feel?"

[ID8] "Oh well, it's a disappointment to me you know I mean because I'm the classic teacher you know, a showoff when I get to the students and I want them to listen to the way I see things because to me that's perfectly logical. Now I admit that that's a ... from a pedagogical point of view is clearly wrong because you know, some people I listen to I can't understand even though they think they're being logical and I learn best myself from reading things not from hearing people. So it, well it's hypocritical for me to say everybody should listen to me."

Like ID8, some participants (ID1, ID3, ID4) began to show some evidence of reconciliation, but the pull from their previously-held beliefs continued to influence their thoughts. This was not surprising given that their previously held beliefs of teaching had evolved over years of teaching within a curriculum that encouraged teacher-direction, the efficient delivery of content, teacher expertise and so on. ID8 effectively summarizes this point.

[ID8:#2, 175-199] "I think [the workshop leaders] made the point very well about the difference in activities of learning as opposed to teaching. The business about writing up the characteristics in somebody who you thought was a negative influence in the tutorial group and who was a positive influence. I mean that emphasized the characteristic of individuals who're doing the learning and not the characteristics of good teaching which is a twist for me because you're normally told about all the good things a teacher does and that's been my ... well I guess the focus of what I've had to do in my position for at least a decade because we had to develop a teaching assessment guide, you know, the kinds of activities of somebody who's a good teacher would be undertaking and having teaching dossiers for the sake of promotion and tenure and so most of my theoretical thinking about teaching and learning has been on the teaching side with respect to faculty performance, not how the students are actually doing. I think that's not unique to us either; I think that's been a faculty-wide emphasis that either you're a good teacher or not and if you're not you'd learn to be a good teacher. So, yeah!"

Clearly the question of **identity** of the teacher remained a strong issue among most participants. The role of the expert was a key point raised by all the participants. Some of the participants thought that they would no longer be needed in the new curriculum because tutors were not seen as teachers as they understood the word "teacher". The thought was that anyone could be hired to be a supervisor of students' self-directed learning sessions. The second interview revealed how strong these issues really were in some participants' minds and how these issues affected thoughts of role change.

For example, ID5 expressed a feeling of relief to know that s/he was going to be needed in the new curriculum, but felt anxiety when s/he thought about tutoring in an area outside his/her expertise.

[ID5:#2, 74-76] "I ... so so I'm I'm ... quite nervous about that, All-right! About about the lack of expertise one has in issues that you're guiding. All-right!"

ID1, on the other hand, could not reconcile with the idea of tutors being non-experts in the field that they were tutoring and expressed a host of concerns, which were held by many of the other participants as well. ID1's view of teacher was framed within the person who had the expert-knowledge of a particular topic. As a result, ID1, as well as most of the others, could not find meaning in the role of facilitator who merely supervised the functioning of small-group processes, as was understood to be the case in the new curriculum. This again gave rise to the legitimacy of the new curriculum in its effectiveness to provide sound education.

[ID1:#2, 482-508] "I mean I'm ... we're told that librarians could be trained to be facilitators and do perfectly fine. So probably if a librarian has enough technical knowledge, I mean, probably I would too, but I think if a librarian does it then I think that the students would view them as more moderator than a source of knowledge. And they could probably do quite well -- 'okay now, let's formulate our objectives; now three of you are speaking at the same time, you first, you second' ... you know, they could certainly do that. Maybe better than I. But they would not be looked upon as somebody who could provide some insight. They would be looked upon as moderators. And so when people tell me that anybody can be a facilitator and you don't have to be an expert, I think that's true, but the effectiveness with which you'll be able to impart knowledge to students I don't think there's any question at all in my mind that the more you know without even having to necessarily give them the answers but to steer them in certain directions as a co-facilitator. Um I really, really have concerns about how effective non-experts can be so, therefore, I see the curriculum and it's effectiveness and the student product, if I can call it that, at the end result, as being very, very patchy."

There was a constant struggle between what the workshop leaders asked the participants to espouse and what the participants believed in. When the participants' personal identity as teacher was challenged many became defensive. After all, as revealed

during the first interview, if teaching were seen as innate and “teacher” were seen as “self”, it was not unexpected for participants to react in such ways. It was apparent that participants’ views reflected their beliefs of commitment to the teaching and learning process and their commitment to themselves and to their students. Consequently, if the participants viewed the change as an imposition, then it seemed inevitable for them to feel that **(2) the new curriculum was undermining their identity as teachers**; an identity held with professionalism, sincerity and commitment to education. ID5 expresses these points best in the following quotation which is filled with powerful thoughts and feelings that touch on identity and self-esteem.

[ID5:#2, 142-149] “I think that there was a ... this is really back to my impressions and I think Stewart Mennin is a very (laughs) ... regarded by many as being a Messiah, right? Be like me, look like me, act like me, and all will be well. Right? Now I don't buy that about anybody, all-right!! Um and I perhaps react in such a way to object. I object to being ... what? I object to being a conformant! All-right!? [189-200] ... As a teacher ... I can only wait for so long watching people go down the wrong path. And and this loving and nurturing bit [referring to PBL tutoring] is it might be one way. [It] might be one way of getting a job done. As I'm fond of saying, many, many roads lead to Damascus. Right? Now if you know what that means, right! There are many ways to go to Damascus but on this road; and I have found from my experience as a teacher, which is quite a lot longer than Stewart Mennin's by the way, that you ... there are many, many ways of getting a student to know something, to learn something, to do, and you can do it by letting the student have his own time, which it seems to be the way, this particular sermon is going ... But there are different ... better ways of doing it other than this is my way, it's the only way. Okay? [624-630] I will meet the standards to the best of your ability and I will also say, please don't try and impose techniques on me, All-right!? Please don't do that, because I'm pretty good anyway. And you need me buddy! But if that sounds defensive it's not really. Some things aren't meant to be defensive or offensive.

We're all colleagues for heaven's sake! [655-656] I've won a few prizes, all-right!. I've been nominated for a few big one's there."

Further, as ID5 began to reflect on the positive aspects of change, s/he expressed relief in knowing that basic scientists would continue to remain a necessary part of the new curriculum. A similar reaction was evident among nine of the ten participants.

[ID5:#2, 289-308] "I was left with a very, very positive impression [after the workshop]. And of course the impression was sort of stemmed from I think an anxiety that we have as [basic scientists]. That our discipline was going to be taken away. That we would lose control of our discipline. Okay? That [names discipline] would not be taught. It would not have its identity. That's a concern I had and all my colleagues did. And I think biochemists and anatomists and they all say we are losing our identity as whatever we are. I don't have that concern anymore. All-right!?"

The point is, however, that from a two participants' (ID5, ID7) viewpoints their "positive impressions" of the new curriculum did not really include education per se, but their alleviated concerns of not being needed anymore. However, the satisfaction of feeling needed did not negate the struggle between the participants' beliefs about teaching and learning and their understanding of the teacher's role in the new curriculum.

[ID1:#2, 231-295] "Well because it's the way I think teaching is most effective [referring to the teacher's role in the traditional curriculum]. Obviously! I mean I think my role as a teacher is to glean whatever experience I can from my studies, from my experience, from my reading, from my thinking about things in a way that [the students] couldn't possibly have because they ... I've been at it twenty or thirty years more than they have. Um that's my role as a teacher! I mean to ... my role of a teacher is not disciplinarian, to keep everybody quiet in class and to

give them homework like ... you know. It is to give them something of myself, something of my journey through knowledge and my journey through the particular discipline. And if I've gained some insights, in this area, why keep them to myself? If I'm a teacher isn't it my role, isn't it my responsibility to impart that to them? I mean how can I not? So again, my inability to do that or the constraints with which I'm able to do that I think is one of the things that I find difficult ... would find difficult in the PBL session. But of course if there's no PBL constraints, if I can be a teacher ... be a real teacher!, be a conventional teacher ... whatever you want to call it, be my kind of teacher I guess, then obviously, I mean there'd be no question."

Like ID1, most participants found it challenging to relinquish their understanding of the role and responsibilities of teacher as it existed in the traditional curriculum. This was particularly evident of those who considered teaching as innate (ID1, ID2, ID6, ID7, ID8). It is from this viewpoint that ID1 expresses such dedication to teaching and "knows" how to teach "effectively". Many (ID1-ID8) expressed their feelings of obligation to do what they had been entrusted to do, that is, educate students the best way possible; and among most participants, teaching as *they* understood it *was* the best way; it had served and was recognized by their university for a long time.

Nine of the participants expressed a commitment to engaging the students and exciting them about the material that they taught, not just supervising small-group process. In this light the PBL curriculum was seen as a constraint to being a "real teacher". As a result many found it difficult reconciling with the new role of tutor within a new curriculum.

A few participants (ID1, ID2, ID5, ID8) also raised an important concern that **(3) graduates of the new curriculum would compromise patient safety**. ID8 says it best when s/he describes the view that if students are not "taught" certain medical conditions they may harm patients.

[ID8:#2, 448-485] "I mean I'm sure I made this point before, I'm essentially worried about standards, I'm worried about standards in the community and I don't want graduates taking three or four years after medical school to find out what's really important. They need to come out of medical school knowing what are critical important conditions and how to recognize them."

Researcher: "I'm sensing that your understanding of PBL tells you that they might not come out ... [ID8 interrupts]"

[ID8] "I'm worried that they won't, I'm worried that they won't! I think probably 10 years down the track everybody's pretty much the same, I mean the people who come out of very traditional schools where they've never had a chance to think for themselves, in you know maybe 30% of their class would be relying on information from 10 years ago and therefore potentially dangerous but I think the majority of graduates from whatever school, I mean look at me, I come from what's traditional as can be, but I figured out before I graduated that they're not gonna tell me. I mean I have to learn to figure this out and so did most of us. You know we realized this before we graduated, you know the more time obviously you've got to teach yourself the better it is but you know also, some things that I can't realize unless I'm told by the time I graduate. You know I might figure them out 5 years later and by that time I might have killed somebody. So you know that's what I mean by standards and a community expects that we will graduate physicians who are safe in the vast majority of clinical situations, I'm worried that PBL might not give you that."

There was a genuine concern expressed among these participants (ID1, ID2, ID5, ID8) that if students graduated without having had the opportunity to learn critical health care concepts from the teacher, as they would have in the traditional curriculum, then the teacher would have done irreparable harm to the community of medicine. The teacher's responsibilities, as these participants understood it, extended beyond the students, it involved responsibility to the community whom their students would treat as physicians. There was a feeling that if the teacher did not do his/her job and the students were allowed

to graduate, it would be too late to turn back. Again, the legitimacy of the new curriculum was being challenged.

[ID8:#2, 515-526] "See somebody asked that, I forget who they asked, whether it was Bob or, and got a fudged answer. A fudged answer! And that disappointed me, because it was exactly what I wanted to know, how do you know that these basically self-taught kids taught themselves the right stuff? I mean it's the paternalism that won't go away. So the minute that they graduate and they put on the gown ... I've lost them! I've lost them!"

