SALLEY MADDOX BENOIT SAWYER
Professors' Beliefs About Their Subject Matter Knowledge in Relation to Their Practice of Learner-Centered Instruction
(Under the direction of ROBERT MARIBE BRANCH)

The purpose of this qualitative case study was to identify and describe professors' beliefs about their subject matter knowledge in relation to their practice of learner-centered instruction. Professors' subject matter knowledge shapes course content at the university level, and professors practicing learner-centered instruction make an important contribution to undergraduate education. A description of professors' beliefs about their subject matter knowledge in relation to their instruction contributes to understanding exemplary practice. Recognized authorities in instructional development in higher education were given a set of criteria for learner-centered instruction, and identified a participant pool. Four participants teaching an undergraduate class in different departments at a research university in the United States, were selected. The theoretical framework guiding this inquiry was Polanyi's (1974) theory of personal knowledge. The theory was used to explain the individualized nature of the professors' subject matter knowledge, and the professors' passionate commitment to their teaching. Data were collected through conducting three semi-structured interviews, making classroom observations over a period of time, and examining instructional artifacts. Data were first analyzed within each case, and presented as individual portraits. The data were then recombined, and analyzed across the cases looking for common themes. The findings of the cross case analysis were presented according to the three questions guiding this study. Research validity and ethics were addressed through member checks with the participants and meetings with a peer reviewer. The inquiry found that the professors shared a belief that active knowledge is developed through a process of dialogue. Their belief about the

process of dialogue infused their instruction. Although the professors did not use the term learner-centered instruction, they believed the focus of their instruction was to facilitate the students' process of integrating their prior knowledge with the course content. Each professor wanted the students to develop their own knowledge by discussing their understanding of the discipline's use of language and the discipline's way of thinking. The study's findings demonstrated the benefit of asking professors to articulate their beliefs about their practice. Study recommendations encourage instructional designers to expand their concept of working with professors to develop undergraduate instruction.

INDEX WORDS: Learner-centered instruction, Undergraduate education, Subject matter beliefs, Teaching methods, Knowledge integration, Tacit beliefs, Personal knowledge, Post secondary education, Qualitative case study, Polanyi, Active learning

PROFESSORS' BELIEFS ABOUT THEIR SUBJECT MATTER KNOWLEDGE IN RELATION TO THEIR PRACTICE OF LEARNER-CENTERED INSTRUCTION

by

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DEDICATION

I could never have been here without the support of all my family. Thank you for helping me with this great adventure. I am unspeakably grateful.

Stephen Roy Sawyer

Toby Faye Sawyer

Rebecca Ruth Sawyer

It is through meaningful dialogue that we learn. Yet, such dialogue would not be possible in isolation from a quality of listening that values our expressions. This dissertation is dedicated to three people who listened to me with a focus that made me feel I had something worthwhile to say. The kindness of their listening and the quality of the dialogues we shared, helped bring me to this place today:

My Mother, Greta Faye Maddox Benoit

My Aunt, Ruth Esther Salley, Ph. D.,
who opened the door of the Metropolitan Museum of Art for me,
and one summer spent her entire vacation tutoring
me in Algebra One.

Sylvia Hutchinson, who looked at me
when she smiled and said, “This is fascinating.”

If going to school is a process of personal growth, it is made possible through the support of others. Thank you to my classmates, Nancy Luke, Morgan Nolan, David Noah, and Susan Glenn. Nancy's words of encouragement carried me through many challenges during our first quarter in the department.

Writing the dissertation was a lonely process. I am grateful for the many conversations Angela Benson and I shared throughout the year. Listening with an ear that went beyond the spoken words, Angela's reflections became part of the dialogue that helped me develop a deeper understanding of scholarly research.

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Robert M. Branch, Ed. D.,
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CHAPTER ONE

Prologue

The class was an early morning undergraduate course entitled, "Cultural Diversity in American Art," and as I sat towards the front of the large lecture hall in the art department, I became aware that there was something different about this professor's instruction. What was it? I was fully caught up in the experience of the course. It was fascinating, stimulating, interesting. Having received an undergraduate degree in art education, I knew the routine of art history classes held in darkened rooms, memorizing slides projected on screens, taking notes focused on catching the professor's words in order to write them back on the tests. But instead of the memorization pattern familiar to most art students, there was something different happening in this class.

Slowly, I began to realize that the professor's content and instruction were causing me to think differently about the subject matter. The professor was presenting the material in a way that led to new perspectives and new ways of thinking beyond my previous notion of what constituted art history. The instruction affected my perceptions and understanding of the subject matter. I was intrigued and I wanted to know how the professor had developed this kind of instruction. Sitting in the class, it looked as though the professor's instruction exposed her conceptualization of the material and made her knowledge and beliefs of the subject accessible to the students. As a student in the field of instructional technology, I wanted to understand what she was doing as it related to

instructional design. As a teaching assistant, I wanted to understand what she had done so that I could do it too.

My curiosity led me to conduct a systematic inquiry on the professor's development of instruction. I learned that the professor's beliefs about her subject matter knowledge acted as a thread leading her through the process of developing instruction. Her beliefs were a thread that stitched all the elements of the course into a coherent whole and connected her self to the instruction.

Introduction

The purpose of this study was to describe professors' beliefs about their subject matter knowledge in relation to their learner-centered instruction. The findings of a pilot study conducted with the professor described in the prologue revealed that the professor held beliefs about her subject matter knowledge that differed both from the beliefs held by the department chair as well as the beliefs of the professor previously teaching the course. Thus, this study's underlying interest in understanding how professors develop instruction that results in meaningful learning became framed in terms of beliefs about subject matter knowledge.

One method that fosters meaningful learning is known as learner-centered instruction. This instruction is characterized by engaging the learners in an active development of their own knowledge. Learner-centered instruction can be an outcome of the instructional design process, as described by Gagné, Briggs, and Wager (1992), however, the process of instructional design was not used by the professor in the pilot study.

Not only is learner-centered instruction of interest to instructional designers, it has great relevance for those concerned with improving undergraduate education. Organizations such as the American Association of Higher Education, the Pew Trusts, and the Carnegie Foundation for the Advancement of Teaching, have expressed a concern for the quality of undergraduate education in the United States. Edgerton's (1997) Education White Paper published on the Pew Trust's web site voices this concern regarding pedagogical practice:

> For a large percentage of undergraduates, taking courses is primarily a matter of reading, doing homework and listening in class to what professors say about their fields. Professors impart knowledge. Students absorb this knowledge. Examinations test whether students can recall what they have learned. In short, teaching is telling; learning is recalling. (chapter 4, paragraph 51)

The concept of knowledge conveyed by Edgerton's comments is one that holds little relevance for the student's life beyond taking a final exam, nor does knowledge developed through rote memorization promote the development of critical thinking skills. Learner-centered instruction as a pedagogical practice that envisions knowledge as complex and meaningful, and learning as active and personally engaging, offers a way to improve undergraduate education.

Relatively recent educational inquiry directed towards improving pedagogical practices has begun to examine the area of teachers' beliefs and teachers' thinking. Inquiries into teachers' beliefs and thinking attempt to explore pedagogical practice from a teacher's frame of reference. The perspective of looking at teaching behaviors from within a teacher's frame of reference offers researchers an opportunity to develop a

knowledge of practice that could not be perceived from an outside perspective. Studies of teachers' beliefs offer researchers another way to examine teachers' decision-making skills and knowledge.

Fernandez-Balboa and Stiehl's (1995) research on professors' pedagogical content knowledge follows along the line of research established on teachers' beliefs and thinking. Fernandez-Balboa and Stiehl explain pedagogical content knowledge as encompassing a teacher's knowledge of decisions and strategies with regard to representing subject matter to students. This knowledge enables teachers to transform their knowledge of a subject into instruction that students can understand. Selecting ten exemplary professors to study, Fernandez-Balboa and Stiehl sought to identify and describe pedagogical content knowledge that crossed disciplines. Fernandez-Balboa and Stiehl make two observations about beliefs and improving professors' teaching practices that inform the purpose of this study.

> Much can be gained from studying professors' pedagogical processes and beliefs. First, identifying the tactics and beliefs of outstanding professors may be the best path to understanding what good teaching at this level and other levels really involves. Second, such an understanding may provide better strategies for fostering positive teaching practices and eliminating, or at least diminishing, negative ones. (p. 295)

Clearly then, the need to understand and describe professors' beliefs about their subject matter knowledge is crucial to understanding their instructional practices. Furthermore, Fernandez-Balboa and Stiehl argue that meaningful changes in pedagogical

practices can only stem from modifications at the profound level of underlying subject matter beliefs rather than through a surface level application of teaching strategies.

Three concepts come together in the thinking and planning of this inquiry: research on teachers' beliefs and teachers' thinking, the practice of learner-centered instruction, and a concern for meaningful undergraduate education. The three concepts intersected with one another. The area of their overlap located this inquiry's space (see Figure 1).

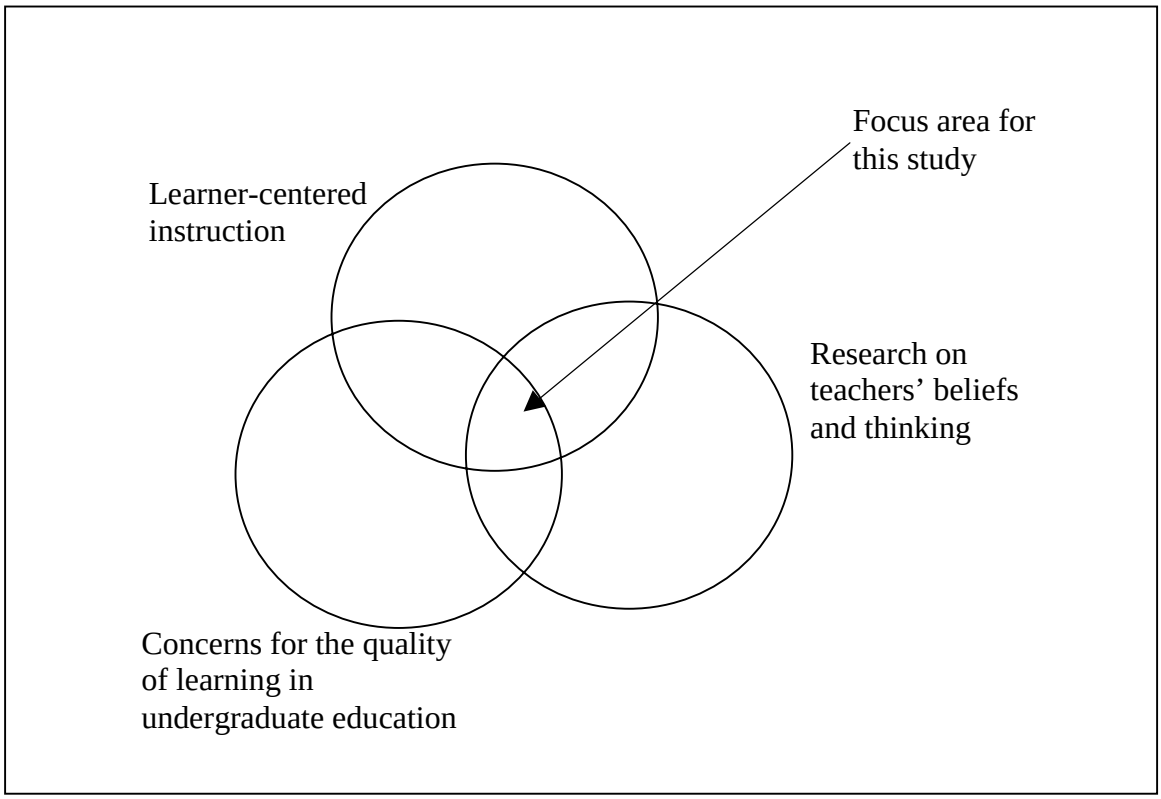

Figure 1. This inquiry's area of focus formed by the intersection of overlapping concepts.

Conceptual Framework

The focus of this inquiry on professors' beliefs about their subject matter knowledge cannot be meaningfully understood without a more detailed discussion of the

concepts forming its framework. The three concepts intersecting to frame this study are: the current thinking on teachers' and professors' beliefs, the notion of learner-centered instruction, and a concern for undergraduate education at research universities.

The Function of Teachers' and Professors' Beliefs

Nespor's (1987) study of the role of beliefs in the practice of teaching expanded my concept about beliefs beyond what developed from the pilot study and helped me to conceive of beliefs as having a purposeful function. Nespor's study proposed a model that suggests belief are structured as systems, and as systems they serve a function. Nespor conceptualized belief systems as serving a function in teachers' thinking about their roles, their students, their subject matter areas, and their schools. Nespor (1987) finds a primary function of belief systems is to help teachers make sense of ill-defined problems and deeply entangled domains.

> The research of the TBS [Teacher Beliefs Study] suggests that beliefs and belief systems have two important uses for teachers - (a) task definition and cognitive strategy selection; and (b) facilitation of retrieval and reconstruction in memory processes - while serving the overall function of allowing teachers to deal with ill-structured domains. (p. 321)

Nespor asserts that in ill-defined situations, teachers tend not to use research-based knowledge or academic theory. Typically, the goals in ill-defined or entangled situations are not readily apparent; it may be confusing to distinguish appropriate strategies. Beliefs provide help because they "serve as a means of defining goals and tasks" (p. 319). Nespor's suggestions for improving practice based on belief research

include “helping teachers and prospective teachers become more reflexive and self-conscious of their beliefs” (p. 326).

Nespor’s (1987) findings about a relationship between subject matter and beliefs are particularly relevant to this study. “A less obvious area in which affect is important is that of teachers’ conceptions of subject matter. The values placed on course content by the teachers in the TBS study often influenced how they taught the content” (p. 319). The influence of teachers’ beliefs on course content has implications for learner-centered instruction because it is an instructional practice predicated on a learner’s active involvement with the content. A learner’s active interaction with the knowledge structure of the subject matter or course content is a primary goal of learner-centered instruction. Learner interactions with the subject matter enable a learner to begin to “translate content information into his or her own cognitive structure” (Branch, 1996, p. 42). Nespor’s (1987) findings indicate that the knowledge structure a learner interacts with may be demarcated by the teacher’s beliefs about course content.

A study of professors’ beliefs about their subject matter knowledge is made particularly challenging by Nespor’s description of belief systems as loosely bounded with uncertain linkages to events or knowledge systems. Nespor cautions that this unbounded characteristic of belief systems can mean that “people read belief-based meanings into situations where others would not see their relevance” (p. 321). Stating that beliefs are comprised of affective feelings, vivid memories, and assumptions, Nespor advises that these “are simply not open to outside evaluation or critical examination in the same sense that the components of knowledge systems are” (p. 321). Nespor’s study

suggests professors' beliefs about their subject matter knowledge may be richly entangled with their experiences in a variety of contexts.

Context of Professors' Beliefs

Even though Nespor's (1987) findings about teachers' beliefs contributed to conceptualizing this study, it is imperative to consider contextual differences between K-12 teachers and university professors. Kember (1997) points out that universities "operate under quite different value systems and traditions from schools" (p. 255). There are also differences in the perceptions K-12 teachers and university professors have about their roles. "Many university lecturers consider themselves a breed apart from school teachers. Indeed many university academics hardly consider themselves 'teachers' at all, instead visualizing themselves more as a member of their discipline" (p.255). These findings suggest research on K-12 teachers' beliefs may have limited transference to professors due to differences in their two contexts and differences in their self-perceptions. These differences demonstrate the need for a study on university professors' beliefs about their subject matter knowledge.

Kember's study contains a recommendation for instructional developers endeavoring to improve professors' teaching practices. Kember cautions that faculty and teaching development workshops will have little impact, "if the underlying beliefs of the participants are inconsistent with the conceptual framework of the initiative" (p. 272). An increased understanding of professors' subject matter beliefs can make a contribution to the effectiveness of faculty development initiatives.

Fernandez-Balboa and Stiehl's (1995) study of professors' pedagogical content knowledge evolved from the research on K-12 teachers' beliefs. However, Fernandez-

Balboa and Stiehl emphasize that major differences between professors' and K-12 teachers' contexts and course content may demand significant difference in skills and knowledge. Fernandez-Balboa and Stiehl's findings support Kember's (1997) findings that differences may preclude a close mapping of research on K-12 teachers' beliefs onto professors' beliefs. According to Fernandez-Balboa and Stiehl (1995), a university professor teaches in an environment unlike a K-12 teacher's environment partly because student expectations are dissimilar. Kember (1997) found that differences in the way professors defined themselves and their role. The findings in both Kember's (1997) and Fernandez-Balboa and Stiehl's (1995) studies confirm the need to conduct a systematically designed study concentrated on university professors' beliefs rather than assuming a transference of findings from studies on K-12 teachers' beliefs.

Learner-Centered Instruction

Instruction in this study is understood to include the complexity of the multiple interactions occurring within a learning space over a specified period of time. The effects of instruction are intended to extend beyond the conclusion of the instructional episode. Meaningful instruction is regarded as a dynamic and ongoing process rather than a two-way professor-student interaction or simple a transmission of knowledge.

Instructional design is a systematic approach to developing instruction. Most models of instruction design begin the design process with an analysis of the learner's needs (Dick & Carey, 1996). An instructional designer's use of the term learner-centered keeps the learner as the focus of the instructional effort and emphasizes the diversity of goals, expectations, and values a learner brings to the instruction. Learner-centered

instruction has qualities that encourage lifelong learning and respect for differences between learners (Branch 1995; Edmonds, Branch & Mukherjee, 1994).

This study chose to focus on learner-centered instruction for two personal reasons. First, the optimistic attitude underlying the concept of learner-centered instruction as empowering is appealing. Second, the characteristics that describe learner-centered instruction explain my experience in the art history class that inspired the design and development of this inquiry.

Concerns for Undergraduate Education

There may be a number of different goals for undergraduate education in the United States, however, there is a body of literature suggesting the ability to think critically and express oneself effectively are defining goals for an undergraduate education. "Teaching students to engage in reflective thinking and to make reflective judgments about vexing problems is a central goal of higher education" (King & Kitchener, 1994, p. 222). Baxter Magolda (1996) expresses a similar view. "Despite the debate on what form(s) education should take, most agree that the ability to critically analyze information to construct an informed perspective is valuable for productive participation in society" (p. 283). Schommer's (1994) synthesis of epistemological beliefs frames the concept of critical thinking and engaging in active learning in terms of epistemological beliefs.

Schommer finds that students' epistemological beliefs and professors' epistemological beliefs play a subtle, yet critical role in learning and makes recommendations for teaching methods that may support students' epistemological development. Hofer and Pintrich's (1998) study of undergraduates in large introductory

college courses examined students' personal epistemology in relation to instructional practices, and suggests that professors have the power to influence the students evolving epistemological assumptions. Hofer and Pintrich's study supports the notion that a professor's instructional practices may encourage students' epistemological development.

Even though critical thinking, effective expression, or epistemological development may be recognized goals of an undergraduate education, Baxter Magolda's (1996) and Kuh and Vesper's (1997) research indicates that undergraduate education at major universities may not be helping students to develop these goals. Baxter Magolda's (1996) four year longitudinal study on university students' epistemological development found that only two percent of the eighty participating undergraduates were contextual knowers as they approached graduation. "Contextual knowers believe that knowledge is uncertain and that one decides what to believe by evaluating the evidence in the context in question. Learning for contextual knowers means thinking through problems, integrating knowledge, and applying knowledge in context" (p. 284). Kuh and Vesper's (1997) four year study of almost six thousand undergraduates contained findings that gave another perspective to Baxter Magolda's more phenomenological approach.

Citing a decade of demands and efforts to reform undergraduate education in the United States, Kuh and Vesper's (1997) four year study looked for increases in student reported experiences of good educational practices at two types of institutions: (1) selective and general liberal arts colleges and (2) research and doctoral-granting universities. Kuh and Vesper identified three indicators of good practices of undergraduate education as: (1) contacts with faculty in various in-class and out-of-class settings, (2) contacts and cooperation with peers, and (3) involvement with active

learning activities. Kuh and Vesper administered the College Student Experience Questionnaire, developed by Pace (1990), expecting to find student reported increases in good practices.

Kuh and Vesper's (1997) findings indicate differences in the two categories of educational institutions that have importance for this study. During a four-year period, students in the category of doctoral-granting universities reported decreases in two of the three indicators of good educational practice. "At doctoral-granting universities, faculty-student interactions and active learning both decreased" (p. 52). Kuh and Vesper report that the change in the two indicators of good practice is relatively small, however it is statistically significant. A decrease in active learning can mean that undergraduates maintain or adopt a passive role towards learning, or that they could lose an opportunity for epistemological development as discussed by Baxter Magolda (1992) and Schommer (1994).

The comparison between the two categories of institutions reveals more detailed information. Kuh and Vesper's findings indicate that at baccalaureate granting, liberal arts colleges the same two indicators of good practice increased. The change in one indicator, student-faculty interactions, was statistically significant. Faculty-student interactions at baccalaureate granting, liberal arts colleges had reported increases while during the same time period faculty-student interactions at doctoral-granting universities had reported decreases. Decreased faculty-student interactions can mean that students lose opportunities to interact with the rich subject matter knowledge embodied by the professors.

Kuh and Vesper's findings support the importance of designing this study on professors' beliefs about subject matter knowledge to focus on participants who are practicing learner-centered instruction at a doctoral-granting university. Examining the beliefs of exemplary professors may yield meaningful findings that can be shared with professors practicing in a similar academic context.

Assumptions

This study on professors' beliefs about their subject matter knowledge is based on five assumptions. First, there was an implicit assumption that, as Streibel (1991) posits, an instructional designer's plans could be considered an artifact of the designer's thinking, a professor's instruction could be considered an artifact of the professor's thinking and beliefs about knowledge. Carrier's (1981) findings supported this assumption of a relationship between instruction and a professor's thinking or beliefs. Carrier observes that even though college professors have no formal teacher training, most professors hold implicit beliefs about what constitutes effective teaching that serve to influence their teaching practices. "These and other studies suggest that teachers, although they may be unaware of it, attempt to bring their teaching behaviors in line with their beliefs" (p. 32). Carrier's assertion implies that a professor's beliefs may not be articulated yet may be manifested in their practices.

Second, this study assumed that professors' subject matter knowledge was a form of their personal knowledge and developed primarily through a process of tacit integration as described by Polanyi (1974). Third, this study assumed that many of the professors' beliefs about their subject matter knowledge are, according to Elbaz (1991), contained within the stories they tell, and, according to Freeman (1996), within the

language they use during the interview process. Fourth, this study assumed that professors' behaviors are, as Bandura (1986) suggests, influenced by their beliefs. Last, this study assumed that professors' beliefs are highly interconnected and may act as a filter for knowing as discussed by Pajares (1992). The literature cited helped support these five assumptions and enabled this inquiry to go forward.