ID1 had similar concerns and debated with the issue of not telling students what they needed to know. ID1 feared that students would have gaps in their knowledge that would lead to incompetent physicians.

[ID1:#2, 508-563] "I think that there will be many and they talk about the Swiss cheese effect, you know, that these gaps and these holes and people say well, it's more the approach that's important. It doesn't really matter if you don't know all of these things as long as you have a general approach. Well that's fine, but I think if you happen to be a person who has a disease but you're being ... and you're being treated by someone who doesn't know much about the disease or who missed a diagnosis or whatever, well then I think it does become important. And whether or not he's approaching the problem diagnosis appropriately, he or she, they may not arrive at a prompt diagnosis such as well this is a potentially urgent situation. You've got to be referred you know, or I think this could be potentially urgent ... it will be -- well let's you know, let's do some tests and let's see where it ... Do you understand? You know what I'm saying? So I think those are some of the of the concerns that I have. The inconsistency I guess of the curriculum. I also have a lot of difficulty in knowing just how well the students can be evaluated. I know that there was a lot of time talking about evaluation in this workshop but you know I really wonder because it's not as much factual-based as approach-based, how do you

examine if that's gonna be the main things ... problem-solving. I mean sure you can examine people, you can have problem-solving questions on the exam but there has to be a factual basis before you can solve problems. Maybe the facts can be provided and maybe you can test problem-solving, but I would think that that would be much more difficult than factual examinations, which doesn't mean it's not important, it's actually probably more important than seeing if they happen to remember facts which to some extent they could look up in books. So I mean it's a real balance. But I guess my concern is the inefficiency of learning where students will ... may spend you know, twenty hours in the library whatever and come away maybe with a mistaken impression. Now that ... maybe that's valuable if that impression can be corrected but is that really optimal use of time? [627-630] I forgot who it was that said a little knowledge is a dangerous thing. I think that that this comes through very, very clearly or could come through in these sessions."

As evident from the above quotation, teachers who expressed a defined view of the role of teacher as someone who provides students with factual knowledge that can be tested through formal assessment by examination (ID1, ID2, ID5, ID6, ID7), found it difficult envisioning the assessment of student competency within the new curriculum. This created a fear among the teachers of graduating incompetent students into the community of medicine.

Summary

The emergent views in this section are interrelated in a significant way. In the first, the facilitator was not to use his/her clinical or discipline-based knowledge as tutor, which had an important effect on the second view. The consequence of losing the significant role of teacher to that of passive facilitator/supervisor was an erosion of professional identity. Facilitating as a tutor was seen primarily as a supervisor of the tutorial process. This was even more critical for those who closely equated their professional identity to personal

identity. This led to the third view, where the conclusion reached is that the compromise of the traditional teacher's role and the erosion of the teacher's identity would lead to the compromise of student competency and patient safety.

As the participants considered their role in the new curriculum they inevitably referred to their previous beliefs about the nature of knowledge and their related role and responsibilities within it. The new curriculum did not fit within the traditional view of knowledge as an objective, independent entity to be taken and stored within human memory. The key relationship between the teacher and content had now changed to learner and learning as a point of departure. As a result, viewing the new curriculum from the position of the traditional one created conflict in the understanding of the teacher's identity and role in relation to learning outcomes. Consequently, many issues remained unresolved in participants' minds. Without specifically revisiting all of the unresolved issues that emerged within the first interview, the following views dominated the second interview:

1. In the new curriculum the tutor was not seen as a teacher, but a passive facilitator or supervisor of the tutorial process.
2. The new curriculum undermined the teacher's identity.
3. The new curriculum would potentially compromise patient safety due to the education of incompetent physicians.

SUMMARY OF FINDINGS

This section of chapter 4 summarizes all the findings of this study in a concise manner -- describing the participants' experience and interpretations of curricular change and its effects on identity and role as teacher.

To begin with, during the participants' journey through the initial process of curricular change emerged their conceptions of its *effectiveness*. This theme gave rise to the other categories. Conceptions of curricular effectiveness were described both negatively and positively, in terms of the following dimensions:

Negative dimensions

- There is nothing really wrong with the traditional curriculum, so why change;
(ID1, ID2, ID5, ID6, ID7)
- There is no evidence that PBL is better than the traditional curriculum;
(ID1, ID2, ID4, ID5, ID6, ID7, ID8)
- UBC is changing its medical curriculum because other schools are doing it, otherwise there is no need to change;
(ID1, ID2, ID5, ID7, ID10)
- If there are things wrong with the traditional curriculum, then there are better ways to fix it than PBL;
(ID1, ID2, ID5, ID6, ID7)

Positive dimensions

- The new curriculum reflects a change to a much needed adult-centred learning environment;
(ID3, ID9)
- The traditional curriculum is taught using lectures; lectures alone are ineffective;
(ID3, ID4, ID8, ID9, ID10)
- Change is good, because the traditional curriculum is not improving the quality of medical education.
(ID3, ID4, ID8, ID9, ID10)

These dimensions were related to participants' deeply held beliefs about knowledge, teaching, learning and evaluation. Their beliefs, in turn, were found to be closely and personally related to their perceived identity as teacher in the traditional

curriculum and their accepted role and responsibilities within it. In other words, participants used what they already knew and had come to believe about knowledge, teaching, learning, and evaluation as a starting point for interpreting the curricular change. Therefore, participants made meaning of the new curriculum within their understanding of the traditional one. Obviously, this gave rise to tension and frustration, mainly because the participants were, in essence, beginning to try to fit a *square peg into a round hole*. Essentially, then, the participants were being faced with disparate expectations.

Second, and very crucial, was the finding that any attempt to understand the participants' viewpoints cannot preclude their views about teaching and learning. The crux of this thesis is captured in participants' *views about teaching and learning*. Teaching and learning are complex phenomena. Evidently, teachers have varied understanding of what it means to teach and to learn and what roles and responsibilities they hold as teachers. Others have also discovered this to be the case (Pratt, 1992; Fox, 1983; Entwistle, 1981; Cf. Halkes and Olson, 1984). The participants had been teaching in a university setting for a minimum of twenty years, which grounded their beliefs about knowledge and their roles as teachers within their teaching specialties. Their experience from within the more traditional curriculum directed their thoughts about the various aspects of curricular change and their own role and position within this process. From the participants' perspectives they did not just teach, they taught a content or process of solving problems, as well as ways of thinking. The teachers' content expertise, along with relationships with other teachers, students, administrators, department heads, etc., was central to their identity as teachers. Identity emerged as an important aspect in influencing the interpretation of curricular change. The identity of each participant as teacher gave rise to the following dimensions within the category of views about teaching and learning:

Positive Dimensions

- I am a *natural* teacher and have innate teaching abilities;
(ID1, ID6, ID8)

•A good teacher can take difficult concepts and make them easy to understand;
(ID1, ID2, ID4, ID5, ID6, ID7, ID8)

•Content expertise is a critical component in what it means to teach.
(ID1, ID2, ID4, ID5, ID6, ID7, ID8, ID10)

Negative Dimensions

•In the new curriculum the tutor is not a teacher, but a passive facilitator or supervisor of the process;
(ID1, ID3, ID4, ID5, ID6, ID7, ID8, ID10)

•The new curriculum undermined the teacher's personal identity;
(ID1, ID5, ID7, ID8)

•The new curriculum would potentially compromise patient safety due to the education of incompetent physicians.
(ID1, ID2, ID5, ID8)

To dismiss the way the participants think and feel about curriculum, teaching, and learning as egocentric, or epistemologically unsophisticated would ignore the historical and developmental nature of people's social realities. This study showed that teachers become who they are by the complex interactional processes that help guide the formation of their understandings of what it means to teach. This means that their past experiences as learners, their commitment to the mission of the institution within which they have taught, their interactions with other teachers, learners, administrators, and society, all provide teachers with internal and external directions for functioning in their world. It became evident that most of the participants were 'evolutionary' proponents of the traditional curriculum. In other words, participants had "grown up" in the traditional curriculum, in that they had been educated by it and are now educators within it. As a result, they defended it from the point of view of their beliefs in its effectiveness.

For one group of participants (ID1, ID2, ID5, ID6, ID7), knowledge was primarily seen as a commodity possessed by the teacher and transmittable to the student. In addition, greater emphasis was placed on teaching than on learning; not because learning was insignificant, but because it was seen as a natural outcome of teaching. In this case, teachers judged their credibility and effectiveness by being able to transmit their knowledge

to students and answer questions knowledgeably, which meant that they had to know their content or subject matter as experts.

For another group, the primary responsibility of the teacher was to help students understand the connections between basic science and clinical practice (ID3, ID4, ID8, ID9, ID10). These teachers saw their credibility stemming from their ability to *teach* students to apply content knowledge in a clinical setting. Their primary role was to enculturate (bring into the domain of practice) students into the practice of medicine. However, this view did not entirely preclude the previous one, where transmission of content was a key factor. Most of these teachers also valued the transmission of knowledge in predictable ways and students were immediately accountable for reproducing what was learned. Both groups' experiences of change were interpreted as having to give up their espoused roles and responsibilities to adopt a new one, which in most cases was seen as conflicting. Reconciliation was difficult because the legitimacy of change was not recognized and the teacher's identity was seen as being compromised. Consequently, nearly all of the participants felt that the new curriculum was essentially asking them to abandon their content and abandon a crucial responsibility to learners and to their future patients. Obviously, it became difficult to just ignore personal beliefs about the 'truth' in what it means to teach and learn. Again, this gave rise to a conflict that forced the participants to try and fit a square peg into a round hole.

Third, as the participants continued to reflect on the curricular change and the issue of effectiveness, a parallel concern emerged in their conception of how much time would be involved. The issue of *time* permeated the participants' views about teaching and learning, and their conceptions of the commitments that would be required to plan, implement and sustain the new curriculum. Concerns about time began to appear as participants first began to consider how they would be affected by the new curriculum, as *they* saw it. The following are dimensions of their conceptions of time involvement.

Only Negative Dimensions
(ID1, ID2, ID4, ID5, ID6, ID7, ID8)

- In the new curriculum there will be no time to do other things;
- Time and resource commitments required for the new curriculum are enormous;
- Time to teach and to learn will increase in the new curriculum;

As participants envisioned the commitments required of them in the new curriculum, it was not unusual for them to draw from their experiences within the traditional curriculum -- the source from which most participants made meaning of change. The new curriculum was seen as incredibly time consuming. It was seen as an obstacle to fulfilling the various responsibilities the teacher already had, i.e., lecturing in other courses and sustaining research endeavours. Also, the conception of time to teach and to learn took on a different meaning in the new curriculum. In the traditional curriculum the professor was viewed as one who possessed the knowledge that the students needed and it was the professor's responsibility to deliver that knowledge to the student. Time was set aside for this to occur. From most participants' points-of-view this configuration was efficient, effective and logistically sound. Clearly, this foundation upon which many of the participants had established their teaching was seen in contradiction with their understanding of what the new curriculum entailed in terms of time commitment.

Fourth, to compound already complicated matters, many participants felt that they were being compelled to adopt the new curriculum, regardless of their genuine concern with its effectiveness. There was little or no feeling of ownership, thus creating an antagonistic perspective between participants and the initiators of the new curriculum. Clearly, thoughts of role change were being affected by participants' views of the "politics" of change. The participants' conceptions of *administrative and political influences* gave rise to the following dimensions within this category:

Only Negative Dimensions

- The process of curricular change is undemocratic;
(ID1, ID2, ID4, ID5, ID6, ID7, ID8, ID10)

•The medical education system, including the new curriculum, perpetuates the interests of those with decision-making power;
(ID4, ID10)

•The new curriculum is an imposition on the faculty;
(ID1, ID2, ID4, ID5, ID6, ID7, ID8, ID10)

•I still do not believe in the new curriculum, but I will be a willing participant;
(ID1, ID2, ID4, ID5, ID6)

•I will not revert to "teaching" in the small-group, even if it is more effective, because doing so will not show the inadequacies of the new curriculum.
(ID1)

Viewing curricular change in the above ways can create tensions during the change process. If participants did not see their involvement as effecting the outcome of change, then they were likely to resist it. Participants demonstrated the struggle of reconciling their perceived role as teacher, responsibility to education, and responsibility to the institution--their employer.

Finally, the participants' points-of-view reveal that that they too were *learning*. They were learning about a new curriculum, a different way to teach, and a radically different philosophy of what it means to "know" about "medicine" to "become" a "physician." A conflict arose because the participants sincerely believed that they already "knew" how to teach students to "learn" to "become" doctors. They understood that they had been doing it for many years and "producing" competent doctors. What is more important is that they worked in a curriculum that had supported this process all this time. There was a tension then, between pressures to conform to new expectations and giving up old ones that were guided by personal beliefs. Identity and role conflict emerged from disparate expectations. In other words, many of the participants were uncomfortable in complying with expectations of the administrators of change, especially when these expectations were contradictory with their own and were thought to be forced upon them. This, inevitably, gave rise to a role conflict. Were they to be suddenly told that their efforts of 20 years or more were insignificant? How were they to "believe" this? Clearly, the participants' conceptions of the *reality* of education, its "true" nature, was in conflict with those of the initiators of the new curriculum. This created a power struggle, but not so

much for control over change as for control over one's firmly held beliefs about the *truth* in what was effective education.

I have summarized the key thought processes that emerged from this study with the aim of understanding and describing how people explain significant phenomena around them (Marton, 1984). Describing the participants' ways of looking at their educational world helped to understand that people act not on what *we* think to be the 'objective' characteristics of situations, but on *their* interpretations of situations (Cf. Saljo, 1988, p. 36). This means that people live in a symbolic environment wherein the world is not as it is, but as people see themselves in it. As this study revealed, the participants interpreted aspects of the new curriculum in ways that fit their understandings of themselves within a world of education (i.e., curricula, teaching, learning, evaluation, administration, etc.) that they had inherited, worked and lived in for over 20 years. This was a natural thing to do (Saljo, 1988). Hence, the world is created in the minds of those who interact with it in ways relevant to them. Consequently, when faced with disparate expectations, participants encountered a clash between their beliefs and those implicit in curricular change.

Chapter 5

DISCUSSION

In this chapter I will explore the link between the findings of this study and 1) faculty development; and 2) institutional aspects of conceptualizing, planning, developing and implementing curricular change. The aim of this discussion is to suggest how the research findings offer different ways to consider faculty development, faculty involvement, and institutional responsibilities when considering a major curricular change. The findings will be examined in relation to literature specific to *change* that help provide a better understanding of this thesis.

The Consequence of Disparate Expectations

Tension seems inevitable when faculty are expected to adopt roles and responsibilities as teachers, researchers and employees that are perceived as mutually exclusive. Expectations that are perceived to be mutually exclusive have a greater tendency to arise during times of change (Kuhn, 1970), which was evident in this study. For example, there is no doubt that faculty developers, administrators and teachers all express commitment to “effective” education. However, people may not share a common understanding of what “effective” means. What is believed to be held as “effective” education likely is based on one’s epistemology or convictions about knowledge, teaching, learning and assessment. These convictions become critical when one is confronted with issues that are contrary to one’s beliefs. Pratt (in press) states that when our notions of truth, authority and evidence come into conflict with others’ ideas or opinions, especially in matters where we hold strong convictions or values, the clash can have serious consequences. Moreover, if change is not perceived to be an improvement, it will be more difficult to implement (Kuhn, 1970). This has become increasingly evident in curricular

reform movements in education (Brown, 1990; Olson, 1980; Resnick, 1987a; Sparks, 1988; Woods, 1992).

What seems to have been problematic for most participants in this study is their perceptions of disparate expectations regarding their role and responsibilities as teacher. From the standpoint of education, disparities seem inevitable when people do not fully realize that they hold varied understandings of what it means to teach and learn "effectively". This finding suggests that adopting PBL without ensuring proper faculty preparation could inhibit a successful curricular change (Cf. Holmes and Kaufman, 1994; Maxwell and Wilkerson, 1990; Wilkerson and Maxwell, 1988). Essentially, the findings suggest that reform agents cannot disregard teachers' perspectives of change. Future research and faculty development must address this more appropriately; that is, from the points-of-view of the educators who will participate in a changing curriculum. Approaching change from educators' perspectives creates a more informing environment for them, which may reduce their perceived disparities when considering the legitimacy of change. This study concurs with research in higher education (Dall'Alba, 1991; Fox, 1983, Larsson, 1983; Hand, 1993; Holt and Johnston, 1989; Martin and Balla, 1991; Menges and Rando, 1989; Munby, 1982; Oberg, 1970; Olson, 1980; Pintrich, 1990; Pratt, 1990, 1992; Samuelowicz and Bain, 1992; Zahorik, 1977) that conceptually supports the conclusion that it is crucial to explore curricular change from teachers' perspectives of what change means to *them*.

However, what has been predominant at UBC, and in many other schools (Cf. Kaufman, 1985; Kaufman, 1994), is that faculty development, whether during times of change or otherwise, focuses on primarily prescriptive aspects of teaching rather than involving faculty in exploring their conceptions of teaching (Bowden, 1987; Oberg, 1986; Olson, 1980; Pratt, in press). The faculty development workshops to introduce PBL are usually task-centred, with an emphasis on immediacy and application (Cf. Kaufman, 1994). Faculty development approaches must provide opportunities for teachers to reflect

critically on their professional actions, beliefs and role as teacher (Oberg, 1986) to prevent conflict between disparate expectations. The aim should be to facilitate a deeper understanding of the meaning and intent of teaching and learning in this process, rather than just the *act* of teaching or tutoring. If teachers do not believe that a role change will achieve desired outcomes, they will ultimately resort or digress to a role that is more consistent with their beliefs (Apps, 1982, 1989; Lancaster and Lancaster, 1982; Munby, 1982; Olson, 1980; Pratt, in press; Prawat, 1992; Zahorik, 1977, 1986).

Compounding the issue of disparate expectations are other issues. For example, one critical component of role conflict, also alluded to in this study, is having to function in an academic environment that holds disparate expectations between research and teaching (Cf. DePaola, 1994; Howell and Matlin, 1995). This is apparent especially when the emphasis on one expectation (e.g., teaching responsibilities) is seen to compromise another (e.g., research) (Biddle, 1979). The conflict arises when the compromised expectation (i.e., research endeavours) determines professional advancement (e.g., promotion and tenure). This type of situation places people in a "double bind" (Berger, 1978), thus hindering role resolution. Undoubtedly, if the structures of academia remain contrary to expectations advocating change, then change may understandably be resisted. Accordingly, the initial reaction of those faced with such disparities may be to resolve role conflict by falling back on previously held beliefs and behaviours, where meanings and responsibilities are not only clearer, but do not threaten promotion and tenure. Academic institutions that create disparate expectations of their faculty, even unconsciously, must revisit their academic mission and philosophy. For example, if both commitment to teaching and research are considered equally important, then one cannot undermine the other.

Affecting Role Change: Challenges

Role conflict emerges easily, especially during times of change when it is likely that differences in beliefs about the legitimacy of change become more evident between those advocating and those resisting change. This study revealed that it is difficult for teachers to abandon beliefs about education that are held to be important to them. In their work on conceptual development and curricular change, Patriarca and Buchmann (1983) also found that a failure in reform efforts occurs when issues that are held to be sacrosanct are not addressed adequately during the process of change. This is influenced heavily by the perceived need for change and the benefits that might result from becoming involved in it (Creedy and Hand, 1994; Wilkerson and Maxwell, 1988). For example, teachers who understand teaching as within a transmission model may not find meaning in a curriculum where the teacher no longer determines what, how and when learning occurs, since this responsibility now belongs to the student. Yet literature on PBL does not address how teachers are to find meaning in their role as tutors, regardless of the fact that the beliefs of faculty tutors in a problem-based curriculum will reflect their willingness to adopt this curricular renovation (Apps, 1982; Ben-Peretz, Katz and Silberstein, 1982; Bernstein, Tipping, Bercovitz and Skinner, 1995).

Monson and Pahl (1991), in their work examining effects of significant change in language education, found that reform that requires a new way of thinking about education "is no easy feat, particularly if one has experienced success with the transmission belief system and practices" (p. 53). These authors suggest that faculty development must focus on a developmental, "growth orientation" toward change rather than a "corrective orientation." In other words, change should be approached as a constructive phenomenon where change is created and evolves out of collective efforts. Change will be more likely to succeed if teachers are involved actively in the process.

According to Woodward and Bucholz (1987) people tend to react in specific ways when experiencing organizational change. The authors identify these reactions as

disengagement, disidentification, disorientation, and disenchantment. These reactions can have negative effects on role change. The authors say that those experiencing change may begin to experience feelings of disengagement, thus losing the motivation and interest in their work. Specifically, they may gradually withdraw from active involvement and become disengaged. In this thesis, a similar reaction was evident among those who began to see change as an imposition and concluded "I don't believe in it, but will be a willing participant." Such a reaction cannot preclude feelings of disengagement, thus influencing successful role change.