Importance of This Study

Professors at major research universities who develop and practice instruction for undergraduate students that could be considered learner-centered tend to hold beliefs about their subject matter knowledge in relation to their instructional practices that are not well described in the literature. This study proposes that a discussion of exemplary professors' beliefs about subject matter knowledge will provide a useful perspective on understanding learner-centered instruction at the undergraduate level. Fernandez-Balboa and Stiehl's (1995) study indicates a richly detailed description of a professors' subject matter beliefs would be particularly useful for university administrators concerned with developing meaningful instruction, and instructional designers working with faculty.

Professors' highly developed subject matter knowledge plays a role in their instruction regardless of how they perceive the teaching process. A critical review of the literature indicated that there was evidence to support a proposal that professors' beliefs about their subject matter knowledge enables them to identify appropriate tasks as they plan their instruction, and define their instructional goals. This study supposes that there are distinguishing qualities to the professors' beliefs about their subject matter knowledge that influence and support their efforts to create the conditions that foster learner-centered instruction. This study recognizes that professors do not find it necessary to categorize

their instruction or label it as learner-centered in order for them to create such instruction. The process of categorizing and labeling lies more within the province of those who study instructional practices.

This study recognizes that professors' instructional practice may emerge from a variety of knowledge sources other than a systematic study of instruction and learning. This inquiry acknowledges that professors' process of developing instruction has dimensions of tacit knowledge (Polanyi, 1974). Tacit knowledge serves to integrate a person's perceptions into a meaningful whole, and is by definition ineffable.

Rationale

Pajares' (1992) review of the research literature on teachers' beliefs demonstrates both a current interest in the topic and its value as an education inquiry. Observing that the distinctions between beliefs and knowledge are blurred and vary between researchers, Pajares synthesized the research findings into a list of assumptions "that may reasonably be made when initiating a study of teachers' educational beliefs" (p. 324). Two of the assumptions listed were helpful for planning this study. One assumption is that knowledge and beliefs are inextricably intertwined. Second, "Beliefs are instrumental in defining tasks and selecting the cognitive tools with which to interpret, plan, and make decisions regarding such tasks; hence, they play a critical role in defining behavior and organizing knowledge and information" (p. 325). Pajares' findings imply that professors' beliefs about their subject matter knowledge may assist them in organizing their course content.

Clandinin and Connelly (1996) have developed a substantial line of research focusing on understanding and describing teaching practices from inside the teachers'

perspective. Clandinin and Connelly coined the phrase, 'personal practical knowledge', to describe teachers' primarily tacit and embodied knowledge that informs their practice. This interest in looking from the inside has led to research methods that focus on the stories teachers tell. Elbaz's (1991) research into teachers' narratives provides two useful concepts to consider in the analysis of the interviews conducted in this study on professors. One is that a story has an audience in mind. The story depends upon a relationship with a listener. Two, the telling of a story can be an integrative process that can help develop or communicate personal meaning for the teller as well as for the listener.

Two issues from this line of research on teachers' beliefs appeared particularly relevant for the usefulness of this study's findings for instructional designers. First, as Moallem and Earle (1998) point out, very little of the research on teacher's beliefs has entered into the field of instructional design. This absence suggests instructional design, as a field, lacks fluency in a particular body of knowledge that would seem to be closely related, yet, are separated from one another. "If the gap between teacher-thinking research and instructional design models and principles widens, the possibility that ISD models will be used in school systems decreases" (Moallem & Earle, 1998, p. 7). Moallem and Earle's study implies that the field of instructional design could benefit from more studies on teachers' and professors' beliefs.

Although professors hold a wide range of beliefs, this inquiry is confined to professors' beliefs about their subject matter knowledge. Establishing professors' subject matter knowledge beliefs as the topic of this study is particularly relevant because at the university level, a professor's subject matter knowledge is frequently the content for a

course. Branch (1996) asserts that teachers and subject matter knowledge are often equated with one another. "Teachers enjoy a privileged relationship with the content of instruction; and teachers are often treated as synonymous with knowledge. Teachers are practically always the interpreters of knowledge whether or not they determine the content" (p. 42). Professors' beliefs may individualize their knowledge in their subject area and thereby individualize their instruction.

Developing meaningful instruction may be challenging for professors given that they do not participate in any formal or systematically developed program preparing them for their professional responsibilities within the classroom. "Historically, knowledge of subject matter alone was considered the hallmark of good teaching in higher education. Consequently, most college teachers are well versed in their disciplines but have inadequate knowledge about the process of teaching and learning" (Carrier, 1981, p. 31). Not only are professors expected to practice good instruction, they are also expected to serve as models and guides for preservice teachers and potential university professors (Fernandez-Balboa & Stiehl, 1995).

Theoretical Framework

Polanyi's (1974) theory of personal knowledge is the theoretical framework guiding this study. Merriam (1998) describes an inquiry's theoretical framework as "the orientation or stance that you bring your study" (p. 45). Personal knowledge is especially relevant to this study because it regards knowledge as actively developed through an integrative process that combines both tacit and explicit knowing. Polanyi (1974) develops the concept that unarticulated beliefs comprise tacit knowing and the integration of tacit knowledge helps form the basis of personal knowledge.

Personal knowledge develops as an individual integrates her or his perceptions into a meaningful whole. Polanyi asserts it is tacit knowledge that enables people to integrate what they perceive into meaningful wholes. The belief that humans seek to make meaning in their lives informed the work of humanist psychologist Carl Rogers (1969), whose thinking influenced the concept of learner-centered instruction. Both Rogers and Polanyi assert the process of making meaning through developing knowledge is an intellectually satisfying experience for humans.

Polanyi's (1974) theory of personal knowledge has been used by a variety of researchers in the field of education. Clandinin and Connelly (1987) credit their early work on teacher's knowledge to Polanyi's (1974) concept of the personal as not being idiosyncratic or private. "Rather, we mean something that has both a personal and cultural origin and quality" (p. 68). Eisner's (1991) investigation of educational connoisseurship draws from Polanyi's (1974) concept that there is an art of knowing that is at the heart of every science. Belenky, Clinchy, Goldberger, and Tarule's (1986) study, *Women's Ways of Knowing*, describe their concept of constructivist knowers as passionate knowers in comparison to Polanyi's (1974) concept of personal knowledge as a passionate participation of the knower in the act of knowing.

Inquiry Goals

The situation of interest to this inquiry is professors' beliefs about their subject matter knowledge in relation to their practice of learner-centered instruction. This study supposes that professors' beliefs about their subject matter knowledge may influence their practice of learner-centered instruction and that a description of those beliefs may be of interest and benefit to a larger population of people concerned with instruction. This

study's goals are (1) to identify and describe some of those beliefs, (2) to understand and describe any relationship those beliefs have to the professors' instructional practice. Reflection on this study's conceptual framework, its theoretical framework and a critical review of the literature helped to develop the specific questions this study addressed.

Research Questions

Three questions guided this inquiry. The questions were developed to help identify and explain the professors' beliefs about their subject matter knowledge in relation to their practice of learner-centered instruction. The questions are:

1. How do the professors believe students learn course content?
2. How do the professors determine what is valid in their subject matter area?
3. How do the professors describe their roles as teachers?

CHAPTER TWO

Literature Review

The purpose of this study is to describe professors' beliefs about their subject matter knowledge in relation to their practice of learner-centered instruction. This literature review discusses two major areas of research that expand the view of the topic. These two areas are learner-centered instruction and professors' beliefs.

The literature search was conducted by a systematic approach using the Galileo databases at the University of Georgia as well as by a more serendipitous method of walking through the library stacks and browsing through titles. A systematic search was begun by first looking through the Galileo databases for readily apparent words such as epistemology, higher education, professors, knowledge, and teacher beliefs. The databases used for the search included ArticleFirst, Current Contents, Dissertation Abstracts, Education Abstracts, Social Sciences Citation Index, and ERIC. Reading the abstracts led to finding additional search terms and keywords that further refined the search process.

Learner-Centered Instruction: An Introduction

This section of the literature review explores learner-centered instruction in three ways. First, the development of learner-centered instruction is traced through its mention in the instructional technology literature. Second, learner-centered instruction is discussed as a motivational and inclusive concept. Third, the usage of learner-centered

instruction is noted in a variety of fields. The emphasis in this first section is on enlarging the notion of learner-centered instruction.

The concept of learner-centered instruction has appeared in several areas of study from the U.S. military to language education. A discussion of learner-centered instruction has appeared in connection with educational reform. Vermilye (1975) writing a preface to a publication of the American Association of Higher Education, attributes the awakening of interest in placing a focus on learners to the social activism of the 1960's. Vermilye asserts that reform in higher education through change is not a new concept. "What was new - and probably unprecedented in the educational history of this country - was the magnitude of the reform" (p. x).

Vermilye voices a concern that highlights an important issue in the attempt to clarify the concept of learner-centered instruction. "And as the needs and interests of the learner become increasingly important in shaping the curriculum, some wonder whether colleges and universities are not copping out on their responsibility to lead" (p. x). Vermilye's statement seems to imply the question that if learner-centered instruction is based on the needs of the learner, who and how should determine those needs, and what kinds of knowledge will shape the instruction? A review of the literature demonstrates that these questions have been considered in a variety of ways by people working to develop the concept and practice of learner-centered instruction.

Following the discussion of learner-centered instruction over an almost twenty-five year time span enabled me to appreciate that the conceptualization of learner-centered instruction has changed over time and is continuing to change. It has been regarded both favorably and negatively by various educators. It has been hailed as an

opportunity for reform as well as blamed for trivializing education and lowering standards. Through tracing the discussions, I have come to regard learner-centered instruction as representing a way of thinking that emphasizes the relationships between learning, and people, and knowledge. This study regards learner-centered instruction as encompassing more than a set of strategies to be adopted or attached, rather it is an instructional practice fostered by a professor's mind-set and influenced by diverse experiences.

Developing the Concept of Learner-Centered Instruction

Gagné, Briggs, and Wager (1992) make the assumptions of instructional design explicit in their statement that the purpose of instructional design is to activate and support the learning of the individual student. "We recognize that learners are often assembled into groups; but learning nevertheless occurs within each member of the group" (p. 4). Instructional design offers a useful method of organizing and planning instruction. Gagné et al. contend that the function of planned instruction "is to help each person develop as fully as possible, in his or her own individual direction" (p. 4).

The term learner-centered instruction has been used within the field of instructional design for many years although its meaning has shifted over a period of time. Elliott (1974), writing about changes in the U. S. Army's schooling philosophy, used the term student-centered instruction from a perspective that understood active learning as problem solving. Elliott described military training's move from a doctrinal emphasis on memorization to a framework of problem solving. "It is a learning experience employing a problem-solving framework which places the burden of creative learning through discovery on the student" (p. 51). The article describes some specific

implementation characteristics of student-centered problem solving as: "real-life, on-the-job assignments," and "opportunities to experiment with new techniques, to make mistakes and to receive immediate feedback (primarily from peers) are emphasized" (p. 51).

Although the use of the word "burden" may carry some unpleasant connotation, the central concept seems to be that in student-centered instruction, students actively share in the work and responsibility of learning. Students doing the work of learning need meaningful content that has application to their life activities and expectations outside the classroom, and that social interaction from peers in the learning process is important.

Kindervatter (1977), developing a workshop for adult and community educators, describes learner-centered training as having five characteristics:

> 1. Content and objectives based on learners' needs and presented from the learners' perspective; 2. Methods which catalyze active participation and interaction of learners rather than passive information gathering; 3. Materials that provoke and pose problems, rather than provide answers; 4. Teachers who are not teachers, but facilitators; 5. Learning which is not only cognitive, but also leads to new awarenesses and behaviors in the learners' lives. (p. 3.)

Two notions from Elliott's discussion are transposed in Kindervatter's list. One, the notion of basing the content of the course on the learners' needs from the learner's perspective, and two, learning should affect the learners' "real" lives outside the classroom.

Kindervatter attributes two primary sources for the concept of a learner-centered approach, Paulo Freire and Malcolm Knowles. Both educators tended to work primarily with adults and this may explain Kindervatter's conceptualization of a learner-centered approach as more appropriate for adults than for children. Kindervatter's work in learner-centered training stresses two key components: (1) the learners must identify and analyze problems in the context of their real lives, and (2) peer interaction is crucial.

The concept of learner-centered instruction may have evolved from psychologist Carl Rogers's (1959) notion of client-centered therapy. When Rogers wrote *Freedom to Learn* (1969), he extended his humanist psychology thinking into the field of education. Rogers envisioned the teacher as a facilitator who develops a positive classroom environment thereby enabling the students to take action on their innate desire to learn. Students establish their learning goals with the help of their teacher, then create their own individualized learning contracts.

One of the distinguishing points of the learner-centered concept as envisioned by Rogers was the notion that curiosity and the desire to learn are inherent in humans. Pine and Boy (1979), building on much of Rogers's humanist work, postulate that the humanist teacher has a learner-centered attitude as a way of being. Learner-centeredness was conceptualized as a state of mind. An integral aspect of Pine and Boy's concept was a teacher and an environment nurturing the individual student in the process of development.

Freire's (1996) concept of education as empowering or liberating helped to shape the development of learner-centered instruction. Freire conceptualized knowledge as a process of inquiry observing that constant inquiry was a part of being human. "For apart

from inquiry, apart from the praxis, individuals cannot be truly human. Knowledge emerges only through invention and re-invention, through the restless, impatient, continuing, hopeful inquiry human beings pursue in the world, with the world, and with each other" (p. 53). According to Freire, learners come to see themselves in the world through a process of problem posing and reflection. Learners, learning, and knowledge were not perceived as a static reality, "but as a reality in process, in transformation" (p. 64). Freire contributed to the notion of dynamic knowledge in learner-centered instruction. Knowledge was believed to be a work-in-process, always developing, rather than existing as a static entity disembodied from the self.

During the 1980's and 1990's, the term learner-centeredness appears frequently in the language learning literature. The concept came about partly, according to Tudor (1996), as a result of growing dissatisfaction with traditional language teaching practices, and partly as a result, according to Nunan (1988), of the fragmented approaches to learning a language. The concept of learner-centeredness was explained as thinking about how to help learners "assume a more active and self-directive role in the learning process" (Tudor, 1996, p. ix). Nunan (1993) frames the concept of learner-centeredness as "seeing things from the learner's point of view" (p. 1). Learners were viewed as the people who ultimately knew what they wanted and needed to learn even if they were young children.

Learners in the beginning stages of learning were considered inexperienced and in need of guidance. Learner-centeredness, in Nunan's (1993) conceptualization, meant bringing the learner slowly into the curriculum decision making process through guidance from a teacher. This approach required that a teacher had to support the

development of a learner's ability to reflect on, identify, and articulate her or his own needs.

Some proponents of learner-centered instruction came to understand the concept as distinguished by the learner's substantial role in choosing what to learn. Supporting a learner's ability to determine what was important to study was central to Kindervatter's (1977) concept of empowerment contained within learner-centered training. Nunan (1993) extended the notion that learners can assume responsibility for determining course content to young children combined with the stipulation that the learners had to grow into that role through involved teacher guidance.

Elliott's (1974) concept of learner-centered instruction did not include having the learner determine content. Rather, the content was determined by its relevance to the learners' expected performance outside the classroom. The relevance of the content to the learner was regarded as increasing the power of the instruction's effectiveness as well as providing learner motivation.

Learner-Centered Instruction as Motivational and Inclusive

McCombs (1986) draws a relationship between relevant course content and student motivation in her description of the critical skills and types of knowledge students need in order to learn how to apply an instructional systems development (ISD) model to the development of training programs. McCombs observes the students need more than a knowledge of ISD steps and procedures. They need to internalize the ISD process so that it becomes part of their way of thinking and behaving. Internalization requires making a commitment to the value of the knowledge. McCombs observes, "There is support for the position that providing role-relevant training in itself enhances user motivation" (p.

75). Relevant course content becomes an important factor in motivating students to commit to internalizing knowledge.

McCombs makes a connection between relevance in course content to the development of metacognitive skills and the concept of motivation. The connection or link between relevant content and learner motivation appears later in McCombs's (1997) description of learner-centered practices written for the National Association of School Principals. Placing the notion of learner-centered instruction under the umbrella of school reform, McCombs reprises the necessity of recognizing the role of motivation in meaningful learning. "The educational system of the future must embrace a learner-centered perspective to maximize high standards of learning, motivation, and achievement for *all* [italics in text] learners - including students and their teachers" (p. 1). McCombs's statement deliberately includes both teachers and students as learners.

McCombs (1997) chaired an American Psychological Association (APA) Presidential Task Force charged with exploring how psychological knowledge derived through years of research and theory development could be integrated to provide guidance for the design of educational systems for all learners. The task force saw too many students failing to develop their potential by underachieving in school or dropping out of schools altogether. The work of the task force, conducted over a five-year period, produced one of the most extensive and thorough discussions of learner-centered instruction found in the literature examined for this review. The APA developed a list of twelve fundamental learner-centered psychological principles and organized the principles into five domains that were determined to have an impact on learning. The principles are not intended to be treated as single units in isolation, rather they provide an

integrated, holistic perspective on factors influencing learning for all learners. The breadth of the task force's thinking is apparent in the principles. The influence of Rogers' (1969) assertion that humans are naturally curious and have a desire to learn can be seen in the principles grouped under the affective domain.

McCombs and Whisler's (1997) book on the learner-centered classroom explains that many approaches to understanding what learners need in order to reach desired outcomes have been developed from a perspective outside the learner's. These approaches are described as looking from the educator's point of view and deciding what is required for a learner from outside the learner's perspective. McCombs and Whisler distinguish their work, conducted in partnership with the APA, as looking *with* the learner. McCombs and Whisler distinguish the term learner-centered from child centered or student centered. Learner is a broader term for McCombs and Whisler. Its use implies a lifetime of learning and encourages a systemic approach to educational processes, structures and policies that support lifelong learning, and that value continuous change.

McCombs and Whisler's (1997) research included examining teachers' beliefs and assumptions about their practice of learner-centered instruction in recognition that teachers' beliefs and assumptions influence their classroom practice. "More importantly, teachers' *awareness* [italics in text] of their specific assumptions and beliefs about learners, learning, and teaching helps prevent *hidden cultures* [italics in text] in classrooms, cultures that are felt by both students and teachers but cannot be addressed because they are unacknowledged" (p. 27). However challenging it may be to acknowledge tacit beliefs and assumptions, McCombs and Whisler's statement implies

that there are benefits for students, teachers, and the quality of the instructional space to be gained through encouraging an articulation of the tacit.

Thornton and McEntee's (1995) theoretical search for a descriptive definition of learner-centered schools proposes that learner-centered schools are reinforced by *mindfulness* [italics in text] and *multiculturalism* [italics in text]" (p. 250). Thornton and McEntee argue that in learner-centered schools, mindfulness and multiculturalism are an interrelated system of mindsets. Learner-centered schools describe a learning space where students and teachers engage in constructing knowledge through critical inquiry in a particular social context. Given the condition of mindfully attending to new information and different points of view, such schools according to Thornton and McEntee, recognize "different points of view, different ways of knowing, and the legitimacy of differences" (p. 253). Thornton and McEntee's statement reverberates with Gagné et al.'s (1992) statement that planned instruction enhances diversity among individuals. Thornton and McEntee's (1995) assertion that there is no one right knowledge base for a globe of learners, is reflected in McCombs and Whisler's (1997) observation that there is not one kind of teacher nor one set of practices that defines learner-centered instruction.

Usages of Learner-Centered Instruction

Emans, Bravender, Knight, Frazer, Luoni, Berkowitz, Armstrong, and Goodman's (1998) survey study on the adequacy of training for physicians in residency programs in the area of adolescent medicine uses the term learner-centered to refer to both content and instructional materials. Adolescents have high rates of morbidity and mortality that residency programs must address in their training curriculum. A 1978 Task force on

Pediatric Education found that training needs for pediatricians treating adolescents were inadequately met. Emans et al. conducted a study to ascertain how training needs had improved in the twenty years since the Task Force's findings.

An analysis of the survey's responses shows that "innovative teaching techniques are needed to meet curricular objectives" (p. 593). These techniques include structured teaching with direct feedback from attending physicians and nurse practitioners and videotapes. The survey results imply that teaching techniques are not systematically designed to meet the learners' (physicians in adolescent medicine residency) needs. "In this survey, residency programs overwhelmingly desired learner-centered materials" (p. 594).

A discussion of the findings reveals that learner-centered has two meanings for the survey respondents. First, learner-centered refers to the knowledge being presented in the course content. The respondents indicate that there are new or "recently recognized morbidities" (p. 593) that are not represented in the instruction. The residents' course content does not reflect the complex challenges the residents are facing when treating their patients.

The second meaning for the usage of learner-centered refers to the actual format of the instructional materials. The respondents want materials that match the constraints their lives impose on the way they need to learn. "Written case-based material and interactive Web - and computer-based clinical scenarios that foster decision-making are resources urgently in need of further development and dissemination" (p. 594). The two meanings that the term learner-centered carry in this study reinforce the notion that learner-centered instruction is not a surface strategy, it has to do with the subject matter

knowledge or course content, and it also has to do with the presentation of the subject matter. The common denominator in this study is relevancy. The survey respondents asked for relevancy in both content and presentation.

Landis, Peace, Scharberg, Branz, Spencer, Ricci, Zumdahl, and Shaw (1998) use the term learner-centered instruction with an implication that it is synonymous with constructivism. Landis et al. report on the results of a college consortium, *New Traditions*, designed to improve undergraduate instruction in the field of chemistry through the use of learner-centered instruction. Landis et al. find that,

> Calls for constructivist approaches to learning, increased use of peer instruction to help students achieve authentic learning, new applications of technology to broaden the student experience and focus attention on solving problems and interpreting data, and implementation of guided inquiry approaches require a change in the traditional roles of students and instructors. (p. 741)

Seeking the tools and data to shift their paradigm from faculty-centered teaching to student-centered teaching, the consortium identified faculty who were already practicing student-centered teaching for the purpose of learning from their practices.

Landis et al. found there was not one single approach that chemistry faculty were employing, rather they were incorporating a variety of active learning strategies in the classroom. Faculty strategies included using a technology tool, *ConcepTest*, grouping students and posing challenge problems, inquiry based open-ended labs, and thematic teaching. Landis et al. described the different techniques as moving along an instructional continuum. "The fundamental idea of these approaches is that students must wrestle with the subject matter and construct their own understanding" (p. 743).

Evaluating the outcomes for those chemistry classes practicing learner-centered instruction revealed increased student attendance in class and a lower rate of student withdrawals. Additionally the consortium found positive gains in the areas not measured well by standardized tests. Students gained in their ability to communicate chemical principles and their applications to real world problems.

Contextual Knowing, Connected Knowing, and Learner-Centered Instruction

The concern for students' epistemological development has led to a number of terms, models, and approaches to describing the knowledge and way of knowing that would seem to be most desirable as a goal for an undergraduate education. The goal is for students to be able to critically evaluate and synthesize their knowledge in ways that enable them to make reasoned arguments. Belenky et al. (1986) use the term 'constructed knowers' to describe learners whose knowledge is constructed from both subjective and objective sources. Belenky et al. suggest that in order for students to develop as constructed knowers, they need to be supported in their attempts to see themselves as participating in the development of knowledge.