Another reaction that people experience is disidentification. As the term suggests, this involves experiencing a loss of self-identity. Those experiencing change may experience feelings of loss with something or someone they could identify. For example, in this thesis, teachers who identified teaching from a certain perspective experienced this loss when they were asked to adopt a different meaning of "teacher"; in the case of PBL "teacher" became "facilitator" -- something with which some participants could not identify. The experience of disorientation is also not uncommon during times of change. Here people experiencing change cannot find where they may fit into the organization after change has occurred. The organization's goals and priorities are not understood and become confusing and distant. A lack of involvement with the process of change is likely to contribute to disorientation. Lastly, Woodward and Bucholz (1987) indicate that a major consequence compounding these matters is the reaction of disenchantment. In this situation those experiencing change feel angry and frustrated, feelings that were not uncommon among some of the participants in this thesis. These feelings must be resolved if any progress is expected. Although all these reactions may be normal during times of change, they must be dealt with and overcome for a successful evolution of change to occur. One way to deal with this is by viewing change from an educative perspective. This requires change agents to introduce change in ways that are constructive and conducive to learning about it.

It is suggested, therefore, that the process of change be seen as educative. Although the learning curve may be steep, the experience should enrich those undergoing change in ways that provide different viewpoints of seeing their world. In this regard effective educative practice for introducing change requires, first, understanding the experiences of those to be affected by change. This helps to clarify concerns that may be shared by those initiating change and those being affected by it. Common concerns need to be addressed collectively and representative groups need to be involved in suggesting and implementing solutions. An educative approach may reduce reactions of disidentification, disengagement, disorientation, and disenchantment.

Faculty Development: Changing One's Meaning of Teaching

Teaching techniques intending to help change teaching practice(s) continue as one of the prominent aspects for faculty development in health science education (Bowden, 1987; Hitchcock, Stritter and Bland, 1993). With the advent of PBL, tutor training workshops have also focused primarily on tutors' behaviours and tutoring techniques, while precluding the underlying epistemology that forms the foundation for suggested behaviours and techniques. What is significant, however, is that by focusing primarily on the *acts* of teaching, or tutoring, as advocated in traditional faculty development (Cf. Barrows, 1988; Des Marchais, 1990; Holmes and Kaufman, 1994; Moust, 1993; Moust, De Grave, and Gijssels, 1990), faculty are exposed only to a limited set of prescriptive behaviours thought to be characteristic of "good teaching" (Bowden, 1987; Kaufman, 1985; Zahorik, 1986). Yet, if different teachers are asked to identify what is good teaching, it is likely that responses will be based on a divergence of perspectives (Pratt, in press). What is important is that one's perspective of teaching will reflect how one thinks and what one does as a teacher, which will limit how "teaching" and "learning" are viewed. Consequently, personal beliefs of teaching and learning will determine how and what teachers learn from faculty development programmes (Dall'Alba, 1991; Fox, 1983,

Larsson, 1983; Hand, 1993; Holt and Johnston, 1989; Martin and Balla, 1991; Menges and Rando, 1989; Munby, 1982; Pintrich, 1990; Pratt, 1990, 1992; Samuelowicz and Bain, 1992; Zahorik, 1977, 1986). These issues raise questions about the prescriptive approach to faculty development. What may be lacking in faculty development is the exploration of what is *meant* by "teaching" and "learning" and how curricular change agents ask educators to consider a different way of thinking about these issues.

Consequently, the point of departure for faculty development should be teachers' perspectives of teaching, learning, evaluation, and curricula. This approach may be critical in uncovering the roots of resistance to change, especially when change is contrary to teachers' beliefs about education.

Faculty development cannot ignore the *meaning* teachers ascribe to their world (Holt and Johnston, 1989; Lester and Mayher, 1989; Oberg, 1986; Olson, 1980). This is supported strongly by the findings of this study. Lasting change in teaching practices can occur only when one has a different understanding of what it means to learn and teach (Bowden, 1987; Holt and Johnston, 1989). Focusing primarily on prescriptions of "good" teaching makes a critical assumption that everyone understands what is meant by good teaching. Since this appears not to be the case, changing teachers' ways of looking at their world will require the teachers themselves to undergo a learning process. This process should involve critical reflection, discussion and constructive debate to accompany the process of teaching new educational techniques (Bowden, 1987; Creedy and Hand, 1994).

The idea of promoting meaningful change can be considered from Mezirow's (1991) theory of *transformational learning*. This theory asserts that learning, in its most profound sense, must result in a critical change in ways of understanding, whether this is immediate or evolutionary. He called this the "transformative learning" process. In other words, learning must reshape people in clearly recognizable ways, such that one can never go back to previous ways of looking at things. Viewing the world to be flat versus round is one obvious example. Mezirow (1991) argues that habits of expectation, which he calls

“meaning perspectives,” play a central role in the learning process. Essentially, one’s belief system functions as a lens through which experiences are interpreted. As such, his theory asserts that people’s ways of experiencing a phenomenon are guided by the ways they make meaning of things. An important point in understanding Mezirow is that he views knowledge as a creation of the mind, as opposed to that which exists independent of one’s perception of it. Consequently, “reality” is viewed from an interpretivist perspective, such that it (reality) is a construction of the human mind within a social environment. In other words, people’s behaviours are guided by their interpretations and understanding of their social worlds and not by an unbiased, independent, “objective” reality (Popkewitz, 1984; Saljo, 1988). Consequently, from a perspective of learning, which is instrumental to understanding teachers and role change, emerges the idea that people have a natural tendency to create a protective cover around them during times of change. This cover controls what enters, regardless of its merits, because that which is permitted to enter most likely coincides with something of the self that can be justified, grasped, and judiciously handled to provide workable options for functioning in the world. This means that people will interpret and act on situations based on their world-view. Naturally, then, people may resist change that asks them to consider different views. This raises implications not only for faculty development, but also for administering organizational strategies for curricular change.

The predominating view of teaching and learning in North America, especially in science education at all levels of schooling, positions the development of people’s critical thinking abilities at its centre (Anderson, 1992; Pratt, in press). This view of teaching and learning has been coined the *developmental perspective* (Pratt, in press), and is based on Constructivist Theory (Kelly, 1955; Driver and Oldham, 1986; Mezirow, 1990, 1991). The idea of “constructs” (Kelly, 1955) places individuals as active agents who anticipate future events and act on these anticipations. The premise is that learners see what they study through a set of lenses which they have constructed from prior experience.

Therefore, what is learned is very much dependent upon prior knowledge. Learning, in this sense, transcends rote memorization, thus moving from superficial approaches to content toward deeper, more meaningful approaches. Essentially, new knowledge is constantly integrated within prior knowledge, like everlasting pieces of a puzzle. However, the pieces do not always fit perfectly. Opportunities must be created to negotiate continually better attempts at a better fit. As a result, learning and cognitive development give rise to increasingly sophisticated ways of thinking about and applying what is learned (Cf. Arseneau and Rodenburg, in press). Learning moves from being seen as a change in the quantity of one's knowledge toward a change to qualitatively better ways of thinking and applying content (Cf. Marton, 1981, 1983; Ramsden, 1987). This has significance for the tutor's role in PBL.

The primary role of the teacher in a small-group PBL situation then, changes from a passive facilitator or janitor of group processes to a co-inquirer (Pratt, 1992) who constructively challenges learners' existing conceptions within a framework supporting different ways of thinking (Anderson, 1992). Essentially, the traditional teacher and the passive tutor move away from their role as either strict transmitter of knowledge, or the tutorial supervisor, to a role of *bridge builder*. The aim of the bridge builder is to support students in creating opportunities to move from one way of thinking to qualitatively "better" ways (Marton, 1988). As a result, the teacher's goal is to assist learners in changing their conceptions (Lybeck, Marton, Stromdahl and Tullberg, 1987; Marton and Ramsden, 1987). Consequently, the learners' (not teacher's) perspectives provide the point of departure for bridge building. PBL is one tool to allow bridge building (Dolmans and Wolhagen, 1992), and within it the teacher must play a critical part in the educational process and occupy a necessary position within a curriculum (Aoki, 1986, 1992).

The scope of this discussion, however, is not to provide a prescription for faculty development, but to introduce different ways of thinking about it as suggested by the findings of this study and by the literature on education. Suffice it to say that Marton and

Ramsden (1987) and Pratt (in press), among others (Bowden, 1987; Marton and Saljo, 1976; Lybeck, Marton, Stromdahl and Tullberg, 1987; Oberg, 1986), provide helpful suggestions of teaching strategies to facilitate conceptual change. However, since this topic begs the question, "how does one help teachers to change their conceptions or points-of-view of teaching?", a few thoughts on this may be appropriate. The answer to this question may lie in the art and science of *teaching* people to consider different conceptions of a phenomenon (Martin and Balla, 1991; Marton and Ramsden, 1987; Marton and Saljo, 1976). Research in higher education suggests that changing one's conceptions is best achieved using a developmental model of teaching (Cf. Arseneau and Rodenburg, in press; Bowden, 1987; Lybeck, Marton, Stromdahl and Tullberg, 1987; Saljo, 1988). The effectiveness of the developmental model stems from considering the learner's conceptions as starting points for teaching. This view also mirrors the methodological approach to this research, which asserts that knowing how things look from others' points-of-view can help to understand how and why they think the way they do (Marton, 1988). This is critical for advancing learning (Cf. Ramsden, 1987). As such, it is argued that aspects of curricular change, faculty development and organizational responsibilities must all occur from the faculty's perspectives or their points-of-view. Instituting change from teachers' perspectives enables them to be involved in forming their mental "constructs" (Kelly, 1955) of anticipating change (Cf. Creedy and Hand, 1994; Oberg, 1986; Olson, 1980). For example, participants of this study who construe curricular change as an imposition by administration will make different predictions of change and will act differently from those who see change as necessary or inevitable. Similarly, those who construe teaching abilities as inherent qualities will act differently from those who see it as something that is learned and evolving. Understanding teachers' constructs can be useful in curricular change and faculty development because these constructs provide a comprehensive picture of the beliefs behind teacher practice. These beliefs are then available for critical examination by the teacher and open up the possibility of improving teacher practice (Oberg, 1986, p. 64).

Administrative Management of Change: Creating a Better Framework

Fein (1990) states that although a person's role and role change are influenced by a combination of internal and external factors, the more central a role is to a person's identity the more difficult it is to change. However, what is important, notes Fein, is that if the external push to change is seen as an imposition or coercion, then it is likely that resistance will be greater. Given the potential forces that affect change, administration needs to choose effective change management strategies. Those who have investigated and written about renovative and innovative organizational change suggest that if change is to be successful, change agents should consider the significant involvement and empowerment of all those likely to be affected by change (Dalton, 1970; Lewin, 1958; McLaughlin and Kaluzny, 1990; Ritchie, 1974). All those involved in change should have the opportunity, in one way or another, to make important contributions to the process. In this way, there is a collective responsibility for success and for shortcomings.