Baxter Magolda's (1996) study on college students finds that contextual knowers have come to perceive an interplay between the knower and what is known as they analyze knowledge for its validity. Baxter Magolda's suggestions for professors to help students become contextual knowers bear great similarity to the practices of learner-centered instruction. The first suggestion is to validate the students as knowers by communicating that "they are capable of knowing and that their opinions have value" (p. 286). Second, incorporate the students' experiences into the learning process, situate the learning in the students' own experiences. Third, professors need to bring their

knowledge to the classroom dialogue yet not impose it unilaterally. "Mutual inquiry involving the teacher's academic talk and the students' everyday talk transforms both" (p. 285). Learning is seen as an active process of developing knowledge as mutually constructing meaning.

Although Baxter Magolda does not use the phrase learner-centered, the emphasis in these suggestions is clearly on the learner. The knowledge constructed is active and dynamic. Baxter Magolda points to the stories the participants have told her as illustrating "how students respond when their knowledge construction is viewed as central by professors" (p. 310). Baxter Magolda's research does not determine how the students' knowing develops in their educational interactions, however, the findings do call for further explorations of how professors' instructional practices may present and model this kind of knowledge at the undergraduate level.

This Study's Conceptualization of Learner-Centered Instruction

Branch (1995) writes of learner-centered instruction in reference to supporting and guiding learners as they navigate through a learning space that has been designed with their needs and capabilities as its focus. A learner-centered space assumes:

> The purpose of education is to promote life-long learning. The purpose of teaching is to facilitate critical thinking. Learning space should encourage personal empowerment. Instructional spaces should be inspirational. (p. 2)

Discussing learner-centered instruction in terms of space presents a rich visual metaphor. Space carries connotations of dimension and time, exploration and freedom. This concept of learner-centered instruction came to guide this inquiry.

Professors' Beliefs and Subject Matter Knowledge

This section of the review concerns professors' beliefs, and the interconnection between their beliefs and their instruction. This section is divided into two main areas: professors' beliefs and subject matter knowledge, and professors' beliefs within the context of university teaching. Throughout the discussion of critical literature in these areas, beliefs are regarded as having a function that may influence the design and practice of instruction according to Nespor's (1987) findings.

Professors, through their expertise, may be regarded as embodying their subject matter knowledge. Branch's (1996) discussion of instructional design and the complexities of instruction states:

> Teachers enjoy a privileged relationship with the content of instruction; and teachers are often treated as synonymous with knowledge. Teachers are practically always the interpreters of knowledge whether or not they determine the content. By virtue of being human, their interpretations are necessarily informed by their own experiences. (p. 42)

The connection between teachers and content invokes Polanyi's (1974) theory of personal knowledge. The professors embody a knowledge that resides within a particular field of study. The professors' knowledge is recognized as residing in their scholarly communities, yet each professor's knowledge is highly individualized.

Professors' beliefs about their subject matter knowledge is intertwined with their beliefs about students and learning. This leads to a construct that is frequently referred to as pedagogical content knowledge. Fernandez-Balboa and Stiehl's (1995) study of professors' pedagogical content knowledge supposes that a generic construct of

pedagogical content knowledge can be found across subject matter areas. Fernandez-Balboa and Stiehl selected ten exemplary professors and through phenomenological interviews inquired "into effective professors' metacognitive processes about their pedagogical content knowledge" (p. 296). The research design included developing an interview guide that was sent to each professor prior to the interviews. The transcribed interviews were given back to the participants to modify if they wished.

Fernandez-Balboa and Stiehl report findings in five knowledge areas they identify as components of professors' pedagogical content knowledge. These five areas include: knowledge about the subject matter, the students, instructional strategies, the teaching context, and the teaching purposes. Fernandez-Balboa and Stiehl report that although the depth and expert level of professors' knowledge of their subject matter is a given, it is still constantly evolving. The professors' subject matter knowledge evolves partly due to their work with students who are trying to create subject matter knowledge. The professors indicated they needed to know their students as both people and as learners in order to present subject matter knowledge in appropriate ways.

The professors' pedagogical content knowledge included content delivery strategies that included creating a sense of connectedness between the students, the subject matter, and the real world. The main purpose of the professors' teaching was "to persuade students of the importance of the subject matter so that, ultimately, through the subject matter, they could enhance their students' lives" (p. 303). The professors believed their strategies helped them to accomplish that purpose.

Fernandez-Balboa and Stiehl report that their study's findings seem to validate other research findings that beliefs play a critical role in the interpretation and evaluation

of knowledge, and that teachers' belief systems influence how they represent subject matter knowledge to students. Fernandez-Balboa and Stiehl note that professors' successful use of their pedagogical content knowledge seems to depend upon their ability to integrate components. The integration of the components does not appear to be a linear process, multiple options seem to be considered almost simultaneously.

> In this regard, we contend that in order to select and deliver instruction, professors' instructional effectiveness, as well as those of teachers at other levels, may depend not so much on what they do, but rather on the specific beliefs and knowledge that guide their decisions and actions. (p. 305)

Fernandez-Balboa and Stiehl's findings reflect Nespor's (1987) conceptualization of beliefs as systems that serve a function in the process of planning and practicing instruction. Fernandez-Balboa and Stiehl's findings support the value of exploring and describing professors' beliefs about their subject matter knowledge.

Beliefs About Subject Matter Validity

Questions of what constitutes valid knowledge is important to scholars in every field of study. Donald's (1990) inquiry into assessment practices of valid knowledge in several different disciplines was conducted in response to the Holmes Group's (1986) report entitled, *Tomorrow's Teachers*. Donald explains that universities have been asked to revise undergraduate curriculum to model fine teaching so that students will be able to develop a sense of the intellectual boundaries and structure of their disciplines. Donald argues that assessing what constitutes valid knowledge is one way that disciplines determine their structure and boundaries. The criteria for knowledge validation helps to define a field of study. More importantly, students' knowledge of the disciplines

assessment criteria gives them a tool to become active participants in the discipline. "Students need organizing principles or patterns, which the validation processes provide" (p. 242).

Donald's study supposes that some disciplines have precise methods for determining valid knowledge while others have far less precise methods. Donald's research design identified thirty-six university professors considered to be models in their fields based on their recognition as outstanding teachers and researchers. The professors represented six pure and applied fields of study. An in-depth interview with structured but open-ended questions was conducted with each professor. The transcripts were sent to each professor for checking and to provide phenomenological validity. Donald (1990) found that each field has its own validation processes, and that the fields' processes are discernible. The importance of validity becomes one of developing new knowledge.

One recommendation from the study is that instructional methods in a course may need to include a discussion of validity. A discussion of what constitutes evidence in English literature, or what is the value of peer review in the natural sciences may help students to recognize valid knowledge. Donald proposed developing a problem-based curriculum as one way of helping students to seek and assemble new information. The problem-based approach has been interpreted as a learner-centered approach by some researchers. The relevance of Donald's research is its indication that the four professors in this proposed inquiry can be expected to know or to recognize their subject matter knowledge in different ways.

Epistemology of the Subject Matter

Leinhardt, Stainton and Virji's (1994) study of high school history teachers' subject matter knowledge asserts that there are epistemological beliefs specific to each discipline. Leinhardt et al. argue this is significant because "so much of the previous research in instruction has emphasized similarities and ignored distinctions" (p. 79). Leinhardt et al.'s research stance is to observe rather than to manipulate an environment. "We sought to understand how the routines and roles of the teacher and student were established in the beginning of the year" (p. 79). This stance led to a research design that included observations and interviews.

Leinhardt et al.'s research examines how the subject of history is taught, how the students learn the subject, and what comprises the subject. This study exploring the interface between the history as taught by two high school teachers and the history as practiced by seven historians was part of a larger study on the nature of subject matter teaching.

> We explored this relationship because we recognized that the teaching and learning of any subject - physics, mathematics, or poetry - represents the resolution of a tension between the higher level, more intensive professional practice of a subject and the society's desire for its children to learn something about it. (p. 81)

Leinhardt et al.'s research design collected interview and observation data from two high school history teachers and interview data from seven practicing historians. Interviews and observations were tape recorded and transcribed. Data were coded by extracting instances that defined history. A set of definitions, compiled for each teacher,

led to the development of concept diagrams. Similarly, concept diagrams were developed for each historian. Comparisons of the historians' concept maps to the teachers' concept maps revealed distinct differences.

The historians' maps were more intricately layered than the teachers' maps. The historians' maps identified core items defining history that differed from the core items the teachers' maps identified. Some of these differences would seem to reflect the different work environments and knowledge communities the two groups inhabit. Leinhardt et al explain that teachers and historians respond to different voices. Historians respond to the voices within their community of scholars. Teachers must respond to voices from parents, school boards, and testing services. Although the teachers in this study read history seriously, Leinhardt et al. describe the teachers' focus as different from the historians' focus. The teachers focus on their role as teachers rather than on how they can contribute to the discipline. Even though the historians are professors that teach, their focus is on their place in the scholarly community.

Leinhardt et al. comment that they are separating teachers from historians when others might consider the views of both groups to be aspects of a larger conceptualization. Leinhardt et al.'s study makes a point that would seem to substantiate Kember's (1997) and Fernandez-Balboa and Stiehl's (1995) assertions concerning the disparate contexts of a K-12 teacher and a university professor. Leinhardt et al. describe the teachers as concerned with the teaching of the subject whereas, the practicing historians, who are professors, are concerned with the production of the subject. Leinhardt et al. describe these different functions or focuses as "two voices that are normally kept apart" (p. 88). This description lends credence to the need for including a

question in this proposed study asking how professors describe their perception of roles since the role would seem to combine both teaching and scholarly production.

Professors' Beliefs and The University Context

Professors have beliefs about the roles they play in the university setting and their beliefs may enable them to play those roles. Kalivoda (1995) conducted conversational, open-ended interviews with ten exemplary faculty members at a large research university in order to understand what characteristics the professors identified as sustaining them to continue enthusiastically in their work. Kalivoda found the professors held some core values in common with one another. They shared a sense of responsibility "to extend their knowledge to others through their teaching" (p. 103). Their commitment to teaching invigorates them. The professors reported that making sense of subject matter for the students is personally satisfying. One participant reported, "I like the challenge of teaching - of bringing order to something to make it clear" (p. 103). This professor's statement of personal satisfaction implies a tacit belief about her or his role as a teacher; a belief that a professor's role is to bring order to knowledge. The professor's statement also implies a belief about how students learn subject matter; a student's ability to learn is facilitated by ordered knowledge.

Kember (1997) synthesized the research on professors' conceptualizations of the role of teaching. Although the complex interconnection of knowledge, self, beliefs, and role perception is found in research on K-12 teacher's beliefs, Kember remarks that "many university lecturers see themselves a breed apart from school teachers" (p. 255). The contexts for teachers and professors are very different contexts. Both K-12 teachers

and professors must respond to different expectations, value systems, traditions, and pressures in their two environments.

Kember's study develops a common model of professors' conceptions based on two main categories: a content oriented category emphasizing knowledge transmission and a learning oriented category emphasizing learning facilitation. However, Kember recommends interpreting the categories as a flexible continuum rather than as discrete categories that are fixed and hierarchical. "There will not always be an automatic relationship between underlying beliefs and observable teaching approaches. Those holding student-centered conceptions of teaching may at times still have to employ approaches which appear inconsistent with that belief" (p. 270). Professors in both categories can hold a positive and supportive regard for their students yet hold different concepts of their responsibilities as teachers.

Professors who hold concepts of their roles that place them within the content oriented - knowledge transmission category, tend to see their responsibilities as presenting information and organizing content. The goals they set for their students usually include knowledge acquisition. Professors standing more clearly within a learning oriented - learning facilitation category display a greater understanding of students as individuals. Students tend to be regarded as individuals rather than an audience. Professors expect students to apply their knowledge rather than expecting it to be memorized.

Kember's (1997) recommendation is that faculty improvement would be better approached by acknowledging the influence of professors' beliefs on their instruction. Measures to enhance the quality of teaching "should take in account conceptions rather

than concentrate exclusively on approaches" (p. 273). Although Kember's recommendations appear sound and are based upon research, they may be challenging to put into practice considering that beliefs are tacit and usually not articulated. Effecting change in a professor's instruction could be seen as a process of conceptual change and as such would need the support of a learner-centered approach on the part of faculty development professionals.

Baxter Magolda's (1996) findings that college graduates often lack critical thinking skills and contextual knowing was substantiated by Burroughs-Lange's (1996) research conducted in Australia. Burroughs-Lange's (1996) case study conducted focused interviews with 20 lecturers in an Australian university. The study's purpose was to explore the lecturers' role perceptions and beliefs about learning. Burroughs-Lange developed interview questions that were "context specific and likely to trigger recalled examples relating to their interactions with the students and their plans" (p. 30). The transcribed interviews were taken back to the lecturers for "checking and comment" (p. 30).

Burroughs-Lange's research method made use of the computer application NUD*IST and followed the constant comparative methods outlined by Strauss and Corbin (1991). The study's aim was "to develop a composite picture" (p. 38) of one site, not to classify individual lecturers according to the concepts of learning each held. The results of the analysis were depicted in a diagram that identified four elements interacting to both build and confirm the lecturers' concepts of their role. These four elements are: "their understanding of the nature of learning; the understandings lecturers hold about their students; their sense of responsibility to their field; and their responsibility to and for

their students" (p. 32). Overall, the lecturers characterized "the nature of learning as primarily involving transfer of knowledge" (p. 33) which occurred in a controlled progression.

This is an interesting comparison with Fernandez-Balboa and Stiehl's (1995) findings that professors regard knowledge as changing largely due to their interactions with students. One question that arose from Burroughs-Lange's study was who determines the learners' needs? Burroughs-Lange referred to this question in her findings. "Students' needs were assumed to be about mastery of subject matter rather than needs that had been articulated by their students" (p. 33). Learners' needs may be an area of negotiation and shared communication in the learner-centered classroom yet in classrooms with hundreds of students this poses a difficult feat to accomplish.

Beliefs about Learners and Learning

Gagné et al.'s (1992) statement that "*designed instruction must be based on knowledge of how human beings learn*" [italics in text] (p. 5) presents a challenge for professors. Professors usually have little systematic knowledge of how students learn (Cross, 1991). Having little systematic knowledge of how students learn can create a situation that is ill-structured or entangled, calling for the professor to go beyond clearly defined information. Restating Nespor's (1987) findings that belief systems become important determinants of problem definitions or goal setting in ill-structured situations, professors' beliefs may step in to play a large role in shaping their instruction.

Professors have an epistemology regarding their subject matter knowledge. They know what is considered knowledge in their own field of study, and they have beliefs about the way this knowledge is acquired. Beers' (1988) study on epistemological

assumptions in a college classroom contends that professors reveal their epistemology by their interactions with students and through their instructional materials. Beers' study examining student-teacher interactions in an undergraduate class at a liberal arts college looks for the ways the interactions influence the students' conception of knowledge. Beers observes that as professors discuss their course's educational goals, "they were referring to a set of epistemological assumptions - a sense of what knowledge consists of and procedures that one uses to obtain and assess knowledge" (p. 87). However, professors may not be aware of or articulate the role these assumptions play in their interactions with their students.

The lack of articulation also does not mean its impact is not felt or perceived by the students. "Teachers embody and thus model epistemological assumptions in the organization of their courses and their interactions with students. Teachers demonstrate their assumptions by the assignments they give, and by their conduct of class meetings" (p. 89). College students are often quick to assess a professor's epistemological assumptions, even though they would rarely use that particular phrase. Given a choice, students may select a professor in response to the way they are treated in the classroom or because they may feel as though they can understand the professor's point of view or because they wish to "adopt some of the teacher's attitudes about knowledge" (p. 89). Whatever the reason, it is apparent that the students' choice-making behavior demonstrates an awareness that the professor's epistemological assumptions shape the course and its instruction.

Beers (1988) finds differences between individual professor's epistemological positions and differences between "types of thinking required by the various academic

disciplines" (p. 88). These differences make it difficult to generalize about the type of cognitive development encouraged in an undergraduate college education. Beers also observes that a professor's epistemological assumptions are not "internally consistent" (p. 87). Inconsistency may reflect the continuing personal growth of the professor's knowledge, or may be an indication of Nespor's (1987) findings that beliefs function in ill-structured situations.

Beers does observe an important hallmark of what she terms a good teacher. When a student states, "I didn't know what you wanted" in response to a poor exam performance, Beers suggests that the student may be expressing sincere epistemological confusion and an inability to discern the professor's epistemological assumptions. "One hallmark of a good teacher may be his or her ability to seize upon such moments and work through students' frustrations to help them see an alternative view of knowledge" (p. 89). Beers' description seems to imply that a good professor has two qualities. One, the professor can understand the student's interpretation of knowledge in addition to understanding her or his own interpretation. Two, the professor can find a way to translate the two different interpretations into a whole that the student would be able to recognize as meaningful.

Student Epistemologies and University Teaching

The interaction of undergraduate students' personal epistemologies and professors' educational practices were examined in Hofer and Pintrich's (1998) qualitative multi-method study. Hofer and Pintrich's study is cited here because it provides a useful model for this inquiry both in its topic and its method. One of the study's goals was to develop a fuller understanding of how first year college students'

personal epistemologies interacts with professors' instruction. Hofer and Pintrich's (1997) extensive literature review on epistemology identifies four dimensions of knowledge and knowing: (1) certainty of knowledge, (2) simplicity of knowledge, (3) source of knowledge, and (4) justification for knowing. Hofer and Pintrich's (1998) study on undergraduates was designed to examine those four dimensions using a phenomenological approach and a case study framework for analysis.

Hofer and Pintrich (1998) established five instructional practices which carried epistemological significance: "testing and other evaluation practices, patterns of teacher and student talk, classroom structure, the physical arrangement of the classroom, reward systems, and textbook organization and language" (p. 6). Although they did not know what meaning these five practices held for the students, Hofer and Pintrich identified these five practices from a review of relevant literature. Identifying and focusing on these practices reflects a refinement of their earlier review (Hofer and Pintrich, 1997) in which they found a need to "develop a deeper understanding of how beliefs are communicated in the classroom environment" (p. 124). While pondering the process of communicating epistemology, it also may be wise to consider whose epistemological beliefs professors want their students to acquire.

Hofer and Pintrich (1998) conducted classroom observations in two introductory level classes, chemistry and psychology. Observing in the two classrooms for a period of time prior to interviewing the students enabled the researchers to develop contextualized interview questions. It also allowed the researchers to discuss situated practices. The interview questions were semi-structured in that the interviews began with the same

general sequence of questions. Follow-up questions were varied because they were based on the students' responses.

One of Hofer and Pintrich's findings included an observation that students' epistemologies are evolving. Equally important, the professors may also have changing epistemologies. Professors (as do all learners) actively construct or organize their subject matter knowledge so that it has meaning for them. That active personal construction may be reflected in a continuously evolving process of designing instruction.

Hofer and Pintrich emphasize that beliefs about knowledge have been divided into two categories: (1) knowledge and (2) the process of knowing. Although Hofer and Pintrich's focus was on the students, these same categorizations may also transfer to professors. The questions Hofer and Pintrich ponder may be equally valid to consider in an analysis of professors' beliefs about subject matter knowledge. How do the professors perceive themselves as knowers?

Hofer and Pintrich suggest that professors have the power to influence students' epistemological assumptions. The recurrent issue of articulating the tacit also appears. Hofer and Pintrich state that professors integrate, synthesize and evaluate knowledge in order to organize and teach a course. Students may be helped if the professors make that process more explicit. "For example, explaining why a body of material is sequenced as it is, or explaining the multiple sources that contribute to a particular lecture - may assist students in understanding more about the nature of instructional expertise" (p. 50). This suggestion may bear some relationship to Nunan's (1993) notion that learners need to be guided along to full participation in the curriculum.

These studies on beliefs lead to a supposition that professors' process of planning instruction and their practice of instruction may be interpreted as expressions of themselves and their relationship to their knowledge. Instruction probably permits many opportunities for professors to display their unstated beliefs about knowledge and its acquisition. There appears to be great benefit for the students if professors can articulate some of those beliefs as a part of their instruction. The consistency of a professor's classroom teaching and instructional materials communicates a clarity of thinking that may aid a student's ability to interact with the content. This consistency would appear to be an important ingredient in the practice of learner-centered instruction.

Summary

This literature review has traced developments in the concept of learner-centered instruction and has discussed its usage in a variety of disciplinary areas. The literature examined in this chapter has presented the complexity of instruction as more than a student - teacher - subject matter interaction. Learner-centered instruction has been discussed as including both course content and teaching methods.

A professor's role in the practice of learner-centered instruction is seen as a challenging and demanding role for an individual. How an individual professor's beliefs about subject matter knowledge might interplay to support, motivate, prioritize, or make sense of these demands raises intriguing questions to pursue. The pursuit of such questions needs to be mindful of McCombs and Whisler's (1997) observation that there is no one kind of teacher or one set of practices that defines learner-centered instruction. The individuality of each professor's practice contributes to an understanding of the whole.

CHAPTER THREE

Method

Introduction

This chapter describes and discusses the method used to conduct this inquiry into professors' beliefs about their subject matter knowledge in relation to their practice of learner-centered instruction. The research design for this inquiry is a collective case study as described by Fitzgerald (1998), Merriam (1998), and Stake (1995). The four professors are considered first as individual cases and presented as portraits as explained by Lawrence-Lightfoot and Davis (1997), then combined for a thematic cross-case analysis as discussed by Creswell (1998). The research method includes data collection from phenomenological interviewing according to Seidman (1998), classroom observation and instructional artifacts. This research design was selected as an appropriate way to respond this study's questions based on the characteristics of a case study and guided by a review of the literature.

Research Design

Rationale

A research design must fit the purpose of the inquiry. The congruence of fit between this study's purpose and the case study as a research design is demonstrated by Patton's (1990) remarks. Patton states case studies:

> Become particularly useful where one needs to understand some special people, particular problem, or unique situation in great depth, and where one can identify

> cases in information - rich in the sense that a great deal can be learned from a few exemplars of the phenomenon in question. (p. 54)

Patton's statement accurately details this study of four professors. The purpose is to understand and describe four purposefully selected professors' beliefs about their subject matter knowledge. Each professor, as a case, is a rich exemplar from whose depth of knowledge and experience others may learn.

Guided by Patton's advice to identify exemplars, this study was originally planned to study three professors identified by experts in the field as practicing learner-centered instruction. When an opportunity arose to include a fourth participant, it seemed wise to include the extra participant. The decision was made to cover the possibility that one participant might withdraw from the study. The fourth participant also extended the study into an additional subject matter area.

The rationale for selecting a case study as a research design was further supported by Merriam's (1998) assertion that the research design relates to both a study's question as well as end product. Merriam finds the central aspect of the case study to lie "not so much in the methods employed (although these are important) as in the questions asked and their relationship to the end product" (p. 31). The end product for this study was envisioned as the rich, thick description that Geertz (1973) has made almost synonymous with good qualitative inquiry.

Merriam (1998) explains that a distinguishing feature of a case study is its boundedness. This study of professors' beliefs is bounded by several features. First, the study is bounded by the participants' location in one institution of higher education. Second, it is bounded by the unique quality of the participants who have been selected on

the basis of the characteristics they exhibit. Third, the study is bounded by its focus on undergraduate education.

A collective case study is a term used to describe a study that includes more than one case. Merriam (1998) notes that a collective case study may present the individual cases first then offer generalizations derived from a cross-case analysis. Lightfoot (1983) used this method in the case study entitled, *The Good High School*. Lightfoot identified six individual high schools and presented a portrait of each. The portraits were followed by a cross-case analysis that identified themes describing what constitutes a good high school. *The Good High School* was the first study in which Lightfoot used portraiture.

Portraiture

Lawrence-Lightfoot and Davis (1997) describe the art and science of portraiture in qualitative research as "probing, layered and interpretive" (p. 4). Lightfoot's (1983) objective in the study of high schools was "to convey the authority, wisdom, and perspective of the subjects" (p. 4). This objective serves as a model for this inquiry whose intent is to present each case as a portrait that conveys each professor's story in a systematic yet aesthetic manner. Lawrence-Lightfoot and Davis (1997) assert that the portrait must be richly descriptive and engaging enough to enable the reader to connect to the story being told because the reader plays a role in the inquiry's validly.

Inquiry Validity

The term validity can convey a number of different meanings. "How validity is defined and treated may vary according to what researchers do and what tasks they are undertaking in what phase or stage of the research" (LeCompte & Preissle, 1993, p. 325). The task for this inquiry is not theory building. Its purpose is descriptive and

interpretive. This inquiry's purpose is to create a description of professors' subject matter beliefs in relation to their instruction in a manner that is understandable and useful to readers who share an interest in the development of instruction.

Dey (1993) states, "We can at least improve confidence in the validity of our account by considering carefully the quality of our sources, and also by cross-referencing our observations from a range of sources" (p. 256). Dey's statement about cross-referencing was addressed in this study through member checks with the participants and by meetings with a peer debriefer who has significant expertise in higher education. These checks enabled me to compare how my interpretation of the data resonates with the participants and with the peer debriefer.

Seidman (1998) discusses validity by noting that an interaction between the interviewer and the participant is inherent in the nature of interviewing. Validity is not a matter of controlling for an interaction, rather, it becomes important to reflect on the meaning that is constructed during the interaction. The interviewer's goal is to have the meaning be made by the participant, however, "the interviewer must nevertheless recognize that the meaning is, to some degree, a function of the participant's interaction with the interviewer" (p. 16). The member checks with the participants helped to insure that the meaning I made of the data was clear and compatible with the participants' thinking.

Seidman (1998) recommends care in constructing interview questions so as to help to insure validity. This study's construction of opened-ended questions encouraged the professors to determine what they considered as the primary issues. Asking questions

that let the professors decide what stories to share helped ensure that the professors were determining the meaning they wanted to convey.

Validity in this inquiry is perceived in terms of trustworthiness, as discussed by Lincoln and Guba (1985), and as integrity in the research and analysis process. Process integrity included keeping a self-reflexive research journal. The journal enabled me to keep track of emerging themes, opportunities, or findings. The journal was also the site of initial analysis. These multiple sources of information contributed to inquiry validity by providing a more comprehensive perspective and enabling cross checking as discussed by Patton (1990). A respect for validity overlaps with an awareness of the ethical issues underlying this study.

Ethical Considerations

Qualitative research presents researchers with situations that challenge inquiry ethics and moral integrity. Carew and Lightfoot's (1979) study on teachers' bias in classroom interactions recounts one teacher's distressed and unhappy reaction when the researchers shared their study's findings with the participants. The experience was troubling for everyone. Carew and Lightfoot state, it "forced us to consider again the ethical dilemmas that our research created" (p. 230). Their story emphasizes the risks involved with research that asks individuals to openly voice personal knowledge. A method of inquiry that lets a researcher interpret another's reality has ethical and personal risks. Such risks demand integrity of motives and process.

During the planning phase of this study, there were two ethical concerns. The first was a concern for the anonymity and confidentiality of the four participants. Stake (1995) asserts that educational case data gathering usually involves some invasion of an

individual's privacy and therefore requires careful planning for the protection of participants.

The participants were protected by asking them to create a pseudonym. The participants' pseudonyms are used throughout this study. Information that might identify a participant, such as the name of a school she or he attended, was deleted in the transcripts. The participants in this study are usually referred to by their academic titles, either as Dr. or Professor. This mode of address reflects the way in which I interacted with the participants during the study.

The second ethical concern revolves around the researcher's power. A researcher can exert power over the data. The data collected in this study has the potential to appear in more public arenas than a dissertation. Thus, I tried to respect the process of data collection as well as the data once collected. The participants were regarded as sharing something personal that belonged to them. The original audio tapes were returned to each participant along with a copy of the complete transcription.

Power and ethics also entered into the planning of the interview guide. No questions were asked that I could not trace as relevant to the three questions guiding this study. The participants were asked to sign a form from the Institutional Review Board (IRB), included in appendix A, before data was collected. I explained the purpose of my study and why it was of interest to me.

During the middle of data collection, an additional ethical situation became apparent that had not been considered in the planning stage. This issue involved respect for students during classroom observations. When I sat in the classrooms taking notes, the students did not know what I was doing in the classroom nor what I was observing. I

had not considered the students' feelings or attitudes, nor had I pondered whether they had a right to expect an educational experience that was observation free.

Limitations of the Design

This study contains both consciously imposed limitations and unintentional limitations. LeCompte and Preissle (1993) state that the limits of a study are set by the "predilections and stamina of the individual researcher, constraints of funding, and other exigencies" p. 263). One of the conscious limitations in this study was the amount of time allocated to classroom observations. The decision to do five observations in each class was guided by Leinhardt, Stainton and Virji's (1994) study of high school history teachers. Leinhardt et al. conducted five observations in each class in addition to conducting interviews. Although five classroom observations had been planned for each course, the actual number of observations conducted ranged from five in one class to ten in another class.

Limitations imposed in conducting the interviews were planned to avoid those specifically noted by Trunnell, Evans, Richards and Grosshans (1997) in their study of award winning health educators. Trunnell et al. report, "This study was limited by use of theoretically-derived items incorporated into the interview process" (p. 41). Trunnell et al. found that constructing questions focused on answering specific themes identified in the literature precluded the emergence of other themes from the participants. The interview questions with the professors in this study were guided rather than confined by a review of the literature. The literature guided the construction of open ended questions allowing the participants to generate their own responses and to decide what to share as

discussed by Baxter Magolda (1996) in her study on the continuing epistemological development of college students after graduation.

Unintentional limitations were imposed by my lack of knowledge in the professors' areas of expertise and the language in which the classes were conducted. One of the participants selected for the study taught a class in French Linguistics that was conducted in French. Although a memory of my Father's first language is vivid and my high school studies have served me well, I did not have sufficient proficiency to catch every nuance in the professor's comments. My lack of expertise in each professor's field of study and in its language probably means that I did not perceive the many gradations edging each professor's personalized knowledge within her or his field.

Participants

Purposeful Selection

The participants in this study are four professors teaching at a Carnegie ranked research one university on the East Coast of the United States. The participants were selected from a pool of potential participants developed through a process of purposeful selection according to LeCompte and Preissle (1993). LeCompte and Preissle prefer the word "selection" rather than the word "sample" when discussing participants and choosing what to study. "Selection requires only that the researcher delineate precisely the relevant population or phenomenon for investigation, using criteria based on theoretical or conceptual considerations, personal curiosity, empirical characteristics, or some other considerations" (p. 57). Criteria were developed as a list of characteristics that the participants must possess.

Selection Criteria

The criteria for selection in this inquiry were that the professor must be actively trying to practice learner-centered instruction and be interested in developing good pedagogy. The professors must represent as much diversity as possible: different fields of study, diversity in years of teaching experience, diversity of culture and gender, and diversity of class size they were teaching. The participants had to be teaching an undergraduate course, and have a minimum of four years of teaching experience. Professors from the College of Education were not considered for this sample based on the assumption that they were more likely to have studied some pedagogy. No professor was selected with whom I had a prior relationship either as a student or as a friend.

A review of the literature guided the process of developing a set of identifying characteristics that would be used as the criteria for distinguishing professors who practice learner-centered instruction. The participants were required to have five characteristics:

1. A belief that the construction of knowledge is a dynamic, life-long process,
2. An awareness of the students' thoughts and constructs of knowledge,
3. A commitment for sharing their subject matter knowledge with the students,
4. A reflective aspect to their teaching practice,
5. An interest in developing the quality of their pedagogy.

This list of five characteristics was given to the recognized experts to use in identifying potential participants.

Two recognized experts in higher education, one from a university's institute of higher education, and one from a university's office of instructional support were asked

to recommend a pool of potential participants based on the list of characteristics. The two experts made a list of sixteen professors based on their personal knowledge of the professors in a professional and academic capacity. The list was first screened according to who was teaching an undergraduate course during the Spring 1999 semester, the time period designated for data collection.

Selection of Participants

The first screening of the list resulted in a list of eleven professors. I created a grid listing the eleven professors, their departments, their telephone numbers, their courses, the course times, and the number of student per class. There were overlaps and conflicts in class schedules. Recognizing a selection objective was diversity, this grid led to identifying nine potential participants. Letters were written to the nine participants. The letters (see Appendix A) were hand delivered, thus giving me an opportunity to meet any of the professors who happened to be in the office on that day. This letter was followed up by a telephone call (see Appendix B) within the next two days. During the telephone conversations, four professors declined, with apologies, to be participants.

I visited with five of the remaining professors and briefly explained the purpose of the research project. The professors' class times and days became a critical selection factor because three professors were teaching classes on the same day. During this process of visiting with the participants, I decided to expand the study to four professors instead of three. The participants were asked to sign an IRB form (see Appendix C). Each professor agreed to give interview time to the inquiry. They were also asked and agreed to share their instructional materials and to let me observe in their classrooms. They were not given a list of criteria for their selection in the inquiry.

The professors selected came from different departments and their years of teaching at the university varied. The professors had different educational experiences from one another as undergraduates, and they varied in their cultural backgrounds. The classes they taught were an undergraduate level, however the classes varied concerning whether they were required or were an elective. One class, psychology, did have three masters level students sitting in with the undergraduates. The class sizes were fairly uniform with the exception of one large class in the marketing department. The courses were situated in two different colleges within the university.

Data Collection

Planning and Actuality

The planning for this inquiry envisioned four sources of data: (1) three interviews with each professor, (2) five observations in each classroom, (3) instructional materials including tests, handouts and syllabus, and (4) feedback from member checks. The concept of member checks as data was informed by St. Pierre (1997). There were some differences between the plans that were developed for this study and the actuality of the study as it was conducted. Many of the differences are explained as changes that were made to improve the study that were not foreseen at the time of planning. Some of the differences were made in response to the participants' requests. The actual process of data collection was longer than originally anticipated. Data collection took place between January 7, 1999 through May 27, 1999. During that time, three interviews were conducted with each professor and a brief follow-up interview was conducted with one professor.

The interview data itself differed slightly from what was anticipated during the planning process. It was anticipated large quantities of data would result from member checks with the participants. The data from the member checks were useful but not what would be termed a large quantity. Amounts of data from the instructional materials also varied from the planning. The professors shared class handouts and the class syllabus, however, the quantity of testing materials varied between professors. One professor gave me a copy of all the exams; another professor shared a paper submitted for publication on conducting exams. Additionally, one professor shared copies of the students' evaluations at the conclusion of the course.

None of the differences that occurred between the approved prospectus for this study and this study's actual implementation impeded this study's ability to answer the questions developed in the planning process. Reflecting on those differences contributed to much of the personal learning I experienced as a result of this study.

Interviewing

Interviewing, according to Kvale (1996), is a useful method of collecting data when the inquiry's purpose is studying "people's understanding of the meanings in their lived world, describing their experiences and self-understanding, and clarifying and elaborating their own perspective on their lived world" (p. 105). This inquiry was planned to follow the phenomenologically based interviews described by Seidman (1998). Seidman's method follows a structured sequence of three interviews, each with a different focus and purpose.

The interviews in this inquiry were scheduled at the professors' convenience. Each of the interviews was held in the professors' offices. The professors scheduled time

for the interviews, and most were conducted with either no interruption or with minimal interruption. I audio taped and fully transcribed each interview.

Each professor was told the purpose of each interview before it was conducted. The purpose of the *first interview* was to develop the participants' life history in relation to the interview topic. The professors were encouraged to put their work as professors and their development of their subject matter knowledge in the context of their life story. The participants were asked about their early experiences in school, their teacher mentors or role models, and their process of coming to be in their teaching fields in higher education.

The purpose of the *second interview*, according to Seidman, was "to concentrate on the concrete details of the participants' present experience" (p. 12). The participants were asked questions about events drawn from the classroom observations. Questions were asked about their knowledge and practice of instruction. They were asked to discuss their thinking about instructional practices such as setting course objectives and selecting textbooks.

The *third interview* was described by Seidman as asking the participants to reflect on the meaning they make of their experience. Seidman defines meaning as "intellectual and emotional connections between the participant's work and life" (p. 12). The purpose of the questions was to understand what sense does the participant make of their work as professors. The third interview included asking the professors to reflect on their expectations for this study and their concept of learner-centered instruction.

Interview Guide

Seidman (1998) cautions that an interview guide may have preset questions designed to test hypotheses, and may encourage the interviewer to anticipate a response. Merriam (1998) suggests an interview guide may be helpful with semi-structured or open-ended questions. Hofer and Pintrich (1998) used an interview guide as a list of topics the researchers wanted to cover. This notion guided the development of an interview guide for this study (see Appendix D). A meeting with a committee member and the peer debriefer helped shaped the interview questions for the concluding third interview.

Classroom Observations

Maxwell (1996) advises, "Observation often enables you to draw inferences about someone's meaning and perspective that you couldn't obtain by relying exclusively on interview data. This is particularly true for getting at tacit understandings" (p. 76). The purpose of the observations in this study was four-fold. First, to see the practice of learner-centered instruction in a variety of academic settings. Second, to help formulate questions based on actual practice. Third, to look for ways that the professors' epistemologies might be demonstrated in their practice. Fourth, to provide additional sources of data for good triangulation. Adler and Adler (1994) explain, "observation produces especially great rigor *when combined with other methods*" [italics in text] (p. 382). The observations were not intended to evaluate the professors' quality of instruction, rather their purpose was to expand the data and more fully inform the findings.

The observations began on the first day of each class with the exception of the marketing class. Marketing and psychology met on the same day and at the same time. As an observer, I entered into the field of the classroom with extensive insider knowledge of common student behaviors. This prior familiarity with the rules of conduct led me to anticipate an easy and unobtrusive entry into the setting. The observations were planned to be non-participatory and I anticipated being invisible to the students in the setting. Differences existed between what was anticipated during the planning of the observations and what occurred during the conduct of the observations. The existence of these differences expanded my understanding of conducting ethical research and did not impede the ability to conduct this study.

There were five observations made in two of the classes, marketing and psychology, seven observations made in the French linguistics class, and twelve observations made in the sociology class. The variation in numbers reflected a schedule conflict with my responsibilities as a teaching assistant and reflected the suggestion of a participating professor to conduct more than five observations.

The classroom observations were not audio taped. I made written field notes. The observations were not conducted according to a pre-established grid or guide such as Carew and Lightfoot (1983) used in their study of teacher interactions because the purpose of my observations did not match the purpose of their study's observations. Hofer and Pintrich's (1998) study of epistemology in the classroom provided a more useful model for conducting the classroom observations. Although Hofer and Pintrich determined that four interactions in the classroom held epistemological significance, they did not use an observation instrument. "Observations were recorded in writing as

running field notes" (p. 10). My field notes recorded as much data as possible. This included data about the classroom, the weather, the students' behaviors, the professors' movements, clothing, tone of voice, questions asked, and more. Everything was regarded as data.

Treagust's (1991) interpretive study of two biology teachers notes that the first observations were relatively unfocused. "However, as the study progressed, an understanding of what was happening in each classroom emerged and the data became focused"(p. 331). My field experience concurred with Treagust's findings. There were patterns and rhythms to the professors' classroom behaviors that became apparent after the third classroom observation.

During the observations, I avoided talking with the students. I did not want their opinions of the teacher or the subject matter to influence my thinking. A student in the French Linguistics class who knew me as a TA asked if I was studying French. I responded that I was doing some research observations and she said she would keep it a secret. A student on the bus recognized me from the psychology class and asked if I was a psychology major. One day, while observing in the marketing class, the professor pointed to a person sitting in the front and said, "This is a grad student observing large classes and there is another student up there (indicating me in the back of the auditorium) doing research. So I'm the guinea pig and so are you." It was easiest to do unobtrusive observations during the first or second days of the class meetings. After that time period, the students began to recognize one another as students who shared similar behaviors that I did not share.

Artifacts

Hofer and Pintrich (1998) note that instructional materials carry epistemological significance. Instructional materials also constitute an important role in instructional design. According to Gagné, Briggs & Wager (1992), instructional materials need to be congruent with the instruction as a whole in order to support the goals and objectives identified for the course. A major artifact in this study was the course syllabus. The syllabuses were data created by the participants. They were already present in the research setting and not produced for the research purpose under any influence from the researcher. Each syllabus, as an artifact, was examined singly for information it could reveal concerning the professor's beliefs about subject matter knowledge. Then the documents were compared with one another in my search for common themes. I put questions, as suggested by Merriam (1998), to the documents in the same way that questions were put to the other data.

The professors sent me copies of their class exams. The exams became a particularly useful artifact in developing interview questions whose responses helped me to understand that departments may differ in the requirements placed on professors' instruction. The professors' responses to my questions about their exams expanded my awareness of the constraints professors experience as they seek to develop learner-centered instruction.

Data Analysis

Overview

Dey (1998) describes analysis as a rigorous and logical process that breaks down the collected data into bits and assembles them into a whole that can interpret, or explain, or understand, or even predict. "In doing so, we go beyond our initial description; and we transform our data into something it was not" (p. 30). LeCompte and Preissle (1993) explain that analysis relies upon a process of differentiating patterns and regularities in the data that can be transformed into categories. Day (1998) prefers the use of the phrase 'categorizing data' in place of the commonly used phrase 'coding data.' Coding, for Dey, has a mechanistic overtone that he finds to be at odds with the conceptual task involved in categorizing. Coding is associated with "a consistent and complete set of rules governing the assignment of codes to data, thereby eliminating error and of course allowing recovery of the original data simply by reversing the process" (p. 58). Categories, as Dey (1998) and LeCompte and Preissle (1993) suggest, are used as a way of organizing, understanding, and thinking about the data. The categories can be defined, compared, grouped, or classified. The categories need to be connected in order to reassemble the bits of data into a new whole. The analysis includes connecting the categories and leads to a fresh view. The connections between categories in this study were informed by Polanyi's (1974) theory of personal knowledge as well as the literature reviewed in Chapter Two.

The categorization and analysis of the data in this study was a highly iterative process going back and forth between categories and raw data and themes. During the initial stages of analysis, each professor's data were grouped and examined in detail.

Categories began to take shape as I found patterns in each professor's interview data that I could compare to the data contained within the professor's course syllabus, exams, and observation notes. A comparing of interview data to the instructional artifacts and observations was both a method of triangulation and a process that helped me to develop a fuller portrait.

Progressing more clearly into the category development level of analysis described by Merriam (1998), I created lists of the categories I found, always being conscious of using the participants' language to tell me what was important, and to guide my naming of a category. During this stage, the categories became unmanageably numerous reflecting my immersion in the data (Merriam, 1998, p. 184), and I sought advice from a committee member with expertise in qualitative research.

Accordingly, the categories and their supporting data were reexamined and sorted by comparing them to the study's purpose and to the three questions guiding the study. This focusing process helped to determine what data supported the study's purpose and was therefore useful to include, and what data was more appropriately set aside for use in another study. During the within case analysis, I selected data based on what I considered would most vividly and fully help the reader to see each professor's portrait. During the cross-case analysis, the data were searched specifically for the three questions guiding this study. Data informing the three questions were distilled and data that did not inform the questions were omitted from the dissertation.

Journal writing is described by Richardson (1994) as a process of analysis and proved helpful in this inquiry. Additionally, keeping a journal helped, as Lawrence-Lightfoot and Davis (1997) note, to focus the analysis. The journal also fulfilled

Wolcott's (1990) advice to begin writing immediately. Journal writing was used throughout the process of data analysis and continued throughout the entire process of writing the dissertation.

The data were analyzed in two different ways. First the data were analyzed to create portraits of each professor. The data were categorized, as Seidman (1998) recommends, by marking "the passages that are interesting" (p. 100). Through a close reading and rereading, I began to chunk the categories into larger units that helped to describe each professor.

Second, the data were analyzed as a cross-case analysis. The data were re-categorized by keeping this inquiry's three questions in mind. Categories were not developed in advance, however, the questions helped guide the process of categorizing. The categories were then grouped into themes according to each question.

Data Management

The process of transcribing the data was a slow process, and the pace enabled me to formulate reflective thoughts that I wrote in my journal. The interviews, the observations and the transcribing were occurring simultaneously. Towards the end of the data collection period, this simultaneous and interactive aspect of transcription and collection enabled me to note preliminary perceptions of similarities and differences between the professor's thinking and actions in the journal.

After all the interviews were transcribed, printed out, and grouped in individually labeled folders, I played back each audio tape while reading through the transcription. Any reaction or question was noted in my journal as I read and listened. Any mistakes made in the transcriptions were also changed. Following this process, each professor's

interview transcription was printed. Then the original audio tapes (no copies were made) and a complete copy of each professor's transcripts were returned to each professor.

The data were managed using a data management software system, QSR NUD*IST. Data can be entered into the NUD*IST database then indexed. NUD*IST uses a tree structure metaphor to index the database. Categories the researcher creates in the database are stored at nodes, the point where a tree's branches splits. Learning to use NUD*IST was difficult and extremely time consuming. I experimented for three weeks with entering the transcribed interviews into the database and trying to understand the technique of coding with the software.

NUD*IST reads text units that are created by entering a hard return in the text. I went through all the transcripts again in a process that Bogdan and Biklen (1982) might describe as identifying units of data, inserting hard returns after all the pieces of text that seemed to hold some meaning. The units were very fine and varied in length. Some were as short as eight words, some as long as 56 words. None of the marked text units were identified by any name or code during this initial process of data entry into NUD*IST.

I began to categorize the text units on the computer screen selecting and naming them as nodes. This naming process introduced a simple level of analysis as described by Merriam (1998), "the process of making sense out of the data" (p. 178). Trying to group text units and develop categories on the computer screen became too difficult. I needed to see the data as a whole rather than the piece meal quantities displayed on the screen, and I needed to physically handle the data. I printed out each professor's transcript with its NUD*IST numbered text units on different colors of paper: pink for psychology,

green for marketing, blue for linguistics, and yellow for sociology. The data was then cut apart with scissors and taped to separate poster boards labeled for each course.