Ritchie's (1974) study of the participation process during change concluded that various criteria mediate the effect of participation of those affected by change. Each criterion was said to be "manageable" by administration. Ritchie states that participation will be influenced by participants' perceptions of the effects of their involvement on the outcome of change. Here Ritchie explains that if decisions concerning various aspects of change have already been made and that people were supposed to merely approve it by "rubber stamping", then resistance to change is highly likely, even if the decisions are agreeable to them. The point is that people need to see themselves as making a real difference and not just going through the motions.

The second criterion is that participation will be influenced by participants' perceptions of due recognition as a result of their contribution. In other words, influencing the process of change must be accompanied by seeing change as valuable -- that which will benefit them and the organization. Clearly, in this thesis, participants saw change as a competing phenomenon, not only in epistemology, thus the effectiveness of change, but

also in disparate expectations of teaching and research. As a result, participants questioned the legitimacy of change.

Third, participation is greatly influenced by feelings of legitimacy. Ritchie (1974) found that participants will resist change if they feel that they are being used to advance others' motives at the expense of something that they believe in. This was evident in this thesis, where the legitimacy of change was seen to preclude benefits to students, the public, and the teachers themselves. A lack of meaningful involvement (Dalton, 1970) forced participants to construct their own conceptions of change and its potential outcomes. As a result, what may have been intended by change agents was very different from what was perceived by those affected by change.

Lastly, Ritchie found that people's perceived differences of "social status" influenced participation. For example, this study revealed that the basic science teachers suggested that their involvement was being seen as unnecessary and less worthy when compared to the clinical teachers. Ritchie (1974) found an inverse relationship between one's social position within an institution and effective participation during change. In this thesis, for example, social distance was also alluded to when some participants expressed concern of being needed as teachers in the new curriculum. There was an implied tension between the basic scientists and the clinicians. Ritchie's criteria reflect some of the findings of this thesis. The conclusion that Ritchie draws is that these criteria and their outcomes are controllable or manageable by administration through the creation of a "culture of innovation," where collective involvement creates an evolutionary need for change.

Lewin (1958), on the other hand, based on his "force field analysis" strategy of change, posits that there are certain forces that influence the direction of change. He calls these "restraining forces" and "driving forces." Lewin finds that change can be effected by either decreasing restraining forces, increasing the driving forces, or doing both. However, each decision is consequential. For example, if the decision is to increase the driving force of change, there is the possibility of creating an equal but opposite reaction

from the resisting forces. Considering this thesis, it seems that the push to increase the driving force of change was greater. What is important, however, is that even if the driving forces overpower the resisting ones, it may be at the expense of the effectiveness of change. One reason for this may be the "I won, you lost" phenomenon. It is argued that the "losers" may eventually resist cooperation as change progresses. Lewin suggests that it is more sensible to work at reducing the restraining forces during change by turning them into driving forces. Again, the best way to do this is through encouraging the active involvement of those affected by change. In addition, self-esteem of those required to change cannot be compromised. Therefore, appropriate social support systems and internal motivation to change are principle factors for predicting effective participation. Thus, decisions regarding change need to be a joint effort of all those involved.

Institutions considering change need to consider these issues even if change has already been instituted. It is never too late to involve people in decision making processes because this can create opportunities for them to revisit their beliefs and expectations, but this time from a more constructive orientation. For those just beginning to consider curricular change, it may be beneficial, if not necessary, for teachers to be actively involved (Elliot and Ebbut, 1983) in conceptualizing, planning, developing and implementing aspects of change. However, this may be impracticable given a large faculty, thus calling for the involvement of faculty representatives.

Gundlach (1994) states that "[s]taff development practitioners should seize the opportunity to think of new ways of reshaping their organizations and their vital roles to invite greater flexibility, responsiveness, and increased value added" (p. 120). She suggests that reshaping must consider two aspects: 1) the effects of the structure of organizations and its influence on people's behaviour and interactions; and 2) the facilitation of role change within a reflexive environment. The essence of these ways of considering reshaping of organizations lies in the creative ability of people to "shift gears quickly" in a world where the only constant is change. In such a world, the success of

organizations is greatly dependent upon its structure. If people within an organization are to learn to adapt to change, then organizational structures must be conducive to that learning. Gundlach suggests that a centralized, formalistic organizational structure inhibits learning, and that hierarchical systems that *rank* instead of *link* (emphasis in original) people exclude a collaborative environment that is so crucial within organizations. Collaborative environments are more conducive to change because decision making powers are shared.

In a world of constant change, adapting to challenges requires solutions that do not rely solely on structures and functions of the past (Gundlach, 1994; Revans, 1980; Woodward and Bucholz, 1987). Problems of the future will require new ways of thinking, and the creative ability to discover new approaches to solutions. However, this is only possible if people are encouraged to develop within environments that are progressive, not only in instituting change, but, perhaps most importantly, in creating empowering environments that critically and constructively welcome change.

Recommendations

1. Create opportunities for representative faculty from different departments to discuss issues of the legitimacy of change so that change is not a negative experience.
2. Involve professional educators in planning and discussing change with faculty and administration.
3. Both basic science and clinical teachers should be encouraged to work together in planning and implementing change.
4. Provide sufficient opportunities, through faculty forums, for example, for representative groups to develop consensus on the goals and objectives of curricular change throughout its evolution.

5. All faculty should be apprised of progress in planning, development and implementation throughout phases of change (Newsletters, etc.), and opportunities with administrators and other change agents should be made available for discussion and clarification.
6. Students should not be excluded from advisory committees, after all, they too will have their own conceptions of change, and of “good” teaching and learning.
7. Throughout different phases of change, provide opportunities for faculty to explore and reflect critically on educational theories that give rise to various strategies for teaching that enhance self-directed, problem-solving learning environments.

Future Research and Concluding Remarks

This study opens various possibilities for further research that may enhance our understanding of educators’ experiences of change and its effects on their educational environment. First, there is no doubt that choice of research methodology may play an important role in investigating educators’ experiences of various aspects of change. Inductive research approaches can provide valuable insight into how and why educators behave the way they do during change. Research in the area of faculty development has indicated that teacher development programmes do not consider the connection between educators’ beliefs and their teaching practice (Kaufman, 1994; Menges and Rando, 1989; Munby, 1982; Oberg, 1986; Prawat, 1992; Zahorik, 1986). Inductive approaches are a good way to discover teachers’ beliefs. The following list provides relevant research ideas within the context of health sciences education and curricular change:

1. Investigate, more specifically, the similarities and differences between conceptions of teaching held by basic science and clinical educators and how these conceptions affect their experience of curricular change.
2. Initiate a longitudinal study to explore the outcomes of implementing faculty training programmes that emphasize the relationship between beliefs about teaching and learning and changes in teaching practice.
3. Explore how educators' conceptions change over time and the steps involved in changing conceptions, especially when there is a curricular change that requires the consideration of a different conception of teaching than educators hold.
4. Investigate the relationship between faculty and student perspectives of 'effective' teaching/learning methods that enhance learning transfer.
5. Investigate the perspectives of administration during times of change and the relationship between their management of change and those affected by change (i.e., faculty, department heads, students, etc.).

This study set out to explore and describe the phenomenon of medical educators' experience of curricular change to case/problem-based learning and its relationship to their identity and role as teacher. This kind of exploration appears to have been lacking in the literature on PBL. From this study it was discovered that educators held various conceptions of the legitimacy of change. These conceptions emerged through the exploration of educators' sense of place in the curricular change. This study revealed how educators experienced, explained and dealt with change, and how they framed their experience to make sense of it. As such, this study found how at times educators resisted change, how they supported it, and shifted ground within it. Consequently, emergent conceptions revealed how and why the educators found it problematic legitimizing the new curriculum. Although the findings of this study cannot be generalized to all phases of the

evolution of this curricular change, the findings help to identify the possible reasons for educators' resistance or acceptance of change at initial points within its evolution.

Change is a constant aspect of evolution and along the way we must continually learn how to improve our understanding of the complex interactional processes that occur with others, and even with our own cognition, for at the heart of successful adaptations to change is perhaps the creative reflection on the reciprocation between oneself and one's environment.

REFERENCES

- Abrahamson, S. (1992) Good planning is not enough. In D. Boud and G. Feletti (Eds.), *The challenge of problem-based learning* (pp. 59-71). London: Kogan Page.
- Agar, M. (1980) *The professional stranger: An informal introduction to ethnography*. (pp. 156-157). New York: Academic Press.
- Albanese, M.A., Mitchell, S. (1993) Problem-based learning: A review of literature on its outcomes and implementation issues. *Academic Medicine* 68:52-81.
- Anderson, J.R. (1983) *The architecture of cognition*. Cambridge, Massachusetts: Harvard University Press.
- Anderson, O.R. (1992) Some interrelationships between constructivist models of learning and current neurobiological theory, with implications for science education. *Journal of Research in Science Teaching* 29(10):1037-1058.
- Aoki, T. (1986) Teaching as in-dwelling between two curricular worlds. *The BC Teacher* 65(3)
- Aoki, T. (1992) Legitimizing lived curriculum: The other curriculum that teachers in their practical wisdom know. Annual Conference of the Association for Supervision and Curriculum Development. New Orleans, Louisiana.
- Arseneau, R. (1993) *Demise of the traditional curriculum: Throwing out the baby with the bath water*. Presentation: Department of Medicine, St. Paul's Hospital. Vancouver, BC.
- Arseneau, R., Rodenburg, D. (In press) Developmental perspective of teaching. In D.D. Pratt and Associates, *Five perspectives on teaching in adult and higher education*. Malabar, FL: Krieger Publishing.
- Armstrong, E.G. (1991) A hybrid model of problem-based learning. In D. Boud, and G. Feletti (Eds.), *The challenge of problem-based learning* (pp. 137-149). London, UK: Kogan Page.
- Apps, J.W. (1982) Developing a belief structure. In C. Kelvins (Ed.), *Materials and methods in adult and continuing education* (pp. 25-32). Los Angeles: Klevens Publications.
- Apps, J.W. (1989) Foundations for effective teaching. In E.R. Hayes (Ed.), *Effective teaching styles* (pp.17-27). New dimensions for continuing education, No. 43. San Francisco: Jossey-Bass.
- Babbie, E.R. (1992) *The practice of social research*. Belmont, CA: Wadsworth.
- Bailey, D. (1991) Facilitator not teacher: A role change for tutors in open learning nursing education. *Journal of Advanced Nursing* 17:983-91.
- Barrows, H.S. (1985) *How to design a problem-based curriculum for the pre-clinical years*. (pp. 3-21). New York: Springer Publishing.