Moving back and forth between data on the poster boards to writing in my research journal, I felt more confident of the appropriateness of categories created for the portraits. I moved back to NUD*IST and began attaching the categorized nodes to NUD*IST's tree display. I wrote a memo and definition for each node attached to the tree display. The memo at each node was a miniature analysis and writing it helped me to think more deeply about the category's meaning. Writing a definition for each node became more useful than the code name attached to the memo. The process and the product of writing a definition were an important part of the analysis.

During the cross-case analysis, I again moved back and forth between the poster boards with each professor's data and NUD*IST. I used NUD*IST much more actively during the cross-case analysis. NUD*IST's search capability became extremely useful for developing themes. I searched the data for specific words such as 'students' or 'teach' and asked the software to create reports on the searches. The searches enabled me to discover and more fully understand the different ways each professor was using a particular word and the context in which it was being used. Reports on these searches were printed out and inserted into a folder. The research journal, the memos, and the definitions created in NUD*IST provided a triangulation of data sources and became important to the study's integrity.

Summary

This inquiry into professors' beliefs about their subject matter knowledge in relation to their practice of learner-centered instruction was conducted as a collective case

study. The data analysis was comprised of a systematic search through data collected from interviews, observations, and artifacts. Using the computer application, NUD*IST, the data was separated into text units and grouped into categories. Moving iteratively between the inquiry's questions, the categories, and the data as a whole, categories were compared, questioned, sorted, and recombined for both a within-case and cross-case analysis. The results are presented in Chapter Four as portraits of each professor, and presented in Chapter Five as themes.

CHAPTER FOUR

Four Portraits

This study was designed to describe the beliefs of four, purposefully selected, professors about their subject matter knowledge in relation to their practice of learner-centered instruction. The four cases in this chapter are treated as portraits based on the data collected over a four-month period. The professors' portraits were created following Lawrence-Lightfoot and Davis's (1997) concept of portraiture. Portraiture is "an intentionally generous and eclectic process that begins by searching for what is good and healthy and assumes that the expression of goodness will always be laced with imperfections" (p. 9). The portraits in this chapter include a description of each professor's classroom and office settings.

The data for these portraits came from three sources: transcribed interview tapes, field notes taken during classroom observations, and instructional artifacts such as syllabuses and exams. Following Seidman's (1998) guidelines, the professors' transcriptions were regarded as a highly personal narrative of their experiences. I read and reread the transcripts, looking for passages that helped to explain how each professor regarded academic experiences, and how each professor described classroom instruction, students, and course content. The resulting passages became the basis for creating the individual portraits. Reading and reflecting on the professors' transcripts was guided by Polanyi's (1974) theory of personal knowledge.

The professors' portraits are comprised of a description of their classroom settings, their stories, and conclude with a visual display. The display is like a concept map that represents beliefs or concepts that are important to the professor's instruction. The portraits are based heavily on data from the interviews and observations.

Introducing The Professors and Their Courses

The four professors in this study were located in departments of Sociology, Marketing, Romance Languages, and Psychology at a large research university on the East coast of the United States. The classes they taught differed in size and physical environment. Two of the classes were requirements, two were electives and, with one exception, they were all 3000 level undergraduate courses. Although two classes had either a teaching assistant or a graduate assistant, each assistant interacted differently with the professor in the classroom and fulfilled different functions in the courses. The four professors taught both graduate and undergraduate classes, however this study concentrated on just one of each professor's undergraduate courses (see Figure 2).

Professor (pseudonym)	Department	Years at University	Name of Course	Class Size	Requirement or Elective	Course Level	TA
Everett Hughes	Sociology	8	Sociology of Organizations	38	Elective	3000	no
Sidney Alexander	Marketing	22	Principles of Marketing	299	Requirement	3000	yes
Cally Romling	Romance Languages	13	French Linguistics	40	Requirement	3000	yes
Elizabeth Roberts	Psychology	7	Psychology of Women	36	Elective	4000	no

Figure 2. The professors and the courses they teach.

Everett Hughes:

The sociology professor, Everett Hughes, taught an undergraduate course entitled The Sociology of Organizations. Dr. Hughes was teaching the course for the third time in his eight years at the university. The course had forty students and met three times a week for fifty-minute class periods. The course was an elective for sociology majors and was comprised of students from other departments as well. The course was significant for Dr. Hughes because it incorporated his special interest area and related to the topic of his dissertation.

He described one aspect of teaching he found particularly enjoyable as selling students on the material. "I think maybe it's a bit of a facilitator, or salesperson, or showing the students that people who read things are people they can use as models for their own way of working through this material." Dr. Hughes saw his role as being like a salesperson, and yet he also believed he was modeling a behavior. He perceived his behavior as showing students how a scholar who loves his field reads and rereads sociology books.

Sidney Alexander:

The marketing professor, Sidney Alexander, had won several teaching awards during his twenty-two year career at the university. Twice he had been awarded the university's highest teaching honor. Dr. Alexander was teaching a Principles of Marketing class with 299 students. The class was required, was seventy-five minutes in length, and met twice a week. He enjoyed teaching the class even though it was not in his research area. Dr. Alexander perceived marketing to be related to how people are treated. "As you teach marketing, you develop more of an appreciation for customer

service." He uses customer service as his indicator of the quality of a company's marketing acumen, and the regard the company has for people. Treating people with dignity and respect is very important for Dr. Alexander and infuses his classroom interactions with the students. He is always conscious that he wants his teaching to be about more than learning marketing concepts.

Cally Romling:

A professor in the Department of Romance Languages, Cally Romling, developed the course she was teaching in French Linguistics. The class had forty students, met three times each week for fifty minutes per class, and was a required course for French language majors. Dr. Romling has been teaching at the university for thirteen years. She describes linguistics as a personally satisfying field of study. Part of her satisfaction with linguistics comes through her continuing reflection on "how her brain likes to think." Dr. Romling places great value in exploring how her brain works, or what she likes to think about, and she extends this respect for reflecting on thinking to her students. The course packets she prepares contain exercises that require the students to explore their thinking within the field of linguistics. "There are some students who without being exactly like me, can still find some connection between what they like to think about and what is going on in class." Dr. Romling respects the students' rights to their own fields of interest, to their own goals, and, although they differ from her own, she believes the class gives the students an opportunity to find some meaning in the way she presents the study of linguistics.

Elizabeth Roberts:

The psychology professor, Elizabeth Roberts, was teaching a class on The Psychology of Women, a subject that reflected one of her special interest areas. She had been teaching at the university for seven years. Dr. Roberts's class of thirty-six students met twice a week for seventy-five minute class periods. The class, a 4000 level, was an elective for psychology majors and included three masters level students enrolled with the undergraduates. The fact that Dr. Roberts was using a textbook written by a professor she had as an undergraduate helps Dr. Roberts feel connected to a strong and positive web of people and experiences. "What a feeling, that sense of connection, because he was very, very important in my life, and my development as a psychologist, and now as a teacher." The textbook embodies myriad connections extending outward in all directions and linking Dr. Roberts to interactions that help her to feel good about herself. These supportive connections include interactions with her kindergarten teacher, her high school chemistry teacher, her college professor, and now to her own work as a professor. These links support Dr. Roberts as she attempts to facilitate her students' efforts to make connections between the topics in the class to their own experiences in life.

The Classroom Settings

The classroom was part of the learning space the professor and the students inhabited and that learning space became part of the instruction, and part of the context for instruction. Although the classroom as an instructional space was not considered in the planning of this inquiry, it emerged from the professor's interviews and in my observations as a factor with which they were forced to contend as they carried out their instruction. The importance of that learning space, its impact on a professor's behavior

and a student's ability to construct knowledge, must be acknowledged. The classrooms in which the four professors taught had been designed with both assumptions and knowledge about the teaching and learning that would take place within that space (Criticos, 1998). These assumptions were conveyed to professors and students as the classroom's physical space acted physically and psychologically to support or restrict behaviors and interactions.

Throughout the observation period each class met in its own classroom, although three professors gave assignments that made use of facilities outside the classroom. Three computer projects were a part of Dr. Alexander's marketing class although the professor did not teach in the computer lab. The projects were managed and taught by the computer lab's graduate assistant. An afternoon bus trip to visit and tour a car manufacturing plant was part of Dr. Hughes's sociology class. He arranged for, and accompanied the students on the trip. Although it was not mandatory for the students to go, Dr. Hughes strongly urged everyone to participate. Dr. Romling required the students to go to the library to watch a French movie on videotape. The movie became a basis for group work and activities throughout the semester. Even though these instructional activities outside the classroom were part of the students' educational experiences, I decided not to make any observations outside the classroom. Confining my observations to the classroom environment enabled me to stay less involved with the students, and to feel that I was less intrusive in their space.

The First Day of Class

Sociology

The class met on the third floor of one of the older buildings on campus. The room's wall of large windows brought in full sunshine giving the large, square room a light feeling. However, as the Spring temperatures began to rise, the room often became warm and stuffy. One particularly warm day, Dr. Hughes brought in a large rectangular fan that he placed on a desk in the front of the room. He later asked the students if they wanted him to bring the fan again. Several scattered voices from around the room said, "yes."

The room was completely filled with chair-desk units of molded plastic that had large writing surfaces. The chair-desks had been arranged in rows with no walking space left between the side and back walls. There were more chair-desks than there were students. The first day of class, Dr. Hughes came casually into the classroom five minutes before class was scheduled to start, and sat on the corner of the teacher's desk placed in the front of the room. He began talking in a very relaxed voice, asking if anyone in the class did any photography. He held up a long, rectangular photograph and explained that a friend just sent it to him. He wanted to know how it was done.

This relaxed and informally comfortable chat set a tone for the class that continued throughout the observation period. During the five or six minute period before the more formal portion of the class instruction began, Dr. Hughes usually entered the classroom and initiated a conversation with some students. These conversational dialogues usually took place with the students in the front two rows of the classroom.

The conversations generally revolved around some aspect of sociology or one of the readings.

One day, before class started, Dr. Hughes walked to the middle section of chair-desks and sat down beside a student named Donald. Dr. Hughes spoke quietly with Donald while holding out a paperback book. He said that he had heard Donald talking about a particular topic in the hallway and it made him think that Donald might enjoy this book that he himself had read as an undergraduate. He explained that the book had a lot of his pencil notes in it. "So, you can see what my juvenile mind thought. But I think the author explains this pretty well." Dr. Hughes handed the student the book, and then went to the front of the class to begin the class.

Friday, January 8, was the first day of class. Dr. Hughes thanked the students for coming to class, acknowledging that many students do not bother to come to class on Fridays. He discussed the syllabus and talked in detail about the books he had selected as readings for the course. He explained why he chose the books for the course, assuring the students that they would be interesting reading. He presented them as reading books rather than textbooks. "These are books you can curl up on the sofa with, make a pot of coffee and read."

During the class period, the professor stayed in the front area of the classroom. Dr. Hughes's tendency to walk slowly back and forth as he talked had the effect of creating a space of his own in the front of the room. Because the room's one door was located in the front of the room, any student coming in late was compelled to cross the professor's space to get to a seat. The professor's tone of voice was relaxed and not hurried and he looked around the room at the students as he spoke. When there was

information Dr. Hughes believed the students needed to know, such as definitions of terms, his voice and manner of speech gave the students clues. He also spoke more slowly and repeated the information more than once.

There was a rhythmic pattern that seemed to emerge during the formal instruction period in the classroom. The pattern alternated between the professor asking questions and the professor lecturing. This pattern was disrupted on those days when a topic struck a particular note with the students, and they raised their hands to initiate questions, and relate their experiences to Dr. Hughes.

Marketing

Dr. Alexander's voice was loud and clear in this newly refurbished auditorium. The seats were comfortable theater style seats with pull up writing surfaces. The room was carpeted and the sound-absorbing baffles on the walls were color coordinated with the carpeting and seat covering fabric. The seating area was raked and angled outward in a fan shape making the room feel like a small theater. There was a very large screen covering almost the entire area on the front wall. There was a compact, black metal cabinet on the right side at the front of the room that contained the room's audio-visual equipment. There were two doors in the front of the room and two doors in the rear.

Dr. Alexander's voice had presence in this large space, because he was wearing a wireless lavelier, and the two speakers mounted high on either side of the screen in the front of the room were good quality JBL's. As he taught, the professor always carried two things, a hand-held microphone and a small collection of papers, his class notes. He passed the hand-held microphone to students whenever he asked a question. The

technology supported Dr. Alexander's teaching and made his style of classroom interaction possible.

The first three days of class included activities that the professor referred to as housekeeping. These included going over the syllabus, filling out information cards, getting pictures taken, and being told how to manage assigned projects in the computer lab. This was the second day of class, my first day of observation. Students poured into the class from the room's four doors, and the front of the room was particularly busy and crowded. Dr. Alexander was in the front of the room talking with the graduate assistant. They dimmed the lights in the auditorium, and then turned them back up. "Good morning," Dr. Alexander said. "OK, we're going to get started. Before we do, this is really important, you need to read every word of the syllabus and understand what we're doing, because I'm going to hold you to them." Dr. Alexander told the students about office hours and the date of the final exam. "For those of you reading the paper, you need to read the syllabus. That's one of the rules. At 11 AM, you need to be here." The professor was very explicit about rules and classroom expectations.

During the second day of class, Dr. Alexander took a picture of all the students. During class the following day, the students filled out 4x5 information cards, and affixed their pictures to the cards. Dr. Alexander had a very efficient system for taking the students' pictures. He explained the procedure clearly to the students telling them how long the process would take. The students moved row by row to the front of the room and stood in groups of four for the picture. The process was quick, and the class of almost 300 students was efficiently managed. Dr. Alexander has been doing this for several semesters, and in the initial interview he showed me a plastic storage box that

contained pictures from past classes. When the picture taking was completed, he began the lecture.

When Dr. Alexander lectures, he often walked up the aisles rather than remaining fixed in the front of the room. He has established patterns of behavior in the classroom derived from his years of experience teaching large classes. When he asks students a question he gives them the hand-held microphone to respond. He told the students that when he gives them the microphone to respond to a question, they are to state their names first, and then answer the question. The professor always uses the students' names when he responds to their comments or questions. The room's sound system allowed the students to fully participate in this large class, for without it, they would not have heard one another's comments, questions, or answers.

One day, when the professor walked up the right aisle, crossed behind the seats and started down the left aisle, he noticed a student reading a newspaper. "Here's a young lady reading the newspaper," the professor said stopping by the row. He handed her the microphone and asked her for the answer. She responded that she did not hear the question. Without any indication of annoyance, anger, or surprise the professor simply repeated the question allowing the student to respond.

French Linguistics

The French linguistics class was a confusing place on the first day. The class was being held in a different classroom located in a different building than what had been listed in the printed course catalog. Enrollment for the course had exceeded expectations, and rather than turn students away from the required course, another classroom had been found. Students were actively coming and going before the professor arrived, and asking

one another what class was in this room. When Dr. Romling came into the classroom, it was almost full. She looked around the class at the students, smiling with her whole face. From the moment she began speaking, she spoke entirely in French. It became apparent that some students thought they were in a Spanish class and realizing this, Dr. Romling switched to speaking Spanish. She accepted the students' confusion with good humor and returned to speaking French, asking if there are any others who were lost or confused. Both the professor and the teaching assistant stood in the front of the class, looking at each of the students' faces with interest.

The room was a long, rectangular shape with high ceilings and the paint on the walls was peeling in many places. The chair-desks were packed so tightly together that it was difficult to maneuver into any seats beyond the second row. There were no extra seats so that when everyone attended class, the long rows were full. There was a moat of empty space separating the professor's desk in the front of the room and the students who were crammed together. There was no audio-visual equipment in the room other than an old and small wall mounted pull down screen. Its pull down string dangled high on the wall behind the professor's wooden desk

The two walls of high windows brought natural light into the room as well as outside noise. The days when ground crews were working, the last two rows of students had to separate lawn mower sounds from French sounds. The one day I sat in the corner formed by the intersecting window walls, the air became so warm and stuffy that it was difficult to concentrate on doing observations. I deliberately never sat in that corner again and I was not surprised to observe a student on another day unsuccessfully attempting to open a window.

Dr. Romling chatted with the class as a whole almost constantly. She explained everything she was doing, even when it was just erasing the chalkboard. She went over the syllabus in detail with the students explaining office hours and how they could get in touch with her or with the TA. She explained the grading policy including the grade for the classroom participation. This information was discussed with a cheerfulness. She was constantly looking at the students and her face smiled.

This first day, she wanted the students to learn one another's names. This was accomplished by an activity of self-introductions in which the first student said, "Bonjour, je m'appelle and inserted his or her name." [Good day, my name is . . .]. The rest of the class responded, "Bonjour student's name." The second student gave the greeting inserting his or her name, and the class responded, "Bonjour first student's name. Bonjour second student's name." This was repeated until all the students had given their names and greeted one another. This exercise took almost 15 minutes and concluded the class for the day.

Psychology

The psychology classroom was a square room with cement block walls. Just prior to the beginning of the first class, Dr. Roberts and I had completed the first interview. We walked from her office to the classroom that was located in a different building. As we walked up to the second floor and found the classroom, she paused outside the door saying, "Let's wait a minute until it's time for class to begin."

There were no windows in this room and only one door. The students sat in seats bolted to the floor that were lower in height than most adult size chairs. The room was filled with five long, narrow tables placed diagonally in the room and also bolted to the

floor. There was a teacher's desk in a corner of the room. A large television monitor sat on a shelf above the teacher's desk. The TV monitor was wedged into the corner and placed much too high to reach the controls. The green chalk boards on the two corner walls had five line musical staffs permanently painted on them. The arrangement of the immovable furniture confined the professor's movements to the corner and to the narrow space in front of the chalkboards. Dr. Roberts said later that the room felt like a trapezoid from her point of view.

There was an overhead projector placed at one end of a long table. During the first day of class, Dr. Roberts turned it on to show three transparencies depicting cartoon characters known to the students. The projector's placement meant that the images could not easily be viewed by all the members of the class however, there was no place to put the projector that would enable all the students to see.

At the given class time, Dr. Roberts walked through the door and put her materials on the teacher's desk. She greeted the class telling them, "My plan for today is to introduce you to the topic." She asked the students to take out a piece of paper, and write down what they expected to learn in this class. She assured them that they would not be graded on this writing, and that they did not need to write their names. After a few minutes, Dr. Roberts requested that they pass the papers forward to her, and she began to read the responses aloud one by one. Her voice was confident and clear as she read the students' responses. She paused after each one to develop the student's comments in relation to the course content or to the field of psychology.

As Dr. Roberts read and discussed the students' expectations, there was no criticism of any student's comment and no expectation was dismissed as insignificant.

Sometimes, after giving her response to a student's expectation, Dr. Roberts would ask how the students in the class regarded the expectation. "You know sometimes it's important to acknowledge that we have personal reactions." More than once she said, "We will explore arguments that support both positions." Dr. Roberts stated that she was glad to see the diversity in their comments. "I hope you will be able to make connections between your own life and this class. Sometimes then you put things together, and ask different kinds of questions." Dr. Roberts seemed to be giving the students permission to relate the course content to their personal lives outside the classroom. Although she did not tell them how their questions might differ, her statement may have been a clue that she anticipated change.

Over the course of all the class observations in each class, I changed my seat location several times. I was struck by the obstacles the physical qualities of each classroom presented for both the students and the professor. Seated in the first three rows of the psychology classroom, Dr. Roberts's energy is apparent and involving. The four students in the first row were physically very close to the professor, and they had little awareness of the majority of the class behind them. However, when seated in the last row, the professor was more lost to sight and the hard cement walls caused unpleasant reverberations. This physical environment did not support Dr. Roberts' instruction, nor did the environment facilitate much interaction between students.

Completing The Portraits

This section completes the professors' portraits with my story of their lives and work as professors. The stories for these portraits were comprised primarily from data collected during the interviews and expanded through the data collected in classroom

observations. Instructional materials, including exams, were collected from each professor. These materials were treated like artifacts that helped to further describe the professors' beliefs about their subject matter and their practice of learner-centered instruction.

The peer debriefer pointed out, in our first meeting, how much the four participants were trying to help me. The willingness and cooperative attitude of the four professors made this study possible. During the initial contact, each participant expressed an interest in the study's topic, and a belief in its value as a reason for agreeing to participate.

The interviews followed the phenomenological format specified by Seidman (1998). Each interview began with a brief explanation to the participant about the interview's purpose. Although I had developed an interview guide, the interviews followed a conversational style. Follow-up questions based on the participants' responses were used extensively as a way of encouraging each interview to more fully reflect each participant's thinking and personality.

A visual display, inserted after each professor's portrait, was created as a way of communicating issues that appeared prominent in each professor's data. The displays were created based on my perception of what seemed meaningful or prominent in each professor's data and would help to explain each professor's beliefs. Content for the displays were derived from my initial analysis of the data and created using Microsoft word. The professors were given a copy of the displays along with chapter four as part of the member check.

Sociology

Dr. Hughes's office was located at the end of a short hallway on the second floor, a large, almost square space with no windows. The office door was off-center on the wall, thus, it created an area to the left of the door where he had placed his desk. It was in this portion of the room where all the interviews were conducted. The tape recorder was placed on the desk. Dr. Hughes sat on one side of the desk, and I sat on the other. The interview, which began with an exploration of his experiences in the early years of school, came to be a story about the notion of work, its importance in his life, and its influence on his concept of sociology. Work was a leitmotif that played throughout Dr. Hughes's life in many ways.

> I've always liked to work, and even in jobs that I didn't like per se I found them interesting. That surely has carried over into, and guided what I do in my own research now. And what I teach surely is related to that type of interest.

Interest in work influenced Everett Hughes's academic choices. It shaped his dissertation, and it occupied a lot of his time even as a young student. "I formed a company with my brother and mowed lawns and did things like that when I was a kid."

As a young person who would eventually become an academic, school was not a particularly positive experience for Everett Hughes. He described himself as, "labeled as a malcontent," and spending time with a, "whole bunch of other little boys," sitting outside the classroom in lunchtime detentions.

> I had trouble hearing my teacher in the first grade. Got moved up to the front of the room. I had a very shy first, or second year teacher, Miss Rose, who spoke in a very soft, self-effacing way and I could not understand what she was doing.

Work may have been more understandable, more interesting, and more satisfying than school. The structure of the school environment acted upon Everett Hughes as a young student. The school environment was not a place where he was encouraged, or probably even allowed to take an active role. It was not a place where he took charge. "You worked your way through the [teaching] staff basically by being promoted to the next grade, or passed on to the next grade." It was in the work place that the young Everett Hughes took charge, and was active instead of being acted upon. Even as a teenager he became a manager of a group of workers in a paint stripping plant.

The idea of going to college was not something that Everett was convinced had much value, nor did he have first hand knowledge of the experience. "I didn't know any professors because we lived in a small rural community, there were no colleges nearby." He received some encouragement from some high school teachers and, "was kind of coerced into going to college by my Mother." Not knowing any college professors meant that Everett did not think of academic work as a career option. "I thought more of learning a trade and then perhaps becoming a skilled trades person over time." During college, he found some of the intellectual excitement that had not been present in his prior education. "I didn't really know until college how much I enjoyed the sort of more abstract, academic aspect of that kind of work." This enjoyment compelled and enabled Everett to look like "a geek in front of the students."