- Barrows, H.S. (1988) *The tutorial process*. Springfield, Illinois: Southern Illinois University, School of Medicine.
- Barrows, H.S., Tamblyn, R. M. (1980) *Problem based learning: An approach to medical education*. New York: Springer Publishing Co.
- Beatty, E.M. (1987) Understanding concepts in social science: Towards an effective evaluation strategy. *Instructional Science* 15(4):341-59.
- Beck, C.T. (1992) The lived experience of postpartum depression: A phenomenological study. *Nursing Research* 41(3):166-70.
- Bell, F.A., Hendricson, W.D. (1993) A problem-based course in dental implantology. *Journal of Dental Education* 57(9):687-95.
- Benner, P. (1984) *From novice to expert*. Menlo Park, CA: Addison-Wesley Publishing Co.
- Ben-Peretz, M., Katz, S., Silberstein, M. (1982) Curriculum interpretation and its place in teacher education programmes. *Interchange* 13(4):47-55.
- Berger, M.M. (1978) *Beyond the double bind*. New York: Brunner/Mazel.
- Berger, P.L., Luckman, T. (1967) *The social construction of reality: A treatise in the sociology of knowledge*. New York: Doubleday.
- Bernstein, P., Tipping, J., Bercovitz, K., Skinner, H.A. (1995) Shifting students and faculty to a PBL curriculum: Attitudes changed and lessons learned. *Academic Medicine* 70(3):245-47.
- Biddle, B. (1979) *Role theory: Expectations, identities and behaviours*. New York: Academic Press.
- Bigge, M., Shermis, S. (1992) *Learning theories for teachers*. New York: Harper Collins Publishers Inc.
- Bogdan, R.C., Biklen, S.K. (1982) *Qualitative research for education: An introduction to theory and methods*. Boston: Allyn & Bacon.
- Boud, D., Feletti, G. (Eds.) (1992) *The challenge of problem-based learning*. London: Kogan Page.
- Boud, D., Walker, D. (1990) Making the most of experience. *Studies in Continuing Education* 12(2):61-80.
- Bowden, J. (1987) Achieving change in teaching practices. In P. Ramsden (Ed.), *Improving Learning: New Perspectives* (pp. 255-67). London: Kogan Page.
- Boyd, M.A. (1993) Curriculum focus: Traditional care dental education confronts... *Journal of Dental Education* 57(5):340-42.
- Branda, L.A. (1990) Implementing Problem Based Learning. *Journal of Dental Education* 54 (9):548-49.

- Bredderman, T. (1983) Effects of activity-based elementary science on student outcomes: A quantitative synthesis. *Review of Educational Research* 53:499-518.
- Brink, P.J. (1987) On reliability and validity in qualitative research. *Western Journal of Nursing Research* 9(2):157-59.
- Bryman, A. (1983) The debate about quantitative and qualitative research: A question of method or epistemology? *The British Journal of Sociology* 35:75-92.
- Brown, J.S. (1990) Toward a new epistemology for learning. In C. Frasson and G. Gauthier (Eds.), *Intelligent tutoring systems: At the crossroads of artificial intelligence and education*. Ablex, Norwood, New Jersey.
- Bryant, R. (1994) *Ethical issues encountered by dentists in the care of institutionalized elders*. Masters Thesis. Department of Clinical Dental Sciences, The University of British Columbia.
- Burns, N. (1989) Standards for qualitative research. *Nursing Science Quarterly* 2:44-52.
- Chenitz, W.C., Swanson, J.M. (1986) *From practice to grounded theory*. Menlo Park, CA: Addison-Wesley.
- Chickering, A.W., Gamson, Z.F. (Eds.) (1991) Applying the seven principles for good practice in undergraduate education. *New Directions for teaching and learning*. Jossey-Bass
- Chinn, P.L., Kramer, M.K. (1991) Nursing theory: An examination of the concept. In P. Chinn and M.K. Kramer, *Theory and nursing: A systematic approach*. St. Louis: Mosby
- Clark, C.M. (1988) Asking the right questions about teacher preparation: Contributions of research on teacher thinking. *Educational Researcher* 17(2):5-12.
- Cobb, A.D., Hagemaster, J.N. (1987) Ten criteria for evaluating qualitative research proposals. *Journal of Nursing Education* 26(4):138-43.
- Coles, C.R. (1990) Evaluating the effects curricula have on student learning: Towards a more competent theory for medical education. In Z. Nooman, H.C. Schmidt, and E. Ezzat, (Eds.), *Innovation in medical education*. (pp. 76-85). New York: Springer Publishing Co.
- Creedy, D., Hand, B. (1994) The implementation of problem-based learning: Changing pedagogy in nurse education. *Journal of Advanced Nursing* 20:696-702.
- Creedy, D., Horsfall J., Hand, B. (1992) Problem-based learning in nurse education: An Australian view. *Journal of Advanced Nursing* 17(6):727-33.
- Crocker, R.K. (1984) The functional paradigms of teachers. *Canadian Journal of Education* 8(4):350-61.
- Dall'Alba, G. (1991) Foreshadowing conceptions of teaching. *Research and Development in Higher Education* 13:293-97.

- Dalton, G.W. (1970) Influence and organizational change. In A.R. Negandhi (Ed.), *Modern organizational theory*. Kent, Ohio: Kent State University Press.
- Darby, M. (1985) Linking theory to research: Foundation of a profession. *RDH* 5(1):10-15.
- Davis, W.K., Nairn, R., Paine, M.E., Anderson, R.M. (1992) Effects of expert and non-expert facilitators on the small group process and on student performance. *Academic Medicine* 67:470-74.
- De Corte, E. (1977) Some aspects of research on learning and cognitive development in Europe. *Educational Psychology* 12(2):197-206.
- Denzin, N.K., Lincoln, Y.S. (Eds.) (1994) *Handbook of qualitative research*. Thousand Oaks, CA: Sage.
- DePaola, D.P. (1994) Higher education and health professions education: Shared responsibilities in engaging societal issues and in developing the learned professional. *Journal of the American College of Dentists* 61(2):34-39.
- Des Marchais, J. (1990) The involvement of teachers as problem-based learning tutors in the new Sherbrooke programme. *Annals of Community Oriented Education* 3:35-54.
- Des Marchais, J., Bureau, M., Dumais, B., Pigeons, G. (1992) From traditional to problem-based learning: A case report of complete curriculum reform. *Medical Education* 26:190-99.
- De Volder, M., De Grave, W. (1989) Approaches to learning in a problem-based medical programme: A developmental study. *Medical Education* 23:262-64.
- Diers, D. (1979) *Research in nursing practice*. Philadelphia: JB Lippincott.
- Driver, R., Oldham, V. (1986) A constructivist approach to curriculum development in science. *Studies in Science Education* 13:105-22.
- Dolmans, D., Wolhagen, I. (1992) Workshop programme evaluation: Exercises. In Learning through problems and assessing students: Opportunities and limitations. Maastricht, the Netherlands.
- Eagle, C.J., Harasym, P.H., Mandin, H. (1992) Effects of tutors with case expertise on problem-based learning issues. *Academic Medicine* 67(7):465-69.
- Edwards, J.C. (1990) The problem-based curriculum at Bowman Gray School of Medicine. *Academic Medicine* 65(6):363-64.
- Eisner, E.W. (1981) On the differences between scientific and artistic approaches to qualitative research. *Educational Researcher* 10:5-9.
- Eisner, E.W. (1991) *The enlightened eye: Qualitative inquiry and the enhancement of educational practice*. Toronto: Collier Macmillan.
- Elliot, J., Ebbut, D. (1983) *Action research into teaching for understanding: A guide to the TIQL project*. Schools Council Publications. Longman, London.

- Entwistle, N., Marton, F. (1984) Changing conceptions of learning and research. In F. Marton, D. Hounsell, and N. Entwistle (Eds.), *The experience of learning* (pp. 211-228). Edinburgh: Scottish Academic Press.
- Ernest, P. (1989) The knowledge, beliefs and attitudes of the mathematics teacher: A model. *Journal of Education for Teaching* 15(1):13-33.
- Fein, M.L. (1990) *Role change: A resocialization perspective*. New York: Praeger Publishers.
- Feletti, G.I., Carver, S.T. (1989) The new pathway to general medical education at Harvard university. Office of Educational Development, Harvard Medical School, *Teaching and Learning in Medicine* 1(1):42-6
- Fetterman, D.M. (1988) Qualitative approaches to evaluating education. *Educational Researcher* 17(8):17-23.
- Field, P., Morse, A. (1985) *Qualitative methods in nursing research*. Edmonton: University of Alberta.
- Friedman, C.P., deBlik, R., Greer, D.S., Mennin, S.P., Norman, G.R., Sheps, C.G., Swanson, D., Woodward, C.A. (1990) Charting the winds of change: Evaluating innovative medical curricula. *Academic Medicine* 65(1):8-14.
- Fox, D. (1983) Personal theories of teaching. *Studies in Higher Education* 8(2):151-64.
- Gibbs, G., Morgan, A., Taylor, E. (1982) A review of the research of Ference Marton and the Goteborg group: phenomenological research perspective on learning. *Higher Education* 11(2):123-45.
- Giorgi, A. (1986) Status of qualitative research in the human sciences: A limited interdisciplinary and international perspective. *Methods* 1(1):29-62.
- Glaser, B.G. (1978) *Theoretical sensitivity: Advances in the methodology of grounded theory*. Mill Valley, CA: Sociology Press.
- Glaser, R. (1982) Instructional psychology: Past, present and future. *American Psychologist* 37:292-305.
- Glaser, R. (1990) The reemergence of learning theory within instructional research. *American Psychologist* 45:29-39.
- Glaser, B.G., Strauss, A.L. (1967) *The discovery of grounded theory: Strategies for qualitative research*. Chicago: Aldine.
- Goetz, J., LeCompte, D. (1984) *Ethnography and qualitative design in educational research*. NY: Academic Press.
- Goodwin, L.D., Goodwin, W.L. (1984) Qualitative vs. quantitative research or qualitative and quantitative research? *Nursing Research* 33(6):378-80.
- Goldman, L. (1989) The revolution in education. *Educational Theory* 39:47-61.
- Gross, N. (1991) *Implementing organizational innovations*. New York: Basic Books.