He described himself as working intensely in his classes, "Once I started realizing how much I enjoyed the stuff." There were two professors, one in sociology and one in philosophy, who were especially important for him. He admired their intellectual ability. During this part of the interview, Dr. Hughes vividly described a classroom incident that

indicated the philosophy professor noticed Everett's face during class and reacted to him. "I distinctly remember one day when I must have been making some facial gesture in class, a class about the size of the organizations class you're sitting in on, and he stopped and said, 'What is it now, Hughes?'" The professor's reaction seemed to convey that in this class, Everett Hughes was visible, and that his responses mattered. "He had been paying attention to my facial gestures." This was a particularly telling incident because it tends to describe a teaching style Dr. Hughes practices. He clearly watches students' faces when he is in the classroom. Dr. Hughes pays attention to the students' faces as he is teaching, and he values their reactions to the material.

Discovering that certain academic subjects were fascinating led Everett Hughes to consider a career in academia. This plan changed when he had a bad motorcycle accident just before the beginning of graduate school. During the time that he spent recuperating, Everett Hughes worked as a manager in a convenience store, and there he discovered that he was unable to sell his ability to think, and critically evaluate to his employers.

> They didn't care. So, what I did is, I sort of made this pact to myself that I could go back and study more sociology or philosophy, but I had to learn something that if the train was derailed, I could sell to employers, that people in the world would value. That I wasn't ever again going to work for a nearly minimum wage at a lousy job.

Dr. Hughes enjoys his current work of being a professor at a research university. He explained that the teaching, research, and data collection aspect of this job, "provides an incredible mix of things, and I love that mix." Regular participation in a demanding recreational sport's activity enables Dr. Hughes to mix work settings - the academic

setting and the sport setting. One of his goals is to become an instructor for the sport's activity. He noticed that helping people in the sport activity had enabled him to understand learning styles, and to appreciate students' fears.

> We often forget about fear. You need to deal with it more explicitly [in the sport class] than in other teaching contexts. So, I think I've learned more about how my students are often debilitated by a fear of math that can be just horrible for them.

Dr. Hughes's own experiences with math were not positive and those experiences seem to heighten his awareness of students' feelings in the classroom. His sensitivity to their position as students seems to infuse Dr. Hughes's interactions with his students. It is a responsibility he takes seriously.

Dr. Hughes does not want to recreate his own negative or disappointing college experiences for his students. Telling of his admiration for a professor he described as a "big philosopher king" the admiration was tempered by his observation that the professor was not really concerned with what a student knew or got out of the class. "He just kind of had things to say." Dr. Hughes described himself as thinking, "That you could combine a more humane approach to teaching with also trying to do a credible intellectual job with material." A humane approach with intellectual rigor is exactly what Dr. Hughes attempts in his classroom.

Dr. Hughes remembered all too well his feelings as a college student. "I can't just blow them off like all my graduate education teachers did. They don't give people much time. You get the short end of the stick constantly, especially if you're an undergraduate." The office hours Dr. Hughes sets on his syllabus are regarded as student

time and he does not make any other appointments during those times. Making time for student interactions is something Dr. Hughes has learned to do. It does not seem to have been a behavior that was modeled for him by many of his professors.

Dr. Hughes's perception of students and his interactions with students have changed over time. Dr. Hughes told a story of being sent to a university conference on undergraduate education and hearing a panel of students discuss their perceptions of professors. He was struck by a student's statement, "We don't think you like us." Dr. Hughes wanted to do something that would change that perception, and his solution was to eat lunch with students. He and a colleague initiated an informal but ongoing Tuesday pizza lunch at a downtown restaurant as a way of facilitating student-faculty interaction. "I think it's been fun. And I think that's part of what has made me think that students are interesting. I like them." The lunch conversations allowed the students to discuss greater interests than the classroom interactions allowed. Dr. Hughes discovered that some students were bringing sociological analyses learned in class into their other activities as students.

Dr. Hughes discussed the changes he has made in his teaching as based on what he has learned from his students' reactions. "I have learned from them and their reactions. The next time I teach I will have changed the class in a way that I think will be an improvement based on their reaction." The students' reactions matter because he believes that he can learn from them. He believes his teaching can be improved by being mindful of the students and their reactions. This belief seems to be supported by his underlying concern for the students as people (see Figure 3, Visual Display for Everett Hughes).

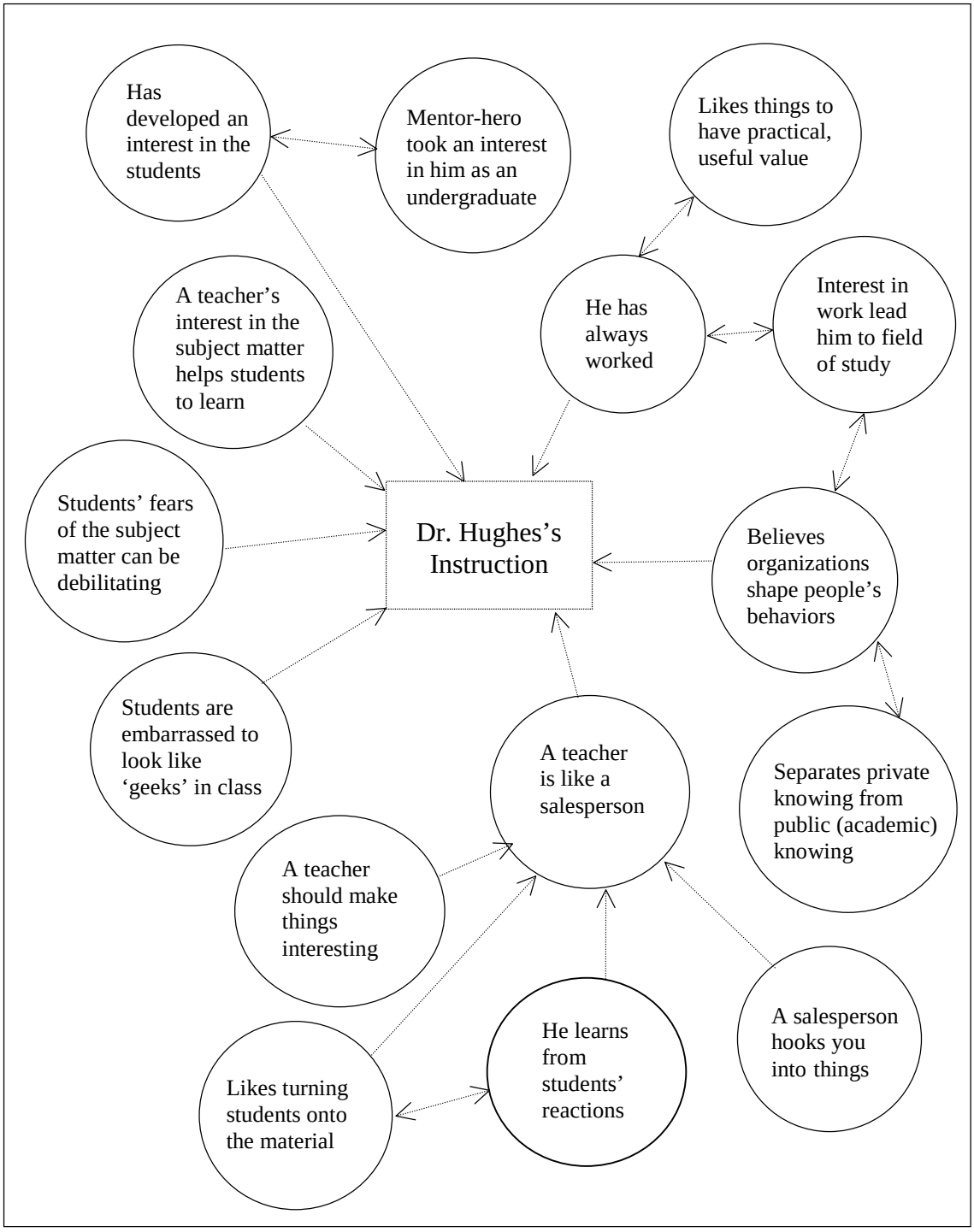

Figure 3. This visual display depicts the issues, thoughts, and experiences that were prominent in Everett Hughes story about himself, his learning, and his teaching.

Marketing

Opening the door of the professor's ground level office, I immediately saw Dr. Alexander, sitting behind his desk, placed in front of the room's one window. The room was somewhat narrow, a rectangular shape, with carpeting. The walls were lined with bookcases, file cabinets, and large displays of photographs. The entire left wall above a low bookcase was covered with family photographs, handsomely matted and framed. Two floor-to-ceiling, dark wood bookcases were on the wall to either side of the curtained window. On this first interview, Dr. Alexander invited me to pull up a chair, and as I found a space for the tape deck on the desk, he turned his chair so that he was sitting casually and comfortably behind his desk. His chair was turned to the side so that he could look out the window as well as at me. Dr. Alexander had removed the dark blue sports jacket he often wore in the classroom; he appeared relaxed and sipped coffee from a large mug as we talked.

Dr. Alexander began the interview, before my interview questions, by telling a story of his personal experience. The story had a direct bearing on the interest we shared in common, the topic of developing and teaching good undergraduate instruction at the university level. The telling of a personal incident as a way of sharing information is characteristic of Dr. Alexander's instruction as I observed it in the classroom and now experienced in the interview. He uses many stories to make a point, or to share information that he feels the students need to know. By telling me a story, he was giving me information about the high regard he places on good teaching, and sharing his accumulated wisdom.

Dr. Alexander is very reflective on his career in the university classroom at this point in his life. He has deep concerns about the quality of teaching, particularly for undergraduates. The fact that he was in the process of compiling and editing a book of essays written by award winning teachers at the university contributed to his current thoughts. He firmly believes that while, "It's not easy to be a great teacher," however, anyone can become a better teacher if she or he has the right attitude. "It has to be important, not just to be good at it, but that its a real important mission to teach students, to help them get as good as they can get."

This concept of helping the learner to get as good as he or she can be threaded its way through many of Dr. Alexander's thoughts. He likened himself to a coach and described the role of the coach as, "You take every single person no matter what the skill level and try to improve them. And then you try to meld them into an unselfish team." The instruction in Dr. Alexander's classroom is a team effort he is managing. He regards both himself and the students as sharing a responsibility for the learning process when they are together in the classroom.

Dr. Alexander credits his mother for instilling a value of teaching in him. He told of going with his parents back to the North Carolina town in which his mother taught, and seeing "some burly old guy" come knocking on the door to see her. "It would be one of her former students who would hear that she was back in town, and that my mom had changed his life, and he came to look her up." The marketing professor describes this as "potent stuff." A notion that good teachers have a power to turn your life around runs throughout Dr. Alexander's interviews.

The father of three young adult children, Dr. Alexander described his enjoyment of hiking with them. "I like to spend time with my children, and I've hiked with all my kids individually." The activity of hiking fostered personal reflection that refreshed Dr. Alexander's perspective on his place in the world. "I realize how insignificant I really am. There's all this beauty everywhere and you say, 'don't take too much credit for what you do in life'." The seventh day of class, he took the marketing class hiking with him. He began the class with slides of his family hikes in the western part of the United States. As the colorful, projected images of large mountains and small people filled the screen in the front of the darkened auditorium, the professor discussed where they were, where they were trying to go, and the conditions they were encountering along the way.

Dr. Alexander often intersperses his questions to the students with examples from his own life. "I always appreciated people who were human beings in the classroom because they kind of gave me strength." This blend of personal examples with marketing examples is a deliberate strategy designed to help the students feel involved in the subject matter, and to help them understand that the concepts of marketing that they are studying affect the choices they make in their own lives. This strategy reflected the professor's beliefs about the subject matter. "I've always thought that marketing was interesting because your whole life sees this everyday." Dr. Alexander likes being able to apply academic knowledge to everyday life.

Although the class was very large and the room's configuration would encourage a traditional lecture behavior, Dr. Alexander consciously made use of the whole space. He never remains fixed behind a lectern or in the front area of the classroom. Saying that he wanted to talk about peanut butter, he asked the class, "What's the market leader?

What brand do you buy?" He put up an overhead transparency listing brands of peanut butter and asked, "Who thinks Jiff is the market leader?" Dr. Alexander walked up the aisle asking more questions. He looked at the students and not at the overhead as he talked and walked.

> I walk around and go out to them. Sometimes I sit down next to them. You've got to go to them. I think human beings are always impressed when the person of higher status comes to them rather than always insisting that the junior comes the other way.

Dr. Alexander handed the hand-held microphone he carried to a student and asked, "What's a market?" As the student took the microphone and began a halting response, Dr. Alexander responded, "Sort of, keep going, you're on the right track." Dr. Alexander often used the phrase, "so write that down" to give the students verbal clues about material they were expected to know.

During the interviews, Dr. Alexander discussed his concept of principles learned from his family. "I think people of principles endure. They have to have some courage because they're usually swimming upstream against lots of people who do things in their own self-interest." He attributes principles as guiding his teaching and many of his career decisions. Holding fast to his principles seems to have helped Sidney Alexander with the places in his life that he described as low points.

Those low points have also helped Dr. Alexander develop empathy for the issues and decisions facing students, and he has deliberately created a space for student conversations in his office. "One thing I tried to do in this office is to make it warm and comfortable. These pictures are not here by accident." He pointed to the grouping of

family photographs on his office wall. "People come in and they just kind of open up." His office provides an environment for the one-on-one dialogues that do not, or cannot take place in the large auditorium.

Even as Dr. Alexander was clear about his interest in marketing, he was equally clear about the disappointment he felt about not teaching in his subject area, transportation and logistics. "I miss my field." Marketing continues to become more interesting for Dr. Alexander, however, transportation and logistics is a "passion." Dr. Alexander explained that professors who teach in their field of study have the benefit of personal contacts and the reinforcement of their research. Their absence becomes apparent and troubling for Dr. Alexander when students come to him with specific requests. "A student comes in and asks, can you help me get a job in marketing? And I'd say, I don't have the contacts in marketing that these other guys do, because to them it's their life."

Teaching large classes has affected what Dr. Alexander calls his teaching tools, case analysis and essay exams. "I really resented going into the big class at first because it took all my tools away." Dr. Alexander regards good teachers as having multiple teaching tools and caring about their students. His caring led him to look for the tools that could address his students' needs in the large classroom. The physical aspects of the classroom changed Dr. Alexander's tools but not his underlying commitment to being a good teacher for students. Dr. Alexander has firm convictions that teaching is a craft and an art that requires a commitment of time and effort. He has learned to teach well, and he takes pride in that accomplishment (see Figure 4, the visual display for Sidney Alexander).

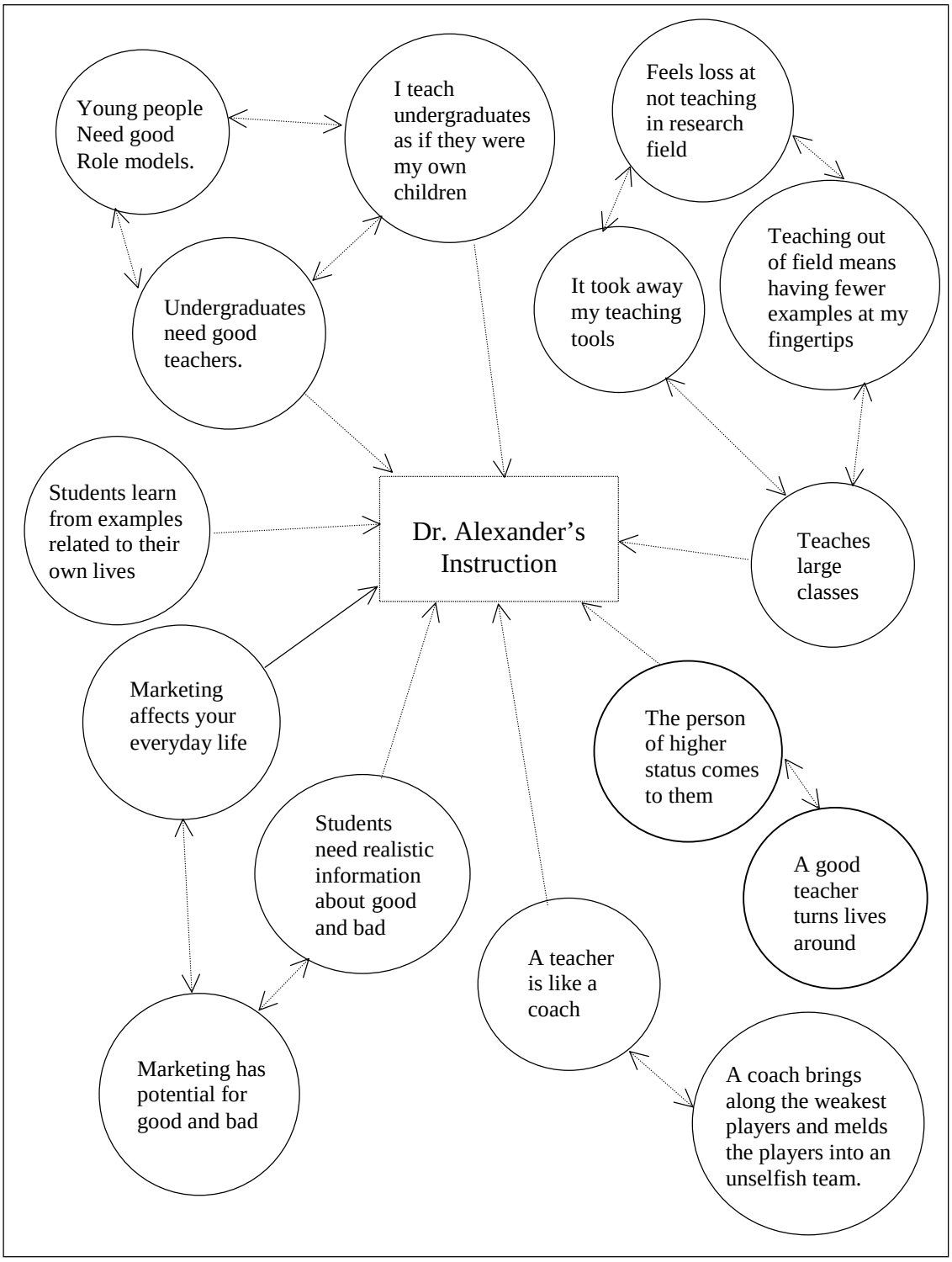

Figure 4. This visual display depicts the issues, thoughts, and experiences that were prominent in Sidney Alexander's story about himself, his learning, and his teaching.

Linguistics

Dr. Romling's office was located in a building that had recently been converted from its original purpose as a student health center. Many of the spaces in the building had irregular, non-traditional shapes; there was still dry wall and joint tape exposed in several places. Dr. Romling's office had an unusually large floor-to-ceiling window that made up one entire wall. She had placed her desk in front of the window. A couch covered with a pastel color floral print was along the wall towards the other end of the room. We sat close to her desk by the window, facing one another. I pulled over another chair and placed the tape deck on it.

I asked Dr. Romling to describe how she came to choose this career path of studying French Linguistics. The story in her answer expressed a connection between the social nature of learning and the usefulness of knowledge for social purposes. Dr. Romling's story traced the value she places on exploring how her mind works as a source of useful knowledge. This blending of exploring her reflections on her thinking and her interest in the usefulness of knowledge for social purposes appeared in many ways throughout the conversational interviews, and helped to explain Dr. Romling's conceptualization of learning as a social activity that enables people to communicate with one another.

> I'd have to start off by explaining that I grew up in Texas in San Antonio and that I heard Spanish spoken around me although I never studied it until I was in high school. When I was 14, I started studying Spanish and I really liked it because it seemed useful to me. I thought, "Wow, I can use this. I can now talk to people I couldn't talk to before.

The knowledge of Spanish that Cally Romling learned in high school enabled her to engage in a social activity that she valued - talking with people that she couldn't talk to before and thereby learning new things. Her reflection on her newly acquired knowledge helped her to perceive knowledge as having a useful function related to her life outside the classroom. Dr. Romling's interest in studying languages continued into college even though she had considered majoring in mathematics. She began studying French in addition to Spanish, and then noticed the two languages were becoming confused in her mind.

Characteristically, she wondered why. Wondering why led Cally Romling to ask so many questions that her Spanish literature professor noticed. "He took me aside one day and said 'This is probably what you want to do.' It was a lucky thing because I had no idea that linguistics existed, but that was exactly the way my mind worked." Telling this story, Dr. Romling expressed her amazement that a literature professor would have sufficient knowledge of how a linguist's mind worked and could assess how Cally Romling's mind worked. The interaction with her professor was significant for Dr. Romling because it modeled behaviors of a professor's potential to help students clarify their intellectual interests based upon hearing them ask questions in the classroom. The interaction contributed to Dr. Romling's conceptualization of a professor's role as a teacher. Dr. Romling's instructional practices place an emphasis on assessing how her students' think as well as providing opportunities for the students to be aware of their own thinking.

Dr. Romling has come to realize that the field of linguistics is a good fit for the way she likes to think. She described in detail the skills she enjoys using in her research

work: the ability to classify, an aptitude for statistics, and an attention to detail. The social aspect of the field is appealing. "You study everyday conversation: you study the language that belongs to everybody." More recently, Dr. Romling began to reflect on her career choices. She reexamined her decision to study linguistics and her work as a professor teaching university courses. She began to question how much she had been "programmed" into her current situation rather than consciously choosing it for herself.

> I thought about it for several years. I thought is this what I really want to do? It's a wonderful thing about mid-life, you start to realize, I would say, what do you like to do with your brain? Who are you? What kind of activities do you enjoy?

Dr. Romling's constant curiosity and wondering come through the interview process and she questioned me about my experiences that led to pursuing this research question. Her questions caused me to pause and reflect.

Dr. Romling brings this same way of thinking and questioning into her instruction. Her instruction relies heavily on the 20 or 25 exercises she developed and compiled into a course packet. The exercises in the packet are designed to engage the students with the material in ways that enable them to explore how they are thinking about concepts in linguistic, and even to think about why they are learning certain material.

> I don't think it's very effective just to give someone a reading and just say read this. There's too much in it. They need to know what is it I'm supposed to get out of it? What's important in this reading? What's less important, what should I be focusing on? So, by giving them an exercise I've essentially said this is what

> you should be getting out of it. This is what you should know how to do. I identify what the goals are for that day. Then they do a reading, and they do an exercise that is directed at those goals. They get to put them into practice, and see whether they're getting there or whether they're not.

Sometimes the activities were done by the students as homework prior to class and then brought to the small groups Dr. Romling creates in the class for discussion. Working in groups is very important to Dr. Romling. The groups reflect her concept of the social aspect of learning. Being in a group allows the students to ask questions and to test their ideas within a smaller social unit than the entire class.

When the students were told to form groups for the first time, Dr. Romling and the teaching assistant circulated around the room writing down the names of the students in each group. The following day when the students were told to move into their groups, almost five minutes were spent helping students find their groups. Dr. Romling admitted that it might be more efficient if the students could simply hop to their group. "On the other hand, I think there's something psychological about being invited to come and be with your group. So, I go to all this trouble to get them together. It's important for them to be together."