- Guba, E.G. (1990) The alternative paradigm dialog. In E.G. Guba (Ed.), *The paradigm dialog* (pp. 17-27). Newbury Park, CA: Sage.
- Guba, E.G., Lincoln, Y.S. (1981) *Effective evaluation*. San Francisco: Jossey-bass.
- Guba, E.G., Lincoln, Y.S. (1986) Naturalistic inquiry. In M.J. Dunkin (Ed.), *International encyclopedia of teaching and teacher education* (pp. 147-151) Oxford: Pergamon Press.
- Gundlach, A. (1994) Adapting to change: Reconsidering staff development organization, design, and purpose. *The Journal of Continuing Education in Nursing* 25(3):120-22.
- Halkes, R., Olson, J.K. (Eds.) (1984) *Teacher thinking: A new perspective on persisting problems in education*. The Haag: Swets and Zeitlinger.
- Hand, B. (1993) *Constructivist approaches to teaching and learning in a secondary school science department*. Ph.D. thesis. Curtin University, Western Australia.
- Hardin, R.M., Swoden, S., Dunn, J.R. (1984) Educational strategies in curriculum development: The SPICES modes. *Medical Education* ,18(4):284-97.
- Heisenberg, W. (1971) *Physics and beyond*. New York: Harper and Row.
- Heliker, D. (1994) Meeting the challenge of the curriculum revolution: Problem-based learning in nursing education. *Journal of Nursing Education* 33(1):45-7.
- Hewson, P.W., Hewson, M.G. (1989) Analysis and use of a task for identifying conceptions of teaching science. *Journal of Education for Teaching* 15(3):191-209.
- Hill, D. (1992) SCORPIO: A system of medical teaching. *Medical Teacher* 14:37-41.
- Hitchcock, M., Stritter, F., Bland, C. (1993) Faculty development in the health professions: Conclusions and recommendations. *Medical Teacher* 14:295-309.
- Holmes, D.B., Kaufman, D.M. (1994) Tutoring in problem-based learning: A teacher development process. *Medical Education* 28:275-83.
- Holt, L., Johnston, M. (1989) Graduate education and teachers' understandings: A collaborative case study of change. *Teaching and Teacher Education* 5(2):81-92.
- Howell, H.T., Matlin, K. (1995) Damn the torpedoes -- Innovations for the future: The new curriculum at the Harvard School of Dental Medicine. *Journal of Dental Education* 59(9):893-98.
- Huberman, A.M., Miles, M.B. (1994) Data management and analysis methods. In N.K. Denzin. and Y.S. Lincoln (Eds.), *Handbook of qualitative research*. (pp. 428-444). CA: Sage.
- Iran-Nejad, A. (1990) Active and dynamic self-regulation of learning processes. *Review of Educational Research* 60:573-602.

- Iran-Nejad A, McKeachie W.J., Berliner D.C. (1990) The multisource nature of learning: An introduction. *Review of Educational Research* 60:509-16.
- Irby, D. (1994) What clinical teachers in medicine need to know. *Academic Medicine* 69(5):333-42
- Jacox, A.K., Webster, G. (1992) Competing theories of science. In L.H. Nicoll (Ed.), *Perspectives on nursing theory*. Toronto: Little, Brown.
- Jonas, H.S., Etzel, S.I., Barzansky, B. (1989) Undergraduate medical education. *Journal of The American Medical Association* 262:1011-019.
- Jones, S. (1985) Depth interviewing. In Walker, R. (Ed.), *Applied qualitative research*. Brookfield, VT: Gower.
- Kantrowicz, M., Kaufman, A., Mennin, S., Fulop, T., Guilbert, J.J. (1987) Innovative tracks at established institutions for the education of health. (Offset Publication No. 101) World Health Organization, Geneva, Switzerland.
- Kaufman, A. (Ed.) (1985) *Implementing problem-based medical education: Lessons from successful innovations*. New York: Springer Verlag.
- Kaufman, D. (1994) Preparing faculty as tutors in problem-based learning. In W. A. Wright (Ed.), *Successful faculty development: Strategies to improve university teaching*. Boston, Massachusetts: Anker Publishing Co., Inc.
- Kaufman, A., Mennin, S., Waterman, R., Duben, S., Hansburger, C., Silverblatt, H., Obenshain, S.S., Kantrowicz, M., Becker, T., Samet, J., Wiese, W. (1989) The New Mexico experiment: Educational innovation and institutional change. *Academic Medicine* 64(6):285-94.
- Kelly, G. A. (1955) *The psychology of personal constructs*. New York: Norton.
- Kuhn, T. (1970) *The structure of scientific revolutions* (2nd Ed.) Chicago: The University of Chicago Press.
- Kimmel, P. (1992) Abandoning the lecture: Curriculum reform in the introduction to clinical medicine. *The Pharos* Spring:36-8.
- Kratochwill, T.R., Levin, J.R. (Eds.) (1992) *Single-case research design and analysis: New directions for psychology and education*. Hillsdale, NJ: Erlbaum.
- Krefting, L. (1991) Rigor in qualitative research: The assessment of trustworthiness. *The American Journal of Occupational Therapy* 45:214-22.
- Lancaster, J., Lancaster, W. (1982) *The nurse as a change agent*. St. Louis: C.V. Mosby.
- Larsson, S. (1983) Paradoxes in teaching. *Instructional Science* 12(4):355-65.
- LeCompte, M.D., Goetz, J.P. (1982) Problems of reliability and validity in ethnographic research. *Review of Educational Research* 52(1):31-60.

- Leininger, M. (1985) Nature, rationale and importance of qualitative research methods in nursing. In M.M. Leininger (Ed.), *Qualitative research methods in nursing* (pp. 1-25) Orlando, FL: Grune & Stratton
- Lester, N.B., Mayher, J.S. (1987) Critical professional inquiry. *English Education* 19(4):198-210.
- Lewin, K. (1958) Group decision and social change. In Macoby, Newcomb, and Hartley (Eds.), *Readings in social psychology*. (pp. 197-212). New York: Holt Rinehart, and Winston.
- Lincoln, Y.S. (1990) The making of a constructivist: A remembrance of transformations past. In E.G. Guba (Ed.), *The paradigm dialog* (pp. 67-87). Newbury Park, CA: Sage.
- Lincoln, Y.S., Guba, E.G. (1985) *Naturalistic Inquiry*. San Francisco: Jossey-Bass.
- Lortie, D.C. (1975) *Schoolteacher: A sociological study*. Chicago: University of Chicago Press.
- Lybeck, L., Marton, F., Stromdahl, H., Tullberg, A. (1987) The phenomenography of the "mole concept" in chemistry. In P. Ramsden (Ed.), *Improving Learning: New Perspectives* (pp. 178-198). London: Kogan Page
- MacKenzie R.S. (1980) Curriculum considerations for correlating basic and clinical sciences. *Journal of Dental Education* 44 (5):248-56.
- Martin, E., Balla, M. (1991) Conceptions of teaching and implications for learning. *Research and Development in Higher Education* 13:298-303.
- Marton, F. (1981) Phenomenography -- describing conceptions of the world around us. *Instructional Science* 10:177-200
- Marton, F. (1983) Beyond individual differences. *Educational Psychology* 3(3-4):289-303.
- Marton, F. (1986) Phenomenography -- a research approach to investigating different understandings of reality. *Journal of Thought* 21(3):28-49.
- Marton, F. (1988) Phenomenography: Exploring different conceptions of reality. In D.M. Fetterman (Ed.), *Qualitative approaches to evaluation in education: The silent scientific revolution* (pp. 176-205). New York: Praeger
- Marton, F., Ramsden, P. (1987) What does it take to improve learning? In P. Ramsden (Ed.) *Improving Learning: New Perspectives* (pp. 268-286). London: Kogan Page
- Marton, F., Saljo, R. (1976) On qualitative differences in learning: Outcome and process. *British Journal of Educational Psychology* 46:4-11.
- Maxwell, J.A., Wilkerson, L. (1990) A study of non-volunteer faculty in a problem-based learning curriculum. In Research in Medical Education. *Academic Medicine* 65 Supplemental (September):S13-S14.

- McAuley, R.A., Woodward, C.W. (1984) Faculty perceptions of the McMaster M.D. programme. *Journal of Medical Education* 59:842-43.
- McLaughlin, C.P., Kaluzny, A.D. (1990) Total quality management in health: Making it work. *Health Care Management Review* 15(3):7-14.
- Menges, R.J., Rando, W.C. (1989) What are your assumptions? Improving instruction by examining theories. *College Teaching* 37(2):54-60.
- Mezirow, J. (1990) How critical reflection triggers transformative learning. In J. Mezirow (Ed.), *Fostering critical reflection in adulthood: A guide to transformative and emancipatory learning*. (pp. 1-19). San Francisco: Jossey-Bass.
- Mezirow, J. (1991) *Transformative dimensions of adult learning*. San Francisco: Jossey-Bass.
- Miles, M.B., Huberman, A.M. (1994) *Qualitative data analysis: An expanded sourcebook* (2nd edition) Newbury Park, CA: Sage.
- Mishler, E.G. (1990) Validation in inquiry-guided research: The role of exemplars in narrative studies. *Harvard Educational Review* 60:415-41.
- Monson, R.J., Pahl, M.M. (1991) Charting a new course in whole language. *Educational Leadership* March:51-3.
- Morse, J.M. (1986) Qualitative research: Issues in sampling. In P.L. Chinn (Ed.), *Nursing research methodology: Issues and implementation* (pp. 181-193) Rockville, MD: Aspen.
- Morse, J.M. (1991) Strategies for sampling. In J.M. Morse (Ed.), *Qualitative nursing research: A contemporary dialogue* (pp. 127-145). Newbury Park, CA: Sage
- Morse, J.M. (1994a) Going in "blind." Editorial. *Qualitative Health Research* 4(1):Feb:3-5.
- Morse, J.M. (1994b) "Emerging from the data": The cognitive processes of analysis in qualitative inquiry. In J.M. Morse (Ed.), *Critical issues in qualitative research methods* (pp. 23-43). Newbury Park, CA: Sage
- Moust, J.H.C. (1993) On the role of tutors in problem-based learning: Contrasting student-guided with staff-guided tutorials. Ph.D. thesis. University of Maastricht, Netherlands.
- Moust, J., De Grave, W., Gijssels, W. (1990) The tutor role: A neglected variable in the implementation of problem-based learning. In Z. Nooman, H.C. Schmidt, E. Ezzat, (Eds.), *Innovation in medical education*. (pp. 135-151). New York: Springer Publishing Co.
- Moust, J.H.C., De Volder, M. L., Liu, H.J.P. (1989) Peer Teaching and higher level cognitive learning outcomes in problem-based learning. *Higher Education* 18:737-42.

- Muller, S. (1984) Physicians for the twenty-first century: Report of the project panel on the general professional education of the physician and college preparation for medicine. *Medical Education* 59:Part 2.
- Munby, H. (1982) The place of teachers' beliefs in research on teacher thinking and decision making, and an alternative methodology. *Instructional Science* 11(3):201-25.
- Neidle E.A. (1986) A paradigm of failure. *Journal of Dental Education* 50 (8):455-57.
- Neufeld, V.R., Barrows, H.S. (1974) The "McMaster philosophy": An approach to medical education. *Medical Education* 49:1040-1050.
- Nietzsche, F.W. (1969) *On the genealogy of morals*. Translated by W. Kaufman and R.V. Hollingdale, New York: Vintage Books
- Norman, C. (1989) Problem solving skills versus problem-based learning. McMaster University Faculty of health Sciences. *Pedagogue--Perspectives on health sciences education* 1-4.
- Norman, G.R., Schmidt, H.G. (1992) The psychological Basis of problem-based learning: A review of the evidence. *Academic Medicine* 66:380-89.
- Oberg, A. (1986) Using construct theory as a basis for research into teacher professional development. *Journal of Curriculum Studies* 19(1):55-65.
- Olson, J.K. (1980) Teacher constructs and curriculum change. *Journal of Curriculum Studies* 12(1):1-11.
- Patel, V.L., Groen, G.J., Norman, G.R. (1991) Effects of conventional and problem-based medical curricula on problem solving. *Academic Medicine* 66:380-89.
- Patriarca, L.A., Buchmann, M. (1983) Conceptual development and curriculum change: Or is it rhetoric and fantasy? *Journal of Curriculum Studies* 15(4):409-23.
- Patton, M.Q. (1987) *How to use qualitative methods in evaluation*. Newbury Park, CA: Sage.
- Patton, M.Q. (1990) *Qualitative evaluation and research methods*. (2nd edition) Newbury Park, CA: Sage.
- Petrie, H.G. (1981) *Dilemma of inquiry and learning*. University of Chicago Press: Chicago.
- Pintrich, P.R. (1990) Implications of psychological research on student learning and college teaching for teacher education. In W.R. Houston (Ed.), *Handbook of research on teacher education: A project of the Association of Teacher Educators* (pp. 826-857). New York: Macmillan.
- Postman, N., Weingartner, L. (1971) *Teaching as a subversive activity*. London: Penguin Books.
- Popkewitz, T.S. (1984) *Paradigm and ideology in educational research: The social functions of the intellectual*. NY: The Falmer Press.

- Pratt, D.D. (1989) Three stages of teacher competence: A developmental perspective. In B. Hayes (Ed.), *Effective teaching styles* (pp. 77-87). New Directions for Continuing Education, No. 43. San Francisco: Jossey-Bass.
- Pratt, D.D. (1990) Chinese conceptions of learning and teaching: A Westerner's attempt at understanding. *International Journal of Lifelong Education* 11(4):301-19.
- Pratt, D.D. (1992) Conceptions of teaching. *Adult Education Quarterly* 42(4):203-20.
- Pratt, D.D., and Associates (in press) *Five perspectives on teaching in adult and higher education*. Malabar, FL: Krieger Publishing.
- Prawat, R.S. (1989) Promoting access to knowledge. *Review of Educational Research* 59:1-42.
- Prawat, R.S. (1992) Teachers' beliefs about teaching and learning: A constructivist perspective. *American Journal of Education* May:355-95.
- Ramose, M., Moore, G.T. (1987) The new pathway to medical education. In M. Kantrowicz, A. Kaufman, S. Mennin, et al. (Eds.), *Innovative tracks at established institutions for the education of health personnel*. (pp. 199-219). WHO Publications No. 101. Geneva, Switzerland: World Health Organization.
- Ramsden, P. (Ed.) (1987) *Improving Learning: New Perspectives*. London: Kogan Page
- Resnick, L.B. (1987a) Constructing knowledge in school. In L.S. Liben and N.J. Hillsdale (Eds.) *Development and learning: Conflict or congruence*. Erlbaum: New Jersey.
- Resnick, L.B. (1987b) Instruction and the cultivation of thinking. In E. De Corte, H. Lodewijks, R. Parmentier, and P. Span (Eds.), *Learning and Instruction: European Research in an International Context*, Vol. 1. Oxford: Pergammon Press.
- Revans, R.W. (1980) *Action Learning*. London: Blond & Briggs.
- Ritchie, J.B. (1974) Supervision. In G. Strauss *Organizational behaviour: Research and issues*. (pp. 51-76) Madison, Wisconsin: IRRA
- Rogers, E.M., Shoemaker, F.F. (1971) *Communication of innovations: A cross-cultural approach*. New York: Free Press.
- Saljo, R. (1988) Learning in educational settings: Methods of inquiry. In P. Ramsden (Ed.), *Improving learning: New perspectives* (pp. 32-48). London: Kogan Page.
- Samuelowicz, K., Bain, J.D. (1992) Conceptions of teaching held by academic teachers. *Higher Education* 24(2)
- Sampson, E.E. (1980) Scientific paradigms and social values: Wanted -- a scientific revolution. *Journal of Personality and Social Psychology* 35:639-52.
- Sandelowski, M., Davis, D.H., Harris, B.G. (1989) Artful design: Writing the proposal for research in the naturalistic paradigm. *Research in Nursing and Health* 12:77-84.

- Sandelowski, M. (1986) The problem of rigor in qualitative research. *Advances in Nursing Science* 8(3):27-37.
- Schmidt, H.G. (1982) *Activation of prior knowledge, intrinsic motivation, and text processing*. Apeldoorn: Van Walraven.
- Schmidt, H.G. (1983) Problem-based learning: Rational and description. *Medical Education* 17:11-6.
- Schmidt, H.G., Dauphinee, D G., Patel, V.L. (1987) Comparing the effects of problem-based and conventional curricula in an international sample. *Medical Education* 62:305-15.
- Schmidt, H.G., De Grave, W. S., De Volder, M.L., Moust, J.H.C., Patel, V.L. (1989) Explanatory models in the processing of science text: The role of prior knowledge activation through small group discussion. *Journal of Education Psychology* 81:610-19.
- Schmidt, H.G., Norman, G.R., Boshuizen, H.P.A. (1990) A cognitive perspective on medical expertise: Theory and implications. *Academic Medicine* 65:611-21.
- Schmidt, H.G., Van Der Arend, A., Moust, J.H.C., Kokx, I., Boon, L. (1993) Influence of tutors' subject-matter expertise on student effort and achievement in problem-based learning. *Academic Medicine* 68:783-91.
- Shuell T.J. (1986) Cognitive conceptions of learning. *Review of Educational Research* 56(14):411-36.
- Shuell T.J. (1990) Phases of meaningful learning. *Review of Educational Research* 60(4):531-48.
- Silva, M.C., Rothbart, D. (1992) An analysis of changing trends in philosophies of science on nursing theory development and testing. In L.H. Nicoll (Ed.), *Perspectives on nursing theory*. Toronto: Little, Brown.
- Silver, M., Wilkerson, L.A. (1991) Effects of tutors with subject expertise on the problem-based tutorial process. *Academic Medicine* 66:298-300.
- Smith, J.K. (1983) Quantitative versus qualitative research: An attempt to clarify the issue. *Educational Researcher* 12(3):6-13.
- Smith, J.K. (1989) *The nature of social and educational inquiry: Empiricism versus interpretation*. Norwood, NJ: Ablex.
- Sparks, G.M. (1988) Teachers' attitudes toward change and subsequent improvements in classroom teaching. *Journal of Educational Psychology* 80(1):111-17.
- Stalker, A.J. (1989) *Reframing the issue of participation on adult education: An interpretive study*. Ph.D. Dissertation. Department of Administrative, Adult and Higher Education, The University of British Columbia.
- Strauss, A.L., and Corbin, J. (1990) *Basics of qualitative research: Grounded theory procedures and techniques*. Newbury Park, CA: Sage

- Svensson, L., Hogfors, C. (1988) Conceptions as the content of teaching: Improving education in mechanics. In P. Ramsden (Ed.), *Improving learning: New perspectives* (pp. 162-177). London: Kogan Page
- Tedesco, L.A. (1990) Responding to educational challenges with problem-based learning and information technology. *Journal of Dental Education* 54:544-47.
- Tedesco, L.A. (1991) Can learning theory and research solve some curriculum problems? *Journal of Dental Education* 55 (10):642-45.
- Tesch, R. (1990) *Qualitative research: Analysis types and software tools*. Bristol, PA: Falmer Press.
- Thomas, R. (1992) Teaching medicine with cases: Student and teacher opinion. *Medical Education* 26:200-07.
- Tinkle, M.B., Beaton, J.L. (1992) Toward a new view of science: Implications for nursing research. In L.H. Nicoll (ed.), *Perspectives on nursing theory*. Toronto: Little, Brown
- Todd, S. (1992) Preparing tertiary teachers for problem-based learning. In D. Boud and G. Feletti (Eds.), *The challenge of problem-based learning* (pp. 130-136). London: Kogan Page.
- Turner, R.H. (1978) The role and the person. *American Journal of Sociology* 84:1-23.
- van Manen, M. (1990) *Researching lived experience*. London, Ontario: Althouse
- Vernon, D.T.A. (1995) Attitudes and opinions of faculty tutors about problem-based learning. *Academic Medicine* 70(3):216-23.
- Vernon, D.T.A., Blake, R.L. (1993) Does problem-based learning work? A meta-analysis of evaluative research. *Academic Medicine* 68:550-63.
- Verwijnen, M. C., Van Der Vleuten, C., Imbos, T. (1990) A comparison of an innovative medical school with traditional schools: An analysis of the cognitive domain. In Z. Nooman, H. Schmidt, and E. Ezzat (Eds.), *Innovation in medical education* (pp. 40-49). New York: Springer.
- Vygotsky, L.S. (1962) *Thought and language*. Cambridge, Massachusetts: MIT Press
- Vygotsky, L.S. (1978) *Mind in society: The development of higher psychological processes*. Cambridge, Massachusetts: Harvard University Press
- Walton, H., Matthews, M. (1989) Essentials of problem-based learning. *Medical Education* 23:542-58.
- Wilkerson, L. (1992) *Identification of skills for the problem-based tutor: Student and faculty perspectives*. Paper presented at the Annual Meeting of the American Educational Research Association, San Francisco, CA: April.
- Wilkerson, L., Hafler, J.P., Liu, P. (1991) A case study of student-directed discussion in four problem-based tutorial groups. In *Research in Medical Education*, 66, supplement (September), S79-S81.

- Wilkerson, L., Hundert, E.M. (1992) Becoming a problem-based tutor: Increasing self-awareness through faculty development. In D. Boud, and G. Feletti (Eds.), *The challenge of problem-based learning* (pp. 159-171). London: Kogan Page.
- Wilkerson, L., Maxwell, J. (1988) A qualitative study of initial faculty tutors in a problem-based curriculum. *Medical Education* 63:892-99.
- Woodward, H., Bucholz, S. (1987) *Aftershock: Helping people through corporate change*. New York: John Wiley & Sons.
- Woods, D.R. (1992) Issues in implementation in an otherwise conventional programme. In D. Boud and G. Feletti (Eds.), *The challenge of problem-based learning* (pp. 122-129). London: Kogan Page.
- Yang, Y., Zhang, L. (1991) Feasibility of problem-based learning in Jiujiang Medical College: Why not try it? *Medical Education* 25:34-7.
- Zahorik, J.A. (1977) How teachers decide how to teach. *The Elementary School Journal* 78(1):22-30.
- Zahorik, J.A. (1986) Teaching: Rules, research, beauty, and creation. *Journal of Curriculum Supervision* 2(3):275-84.