Dr. Romling regarded the classroom as a social environment and described this as an important part of her philosophy.

> A lot of what I'm doing is what I said about the social situation being very important. I try to use a social situation to best advantage in the classroom, like the fact that I wanted to learn all their names the first day. To me, it would be just a horrible thing to be sitting in a room where nobody even knows that you're there. Nobody even knows you're there. I mean how can you feel like you're a part of this class? How can you feel any commitment to this class at all?

Creating small groups did not preclude Dr. Romling from being aware of the class as a whole. "You have to decide what the personality of the class is." Dr. Romling understood the groups gave the students some sense of belonging. "I don't think there's an aspect of our lives where we don't like to feel good about ourselves and where we don't like to feel our presence matters."

Many of Dr. Romling's instructional strategies were learned during the three years she taught French in high school while she was writing her dissertation. Dr. Romling speculated that her university teaching would be very different if she had not had the high school teaching experience. That experience helped her to appreciate the need for students to be actively engaged in the material.

> I think the reason teaching high school was such a good experience is because college students are polite. You can be teaching horribly and they'll sit still. But high school students, if you start on a downward slide you won't even want to be in the same room for the rest of the semester.

Yet, teaching high school was stressful and helped to convince Dr. Romling that she wanted to be teaching at the university level. Even though she was proud to have

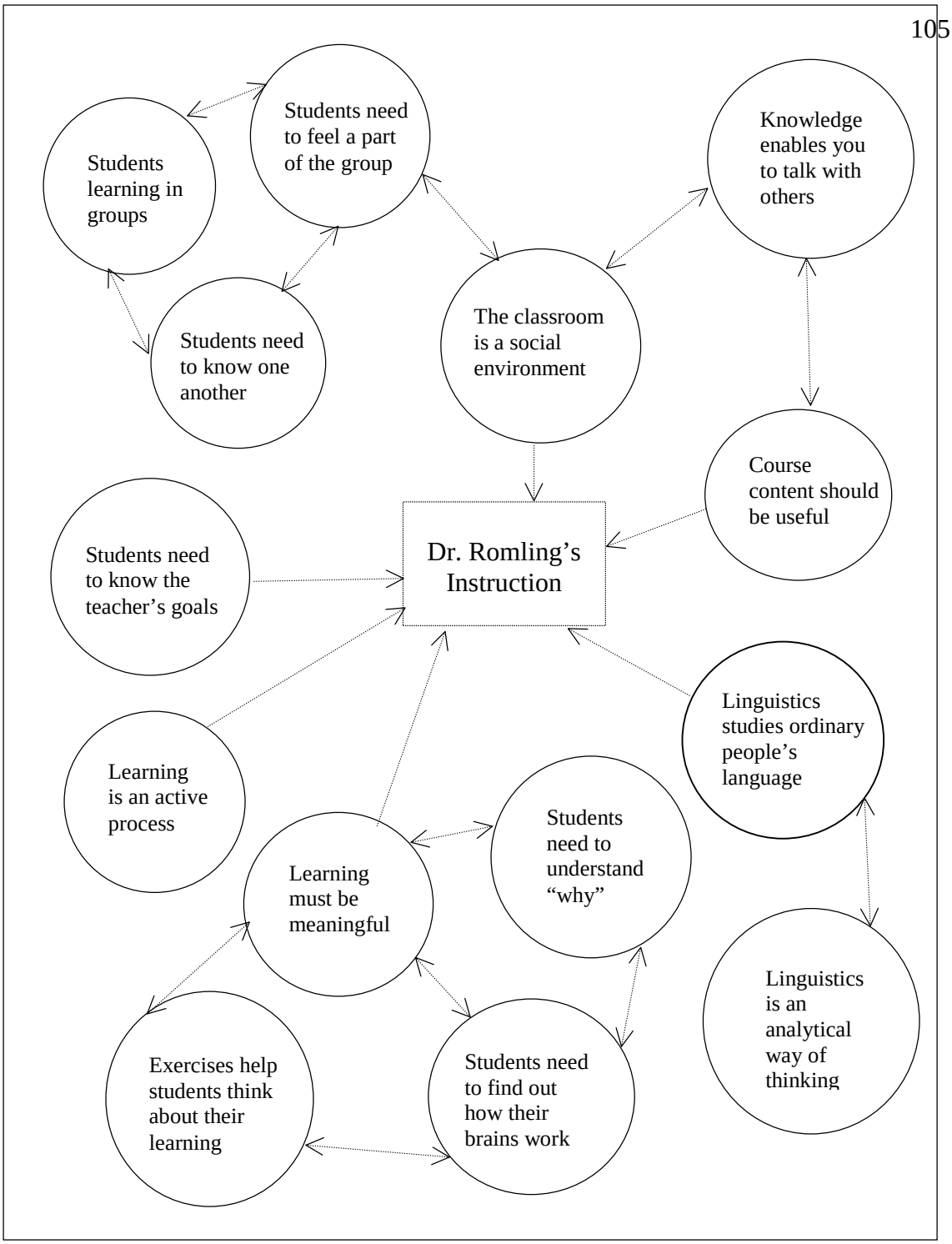

Figure 5. This visual display depicts the issues, thoughts, and experiences that were prominent in Cally Romling's story about herself, her learning, and her teaching.

survived the experience and to have learned how to be so good at class discipline that it appeared to be invisible, Dr. Romling missed doing research. Dr. Romling is now sure that research and teaching are two activities that her brain likes to do (see Figure 5, the visual display for Cally Romling).

Psychology

Finding Dr. Roberts's office was a challenge for me because the room numbers in the psychology building do not go in numerical order and the hallways had enough turns to feel like an experimental maze. The office itself is a large room located on the building's lower level. Dr. Roberts's desk and computer table were in the farthest third of the room. The larger area closer to the door was an open space with a small couch and a couple of chairs placed by the window. Dr. Roberts was sitting at her computer table when I entered. She got up, pulled a chair over into the open space, and we sat facing one another during the interviews with the tape deck placed on another of the chairs.

The interview with Dr. Roberts was the first in this study, and the interviews with her sometimes felt like a testing ground for questions and reactions. However, as the interviews progressed, it became very apparent that one professor's reactions provided no assurance that another's reactions would be the least bit similar. What was an interesting question to one professor and responded to at length did not always evoke the same response from others.

Dr. Roberts described her early experiences in school with great enthusiasm emphasizing the positive interactions with her teachers. "I loved school. I absolutely loved school. I couldn't wait to get out of my house and go to school every single day. And I was very fortunate to always have teachers who loved me." The interactions

Elizabeth Roberts experienced with her teachers were important in creating a supportive environment at school, and in helping a young Elizabeth Roberts to feel good about herself as a student and as a person.

As we were discussing her early school experiences, Dr. Roberts got out of her chair, crossed the room to get a small photograph from her desk and brought it back to show me. She had just been talking about how lucky she was to have a first teacher who was still an important part of her life. Pointing to the adult standing with a group of children in the picture, she said:

> This woman showed up in one of my graduate seminars two years ago, out of the blue and I almost had a heart attack. She walked into my class, and she showed my class this picture of me when I was in her class. It was the most amazing thing. She said to me, "Elizabeth, ever since you told me that you were going to be a university teacher I told myself that one day I'm going to go to your class." And she tracked me down.

Dr. Roberts treasures her connections with teachers who have been a positive force in her life. Those connections are meaningful supports for Dr. Roberts, not only helping her to feel good about herself but also helping her to think about her own teaching practices.

> I know that I was real fortunate to have had educational experiences that allowed me to want to continue to feel good. It also made me realize how important it is for students to have those kinds of experiences in their own lives. To have teachers with whom they can feel some type of connection, that sometimes it just takes a little bit to make some meaningful difference in a student's life.

Dr. Roberts shared her awareness of the difference a teacher can make for a student as she described the "social stuff" that she had to contend with throughout school.

> The hardest thing about school was being always the shortest kid in kindergarten. I was three feet tall. Being so little and being the child of mixed race, it's kind of hard, being dubbed 'the smartest one.'

Dr. Roberts often used the descriptive phrases "like me" or "unlike me" to describe people, yet, the phrase was equally applicable to her social environment in that she has deliberately sought to be in positive environments that are conducive to her efforts to accomplish her goals. The value she places on being in a particular environment influenced her choice of which college to attend, and her decision to change her career goal from being a physician to being a psychologist.

Elizabeth Roberts' high school chemistry teacher encouraged her to consider chemistry in college as a major that would lead her to medical school. Describing the teacher as unlike herself, she said that he was very influential. "He took an interest in me and my skills and abilities and encouraged me to do independent research." However, the college chemistry lab was different environment. Ultimately, the values and behavior of the people studying as chemistry majors led to Elizabeth Roberts' decision to change her career goal.

> I remember very clearly being in organic chemistry lab and thinking, if this is the way my peers are going to be treating each other by sabotaging their lab results, what will it be like to go on internship with these people, be on hospital staffs with these people? I don't think I want to work with physicians.

Instead, Dr. Roberts found a field of study that enabled her to be in an environment where she could accomplish what she wanted, and to interact with people in a way that she valued. Acting upon the advice of her resident advisor, Dr. Roberts changed her major.

> I decided to major in psychology, go into clinical psychology which gave me the options of doing research, and teaching, and helping people. Because that's what I really liked, helping people with their psychological problems. I'm teaching undergraduates and doing research in the field, so I feel in some ways I'm doing even more than I thought I wanted to do when I wanted to be a direct practitioner.

Social psychology enables Dr. Roberts to approach people's behavior as being affected by their social context or environment. However, this specialty within the larger field of psychology put Dr. Roberts slightly outside what some psychologists considered to be the mainstream. This was painfully apparent towards the end of her undergraduate studies when she was completing her senior thesis. Elizabeth Roberts' major advisor challenged her work, and questioned whether it was appropriate for psychology. The experience was deeply troubling. "He was very famous. All of a sudden I felt shot down. It made me rethink what I really wanted to do. And I thought, I'm really a psychologist. I want to do this kind of psychology." However, the advisor's reaction and comments so troubled Elizabeth Roberts that she changed where she applied for graduate school.

Dr. Roberts mused that the negative experience helped her to gain perspective and to be less intimidated by people who were perceived as giants in the field. She came to realize that her advisor, "couldn't see beyond his own world, and see how his work could be applied in another area of psychology." Now, at this point in her life, Dr. Roberts has greater confidence with the work she is doing and its appropriate place within the field of

psychology. She remarked that the field has changed enough so that she can find suitable outlets for her work.

> I'm finding, now that I'm in a position of being a professor and teaching and reviewing articles, I can use my knowledge and my experiences in a way that I think is positive and making a difference, moving the field in a different way. At least I hope so.

The experiences of being challenged about her work, her perceptions of her undergraduate education, and her training as a clinical psychologist give Dr. Roberts a sensitivity to her students' reactions to the subject matter she is presenting in the class I am observing.

Explaining that the concepts presented in the course can be difficult, even disturbing, for the students to grasp, she mentioned the topic introduced in last week's class, unearned privilege in society, had the potential for causing the students distress because she wanted them to look at unspoken assumptions. "I think I might be stepping on some peoples' toes, making them upset and maybe even defensive." Dr. Roberts presented the topic of unearned privilege by asking the students to break into three groups and giving each group a question, and directed them to structure their responses in a specific sentence format. The list of examples each group developed was listed on the board, then further discussed by Dr. Roberts. I asked Dr. Roberts about this strategy and questioned how it was different from simply reading about the topic in the students' text.

> My goal was not to just help them process the reading but to take it into their real lives. I think that verbalizing is an important part of it. The process is more active. They're drawing on integrating their own experiences.

Dr. Roberts explained that her undergraduate education emphasized active learning and that she wants her students to have a similar experience.

Because this summer was a college reunion year for Dr. Roberts, she was particularly reflective about her undergraduate experience, and she looked enthusiastic when describing her undergraduate years at the university remarking, "When we were there we were trailblazing." The undergraduate experience was meaningful for several reasons one of which is because Elizabeth Roberts decided where she wanted to go to college when she was a third grader, and she announced her plans to her family. "Sometimes I look back and it's amazing that this little kid from a family that was as working class as ours knew what I wanted to do. And I went there."

Choosing what she wants to do and doing it, has been personally satisfying even though it has not been easy. "It's nice to be able to go back to your reunion and feel good about what you've done in twenty years. In some ways, I feel I've made a contribution." That realization is important for Dr. Roberts. "If we're going to help change the world and make it better in any way, we're going to have to do something." Dr. Roberts' many choices include her decision to value the social interactions that would allow her to feel good about herself and to look for ways to create those interactions for her students.

Dr. Roberts shaped the course content from a perspective that felt to me to be inclusive of female and male students, and to value the differences the students' backgrounds and values reflected. Although Dr. Roberts welcomed announcements about feminist activities on campus, such as a "Take Back The Night March," she taught the class from the framework of psychology, and began introducing psychology terms on

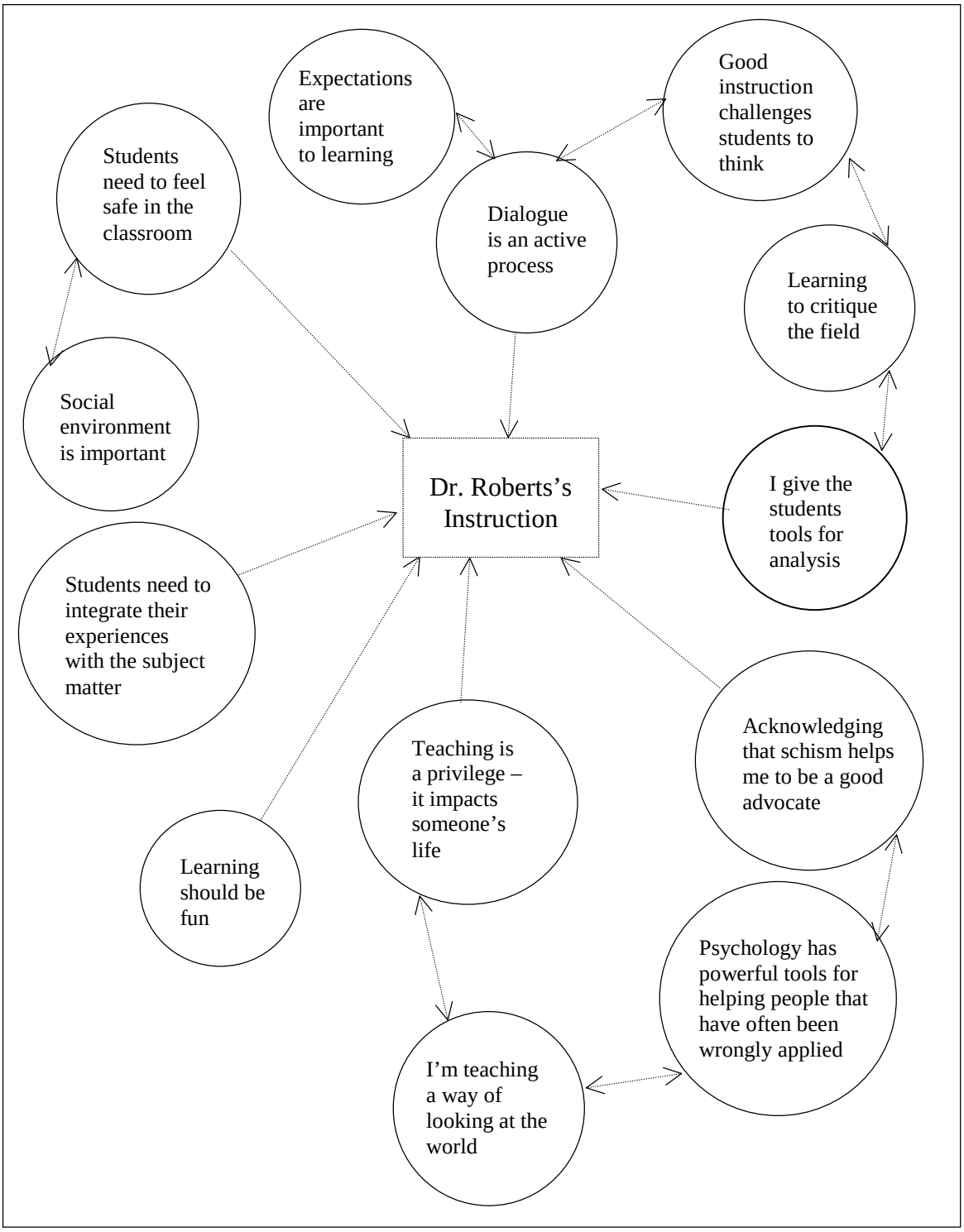

Figure 6. This visual display depicts the issues, thoughts, and experiences that were prominent in Elizabeth Roberts's story about herself, her learning, and her teaching.

the first day of class. During the first class, she told the students that sexism, racism, and classism affected everyone.

Dr. Roberts is aware of what she terms a schism in psychology. A schism caused by its potential for helping people and it's frequent misuse. Recognizing and acknowledging that schism is a source of strength for Dr. Roberts.

> And there's that schism, because when I start teaching these courses, I point out the failures of psychologists. It's important because in some way I want the students to still see the potential, to be critical and evaluate it, but to see the potential and the foundation that's still positive. This is how great psychology could be. This is what we could do.

Being critical or evaluating confers an ability to acknowledge the positive and negative and then to make choices. Dr. Roberts prefers choosing ways to make positive experiences happen for herself and for others (see Figure 6, the visual display for Dr. Roberts).

Summary

This group of four participants represents a broad diversity of thoughts, feelings, experiences, ways of knowing, and ways of doing as individuals and as professors. They varied in their experiences with the tenure process and their progress toward achieving full professor status. They varied in their ages, quality of teaching experience, and their subject matter areas. Although they uniformly supported my efforts with this research project and allowed me into their classrooms, their reactions to the interviews as well as the classroom observations varied. One professor found the process of being interviewed to be unexpectedly fruitful. "I hadn't really thought a lot about these things, to articulate

them, you know. It's always underneath but never part of a discussion." Another professor made changes in the classroom seating arrangements based on the conversations we had as a part of the interview process.

The classroom observations were handled differently by each professor. Although my intent was to be a quiet, invisible observer, neither I, nor the professors knew exactly what would happen during the observation period. One professor expressed a sense of the strangeness of being observed in the classroom. "Things that we do that are typically not observed by others, are things that when they are observed become a different situation." Yet, this professor too realized that the strangeness of the situation also prompted reflection.

> The outcome was a greater self-consciousness, an awareness of what I was doing and maybe thinking about why I was doing some things. So, as you become part of the class and start to think about the class, you encourage me to think about the class more.

After the interviews and the transcriptions were completed, I returned the original tapes and the transcripts to the professors. The reactions to these materials also were varied. One professor expressed no interest in seeing the transcripts while another took the initiative to go through each page of the transcript making notes and clarifying responses.

Even though the professors told of an experience as a young adult that influenced what they did in their careers, there was no interview question that asked the professor to reflect on such an incident. Each professor attributed the experience with influencing a decision, although the strength of each professor's attribution varied. Dr. Hughes pointed

to his experience of not being able to sell his knowledge while working in a convenience store during the recuperation period following his motorcycle accident. He deliberately decided to make sure that he acquired marketable skills when he returned to graduate school.

Dr. Alexander mentioned his experiences in the Navy, finding that he loved working with transportation and logistics. However, he felt intimidated by not knowing the key terminology others were using. "People were having conversations and I didn't know what the terminology meant." He decided to go back to graduate school to obtain the knowledge he wanted and needed. Dr. Romling credited her experience of teaching French in high school as pivotal in forming her decision to teach at the university level.

> I really felt as though if I kept teaching in high school my brain would go to mush. I felt the need to be able to do research. I felt like all the time I was spending in the classroom figuring out how to maintain discipline, I would rather spend in research.

Dr. Roberts described her major advisor's negative reaction to her undergraduate honors thesis as a devastating experience. Only on later reflection, did she come to appreciate how her area of expertise was encompassed within the larger field of psychology. "It was really affirming when I found out there was a field of psychology that attempted to do what I was doing. That was so affirming."

The professors expressed slightly different conceptualization of their undergraduate students. Dr. Alexander regarded undergraduates as young people who needed a role model. He spoke of realizing that they could be his children, and like his children, he wanted them to have good teachers. Dr. Roberts understood undergraduates

in comparison to graduate students. She observed that undergraduates were often more willing to risk looking stupid in order to ask a question.

During the process of data collection, the professors' willingness to share their knowledge and the way in which they shared their knowledge, led me to perceive a parallel between their interactions with me and their interactions with students in the classroom. The dialogue we shared during the interview process developed and articulated knowledge for both of us. The interview process with each professor was as different as each professor's classroom.

Each professor's instruction was individual and varied. Each professor's instruction was as different as the knowledge and beliefs that shaped the instruction. Each professor presented a rich case study of how her or his learner-centered instruction is practiced at the specific, individual level and it was important to look at the differences. Recognizing the diversity of the professors' individual practices enriches the concept of learner-centered instruction and removes it from being a one-size-fits all strategy. The professors' learner-centered instruction developed in response to numerous conscious and unconscious influences as they used their knowledge and their beliefs to make sense of their roles as professors teaching a course.

CHAPTER FIVE

The Professors and Their Instruction

The purpose of this study is to describe professors' beliefs about their subject matter knowledge in relation to their practice of learner-centered instruction. The significance of this study is supported by two studies. They are: Cronin-Jones's (1991) findings that teachers' beliefs are influential in determining what is emphasized in a course and how it is taught, and Kember's (1997) recommendations that measures to enhance the quality of university teaching need to take into account professors' underlying beliefs rather than concentrate exclusively on approaches to teaching. This study's findings are intended to support instructional developers' efforts to improve undergraduate instruction in doctoral-granting universities. The theoretical framework for this study, Polanyi's (1974) theory of personal knowledge, predisposed my conceptualization of knowledge as embodied, experiential and based on a relationship between the knower and the known.

The purpose of this chapter is to present the results of a cross-case analysis of the four cases discussed in chapter four. The cross-case analysis identified six themes describing four professors' beliefs about their subject matter in relation to their instruction (see Figure 7). The data were categorized according to the terminology and procedures suggested by Dey (1993). Categories were developed, labeled, connected, and collapsed into themes according to the three questions guiding this study. These questions are:

1. How do the professors believe students learn course content?
2. How do the professors determine what is valid in their subject matter area?
3. How do the professors describe their roles as teachers?

Summary of themes gathered by a cross-case analysis of the data from four purposefully selected professors. The themes are grouped in response to the three questions guiding this study.
How do the professors believe students learn course content? 1) Students learn by actively engaging with the course content in a supportive environment. 2) Students learn when they are helped to understand that course content is meaningful, useful knowledge. 3) Students learn when the subject matter is presented in more than one way.
How do the professors determine valid knowledge in their subject matter area? 4) The professors are guided in their determination of valid knowledge by their confidence in their ability to discern valid knowledge and their interactions with members of their knowledge community.
How do the professors describe their roles as teachers? 5) The professors considered themselves facilitators who were teaching more than subject matter knowledge. 6) The professors felt a solitary privacy in their classrooms as they developed instruction heuristically.

Figure 7. Summarized presentation of the six themes grouped according to the three questions guiding this study.

Inquiry Questions and Themes

Beliefs

Moallem and Earle's (1998) findings emphasize that much of a teacher's knowledge and beliefs are tacit. The professors in this study have a similarly tacit dimension to their beliefs and knowledge. Interview questions in this study were designed to help the professors articulate their beliefs by asking them to discuss and describe instructional practices that Hofer and Pintrich (1998) and Beers (1988) identify as carrying epistemological assumptions. The professors were asked about their educational experiences, their instructional activities, and any challenges they experienced in the classroom. They were asked to discuss instructional decisions such as how they selected textbooks for the course, how they determined that their students were learning the subject matter, and how they determined their course objectives. The resulting interview data in combination with the observational data produced rich material for a cross case analysis.

How The Professors Believe Students Learn Course Content

The first question put to the data asked how the professors believe students learn course content. Three themes emerged. The themes were demarcated by the grouping of their multi-layered categories. The themes are:

1. Students learn by actively engaging with the course content in a supportive environment;
2. Students learn when they are helped to understand that course content is meaningful, useful knowledge;
3. Students learn when the subject matter is presented in more than one way.

The *first theme* incorporates the professors' beliefs that learning is an active process that requires a supportive environment. The professors made an effort to actively involve their students in the subject matter. They regarded a supportive classroom environment as encouraging active involvement and interaction between all persons in the environment, students and professor.

The *second theme* reflects the professors' beliefs that students learn when they are helped to understand the usefulness or meaning of the course. The professors plan their course content based on what they believe students need to know. The professors' extensive knowledge and beliefs within their disciplinary fields guides their determination of what students need to know.

The *third theme* expresses the professors' beliefs that students learn when the subject matter is presented in more than one way. The professors believe a class presentation replicating the material in the textbook does not help students engage with the course content nor is it a useful way to interest students in pursuing further study. The professors use a variety of instructional strategies to encourage the students to develop an interest in the subject matter. They are aware that they are teaching undergraduates who need help developing a broader understanding of the disciplinary field.

First Theme: Students learn by actively engaging with the course content in a supportive environment

There were individual differences in the specific ways the professors created supportive classroom environments, different words they used to discuss such environments, and different paths that led to their knowledge and beliefs about the

importance of a classroom environment in a student's learning process. The professors understood learning to be a social and active process and they made an effort to create a classroom environment that fostered that process. The professors believed the classroom environment must be open to students' questions or thoughts and they worked to encourage dialogue.

Dr. Roberts considered a supportive environment to be fair, safe and respectful. She believed her responses to students questions contributed to creating a climate of respect and fairness in the classroom. When students asked questions, she frequently incorporated her responses into building on or further developing the course content thereby making the question and the student asking it appear important. She did not dismiss a question with a short yes or no answer

> I work real hard at doing that because I know how important it can be to students to have that kind of response from their professor. And I work at being fair because I've seen what happens in classrooms where certain students get more positive attention, and certain students get criticized, or just a flat 'no'. There are clearly some professors who give the message, "Oh, that's a dumb question. Why are you asking that?"

The quality of Dr. Roberts's responses makes the students feel as though they have contributed to the knowledge being presented in the classroom. Dr. Roberts regards the students' questions as a valuable part of their learning process and she believes the students deserve humane treatment in the classroom even when their questions may be tangential to the subject.

Dr. Roberts's actions in the classroom convey her belief that active engagement occurs when the students articulate their thoughts about the course content. One day, when the topic was unearned privileges of dominant groups in American society, Dr. Roberts wanted the students to recognize and explore their knowledge about the topic. She sectioned the class into three groups, gave each group an incomplete sentence, and asked each group to develop a list of privileges that could complete the sentence.

When the students had compiled lists, Dr. Roberts asked a person from each group to read the list to the class. Dr. Roberts used the discussion generated from the students' lists to present the concept she wanted the students to understand. I asked her to discuss her thinking about the exercise. She explained that when students talk about new knowledge, their efforts to articulate their thoughts help them to learn.

> I think they need to go through the process of stretching their minds a little bit. When you start really talking about it and interacting with other people, I think the students have a wholly different type of education. The process is more active. They're drawing on integrating their own experiences, they're looking at the world more critically, and they're losing that if they just read it in a book or hear me say it.

Dr. Roberts wants the students to experience a particular kind of learning process. She believes that when students are helped to articulate their thoughts about the subject matter to one another, they are more actively engaged in the course material and they are more actively developing their knowledge. She values their interactions and exchanges of perspectives.

Dr. Romling considers a supportive classroom environment to be a space that is enjoyable and comfortable for both her students and herself. She wants the classroom environment and the learning activities to help build the students' confidence. "I don't like to force people to have to speak up before they're comfortable. But at the same time, I think if you do say something in class and feel good about it, then that builds your self confidence." Dr. Romling has developed specific instructional practices to create an enjoyable and comfortable environment and to foster actively engaged learning. Two instructional practices that make her classroom distinctive are the course packets she develops, and her extensive use of groups. The group interactions, frequently structured around the exercises in the students' packets, make use of what Dr. Romling considers the social aspects of being in a room together during class times.

Dr. Romling described an instance when she realized that there were several students in the classroom who were not talking. Seeking a way to encourage participation from quieter students, Dr. Romling's solution was to pair the students into speaking and non-speaking partners. Students who always talked a lot in class were not allowed to speak. Instead, their normally quite partners had to do all the talking for them. She laughed as she told the story. "It was really great. Here was half of the class I hadn't been hearing from and they were saying to their partner, 'say it, go.' It was fun." Dr. Romling deliberately created an instructional strategy that was fun for herself and the students, and in so doing, helped to build a classroom environment that was supportive and engaging.

Telling this story, Dr. Romling explained that it also demonstrated her beliefs about the social nature of engaged learning.

> I think actually, it illustrates part of what I think is really important to my philosophy. To me a classroom is a social environment, and you have to make it work in your favor. I thought, "What is the social incentive to these people for talking?" So, I made them responsible to a partner. You see, I thought that if they had a commitment to this person, then they'd also have the support of this person because that person is getting their classroom participation points. And, you know, they thought it was fun.

Partnering the students gave them an opportunity to create a supportive environment in the classroom. Each student in the partnership had to cooperate with one another in a process of actively developing knowledge.

Dr. Alexander considers himself responsible for developing a supportive environment in the classroom even though he regards the learning process to be a team effort between himself and the students. He develops a supportive environment through his treatment of students and his constant efforts to involve them in the class. Dr. Alexander considers the students' participation in the class an important part of active learning. Early in the course, he urges the students to be personally involved. "Please get involved in this. It's more fun." Dr. Alexander's questions are designed to relate the course content to experiences in the students' lives.

> Dr. Alexander considers active learning to be a personally involving process. People ask, "What do you teach?" I say, "Well, I teach your son or daughter on this day." But they think you teach in the business school, or you teach marketing or you teach classes. No, that's very impersonal. This is a one on one business.

> If anything good happens, that student feels that this teacher is talking to him, we're working this out.

Dr. Alexander believes students learn when they are in an environment that enables them to feel that they are being individually taught and individually addressed rather than being part of a mass.

Dr. Alexander displays a sincere interest in the students' responses by his behavior of listening to the students' responses and walking up the towards the students. "Sometimes I sit down next to them. You've got to go to them." Dr. Alexander has developed strategies to engage the students with the subject matter on a personal level and to establish a reassuring environment.

Dr. Alexander recognizes that students can be distracted by the pull of their insecurities and he considers that a humane and reassuring environment helps students to focus on engaging in the course material. "This is my philosophy. I think most people are insecure. There are just different degrees of it. You watch the undergrads coming through here, and they have to make many decisions." Dr. Alexander works to create an encouraging classroom environment that enables students to focus on the subject matter and the learning process. Dr. Alexander stated, "I like to work with people who can give me a good feeling." That statement describes the way Dr. Alexander treats the students.

Dr. Hughes considers a classroom environment that is relaxed enough for even the more reserved students to articulate their positions on the subject matter to be supportive of actively engaged learning. When he sees quiet students expressing their reactions to sociological arguments, he is pleased.

> The comments that some students are making give me the goose bumps because they're really thinking hard about it. A few students I know are really quiet, like Barbara who was sort of in front of you yesterday. She's just a sophomore and a very quiet person by nature. But she was interested enough in that stuff yesterday to potentially embarrass herself by looking like the interested geek and raising her hand and talking a lot. That's totally out of character for her. She was getting engaged in a way that I was just delighted with.

Dr. Hughes interprets the students' willingness to express their point of view in class as a positive demonstration of their engagement with the course content. He is delighted when the students question the validity of the studies they are reading. Their questions let Dr. Hughes know that the classroom environment has been relaxed and friendly enough to permit them to question the material. Dr. Hughes interprets the students' questions as an indication of their efforts to make sense of the knowledge he is presenting from the studies and their attempts to integrate that knowledge with their prior knowledge.

Dr. Hughes believes that asking the students to construct an argument for their point of view is a way of actively engaging them with the subject matter. Although he wants the students to know the sociological arguments he is presenting in class, he does not ask the students to agree with the arguments. He is interested in helping them put together their own ideas. Accordingly, he includes a question on the final exam that presents a case the students have studied in class, and asks them to state and defend their point of view.

> In the unit on auto production, I'll have a question that talks about the use of teams and I ask students to describe the programs and practices and then evaluate them based on their experience at the Ford plant [referring to the class tour] and the readings. I ask them to decide which side of the fence they fall on because people looking at essentially the same evidence come to different conclusions. So, I encourage them to make arguments. When I grade them, I don't look for this particular answer. I want them to think what they think and come to some kind of conclusion.

Dr. Hughes' words in the classroom and the exam he writes have a consistency in their expression of his belief that students learn when engaging with and reflecting on the course content in the process of developing arguments for a point of view. Dr. Hughes' obvious interest in the course content combines with his obvious interest in the students as individuals and creates an atmosphere in the class that makes it comfortable for the students to express their opinions about the material.

Summary of First Theme

The professors' belief that students learn by actively engaging with the course content in a supportive environment, includes the professors' notion that knowledge is socially constructed. The professors work to develop a classroom environment that is an enjoyable and respectful place for interacting with one another's knowledge. The first theme, professors believe students learn by actively engaging with the course content in a supportive environment, is summarized by the following points:

- Connecting subject matter to the students' experiences,
- Treating the students with respect and fairness,

- Supporting the students' needs to articulate their perspectives of the subject matter or develop arguments for their point of view.

Classroom observations found the professors used a diversity of activities and techniques to encourage the students' engagement with the subject matter. The professors' interactions with the students helped to establish an environment that supported the students' efforts to explore and articulate their thoughts.

Second Theme: Students learn when they are helped to understand that course content is meaningful, useful knowledge

The professors believe students learn when they understand the subject matter to be meaningful or useful knowledge. The professors regard their subject matter knowledge as deeply meaningful, and accordingly, they want the students to share in the development of meaningful knowledge. The professors believe the knowledge they are asking the students to develop has relevance in the students' lives, however, the professors realize that students usually need help understanding that the subject matter knowledge has meaning or how it serves a useful purpose. They have different instructional strategies for helping the students to discover how the subject matter is meaningful. The professors' instructional strategies encourage the students to understand why they are being asked to learn the course content.

Dr. Romling described how she discovered that students learn when they are helped to understand the meaningfulness of the subject matter from observing her students incorrectly using a particular verb. Observing that the students were not correctly applying a grammar rule they had previously studied, she realized they did not understand the meaning of the knowledge they were asked to learn.

> I feel like you could beat them over the head every day, you could tell them the same grammar rules every day, you could threaten them with their lives, you could tell them they would get an F, but none of that would keep them from making a mistake. And I thought, "Well, obviously it's not meaningful to them." It hasn't connected. So, I thought, "they need to be in situations where they care about what they're saying, it actually matters to them to say something and then they will [care and learn]." And I do, I see the light bulbs go off all the time. They'll say, "That's what that's for?" You know, it's like they had no idea. And I mean they had studied it, but it had never connected with what you would want it for. They're doing all those drills without thinking about why you would use this? How does this actually relate to my life?

Dr. Romling's story illustrates the professors' shared belief that students learn when they are helped to understand the meaningfulness of the course content. The professors' expressions of meaningful knowledge and their instructional strategies varied.

Dr. Hughes considers what is meaningful knowledge when he is planning course content. Dr. Hughes thinks about, "the distinctive contributions that sociologists have made to the study of organizations. And I think about what are the most important or valuable for people to wrestle with." The distinctive contributions or concepts that he identifies as important or valuable will help determine the course content.

> I think that sociologists who study organizations are fascinated with the general issue of the social organization of the work place shaping people's heads and hearts. And so that's something that I grab hold of and have included in this first part of the course.

Dr. Hughes' planning includes thinking about what the students need to know in order to develop a knowledge of sociology that will enable them to move on to more advanced courses and to interact with other sociology students. Additionally, he considers that the students' knowledge of sociology has a beneficial application in their lives beyond the classroom. His thinking process resembles the other three professors' process of planning their courses in terms of what they identify in their areas of study as important for students to know.

An instructional strategy Dr. Hughes uses to help students understand the meaningfulness of the knowledge he is asking them to learn is modeling his interest and enthusiasm for the subject matter. "I see part of it as showing how I try to think about these issues, or things that I find to be valuable, or interesting. I think that can serve as something of a guide for students." His sharing of a book he enjoyed with a student was an example of demonstrating interest in the subject matter and in the students.

The professors believe a thoroughly written syllabus that includes information about the course goals can help students to understand the relevance of the course content. Dr. Romling considers that students are helped to determine the usefulness of the course content by having information about course goals and about the professor' expectations for the course. "I just think it's better to have more information about what's going on. They can then understand better what it is you're trying to do." Dr. Romling attempts to provide students with enough information to support their understanding of the meaning of the course content.

Dr. Alexander used a metaphor reflecting his disciplinary field as he discussed the importance of adequate information for students. Dr. Alexander compared the syllabus to

a franchise contract saying if the contract doesn't fit, then don't accept it, take another course, or another section of the course with a different professor. He explained, 'Creating a fair and well-planned syllabus is one of the keys to my success I think." Dr. Alexander is direct and explicit with the students. He values knowledge that is pragmatic and accessible.

Dr. Alexander wants the students to develop knowledge of basic marketing that they can understand and use. "I'm an applications oriented person. If I understand the term and I understand how to use it, then I use it. I am very oriented towards practicality. We should be able to do things." Dr. Alexander wants the students to be able to pick up the knowledge he is teaching and understand how to use it.

Dr. Roberts found that students are helped to understand the meaningfulness of the course content in the if they expand their preconceived ideas concept of how the course fits into its field of study. "I suspect that many people come in there with preconceived ideas about what they're going to learn. Very often they have very limited ideas about what they are going to learn and not really a full appreciation of what the field is all about." Recognizing that the students have their own reasons why they enrolled in the course, Dr. Roberts wants the students to understand that the course content is larger than their initial conception. Dr. Roberts believes students are helped to develop meaningful knowledge when together they clarify the expectations of the course.

Dr. Roberts considers meaningful knowledge is developing a perspective of thinking critically about psychological research on differences. Dr. Roberts believes critical thinking about research is valuable and useful knowledge for the students to bring to any classroom.

> The goal is to help them think critically about the field of psychology as it has attempted to understand women and girls behavior. Another important goals is to emphasize research that helps us understand differences in women. I think that is an important goal for students' education period. I think that in order for students to really understand human behavior accurately, they've got to be able to transcend the white middle class norm that is implied in research.

Dr. Roberts considers this knowledge can enhance the students' ability to develop a fuller understanding of a psychological approach to human behavior.

None of the professors considered useful or meaningful knowledge to be developed through rote learning and memorization. Dr. Roberts stated, "You need to come to class, sit back and think. Take in this material, participate, put things together and learn. I am really an adamant opposer of rote learning and memorization, get everything down and spit it back out." Her statement was echoed by the other three professors. Dr. Hughes stated, "A lot of big ideas are being presented in the class, there's not a whole bunch of little factoids that they've got to get right." The knowledge in the professors' classrooms is not disconnected factoids. The knowledge is meaningful because it is thought provoking, engaging, supports the students' ability to further their studies in the subject matter area, and is connected to their life experiences.

Summary of Second Theme

The professors consider their subject matter knowledge to be meaningful in that it enables them to do something or to understand something they find interesting. They want to convey this quality of their knowledge to the students. The professors believe students who find meaning in the subject matter will actively engage in developing their

knowledge further. The second theme, professors believe that students learn when they are helped to understand that course content is meaningful, useful knowledge, is summarized by three components:

- Meaningful knowledge has an application extending beyond the classroom.
- Instructional strategies can help students to determine meaningful knowledge.
- Information about course goals and the professors' expectations help students to determine meaningful knowledge.

The professors plan their course content around what they consider useful, meaningful knowledge for the students and they employ instructional strategies intended to help students understand the usefulness of course content.

Third Theme: Students learn when the subject matter is presented in more than one way

The professors believe the students learn when they can experience a presentation of the course content that does not replicate the textbook. Although the four courses relied primarily on a text format for presenting the course content, the professors did not duplicate the textbook in the classroom presentations. The professors consider an important function of the classroom experience is to present the course content in ways that will interest the students in wanting to read the text, will enable the students to make connections to the content in the text, or will provide an opportunity for the students to test their understanding of the material in the text with other people.

Dr. Roberts explained, "I try to make my classes not a total recapitulation of the textbook. I try to make it interesting and lively and a discussion so that at they'll remember that and want to read the text." Dr. Roberts used a faculty led discussion as an instructional strategy to involve the students with the subject matter.

Dr. Roberts built her classroom instruction around a particular topic. Wanting the students to learn the classification system psychologists currently use to categorize marital arrangements, Dr. Roberts used a Gallup survey on gender division of labor on household chores as the topic. She discussed the survey with the students. She asked them questions about what they expected the survey to show and she used her responses to bring the course content material into the classroom. When a student asked a question, Dr. Roberts responded, "I'm glad you asked that question because it shows scripts in life. Julie's question suggests a traditional marriage." The professor wrote the term traditional marriage on the chalkboard and discussed it as a category including its defining characteristics.

This interaction between professor and student illustrated several aspects common to the four professors. The interchange was positive. The student was acknowledged as asking a good question. The question was used to introduce a psychological term, *scripts,* as well as to introduce one of the categories the students needed to learn. Dr. Roberts' practice of building course content on the student's question make the subject matter seem to come from the students as well as the text and from the professor. Dr. Roberts' instructional strategy is an example of a presentation of course content that does not duplicate the text.

Dr. Alexander's presentation of course content is intended to connect the students to the course content and to help them remember concepts. Introducing the concept of product placement, he asked for a show of hands in response to his question, "Who had a Wiggly Worm?" Dr. Alexander's question was deliberately trying to connect the product placement concept with the students' experiences. Additionally, Dr. Alexander believed

this instructional technique helped the students to remember specific marketing concepts. "That's what I'm trying to do, to help them remember it. Examples to me are like clues." When no one indicated having a Wiggly Worm as a child, he dropped the example and asked for a show of hands on Big Wheels.

The exercises Dr. Romling creates in the course packet present course content in a way that helps students test their understanding of the text they have read. She does this through the exercises she creates for the course packet. The exercises often contain some familiar expressions of speech in both English and in French and require the students to discuss and compare the language usage with the members of their groups. The exercises enable the students to actively interact with one another's understanding of the concept Dr. Romling wants them to learn from the reading they have been assigned.

The exercises are a way to actively present the material that enables Dr. Romling to see "why do they have difficulties with what they've read" as she and the TA move about the classroom interacting with each group. Doing the exercises in the group also enables the students to "see how their peers might have understood something."

Dr. Hughes used a class trip to tour a car manufacturing plant as a way to present the content in the text the students were assigned. As a presentation of course content, the tour helped the students to understand what they were reading. "Books can do a lot to spur your thinking," Dr. Hughes told the class, "seeing it can make it real." Even as Dr. Hughes is teaching this course, he is mentally planning for the course next semester and contemplating how to add more variety in the ways students can examine what he considers to be the core issues of the sociology of organizations.

Summary of Third Theme

The professors select textbooks to present the subject matter, and they expect the students to learn from reading them. However, the professors want their classroom instruction to give students another presentation of course content rather than a recapitulation of the text. The theme, the professors believe students learn when the subject matter is presented in more than one way, is summarized by the following point:

- Classroom presentations are a way to interest students in reading the text, to connect them with the course content, or to help them test their understanding of the text.

The professors use instructional strategies to present the knowledge they want the students to learn in a variety of ways in order to make the subject matter interesting and engaging for the students.

How The Professors Determine Valid Knowledge in Their Subject Matter Areas

The second question put to the data asked how the professors determine valid knowledge. The question has implications for describing three aspects of the professors' subject matter beliefs in relation to their instruction. One aspect is how the professors evaluate the validity of their own knowledge. A second is how they determine valid knowledge for course content. A third aspect is how they convey determination of knowledge validity to their students. The theme that emerged from the data indicated that although the professors know their knowledge primarily through disciplinary research, research findings as a determinant of valid knowledge is tempered by the professors' trust in their sense of knowing and their confidence in pursuing their research

interests. Their determination of validity includes their interactions with members of their disciplinary field. The fourth theme is:

4. The professors are guided in their determination of valid knowledge by their confidence in their ability to discern valid knowledge and their interactions with members of their knowledge.

Questioning the data produced disparate categories reflecting the diversity of the professors' fields of study and the differences in their personalities. Each professor discussed procedures and attitudes concerning validity of knowledge differently. Each professor varied in the degree to which knowledge validity was explicit in the instruction. However, searching the data demonstrated that all the professors talk about some kinds of knowledge that they "just know" without any specifically articulated determination of how they know it to be valid.

Dr. Roberts described "knowing" that she would go to an Ivy League university when she was in the third grade even though there was no logical reason to believe in the validity of this knowledge. Reflecting on her sureness of that knowledge during an interview, she expressed amazement at her knowing the validity of her knowledge with such certainty.

Dr. Hughes' and Dr. Alexander's interview data contain an example of knowledge that is "known" with certainty to be valid. Dr. Hughes spoke of his knowing that he would go to graduate school even though going to college was not part of his plan as a high school student. Dr. Alexander spoke of knowing that he would find useful knowledge by going back to graduate school to studying transportation and logistics.

Dr. Romling spoke of knowing that the class she teaches has a personality and her knowledge of how the class is going even though she cannot explain how she determines the knowledge to be valid. "I don't know if I can define what I'm looking for." All four professors have confidence in the validity of this kind of knowledge. Although none of the four examples are considered academic or scholarly knowledge, the data demonstrate the trust the professors place in their ability to recognize valid knowledge, and the confidence they have in themselves as people capable of knowing valid knowledge.

The professors display this confidence and trust as they use their personal and subjective interests to guide their pursuit of research based knowledge. They trust that following their research interests will develop worthy knowledge that may be valid. Interactions with respected members of their disciplinary communities help the professors to establish the validity of their subject matter knowledge. A determination about knowledge validity appears to rest in the overlap of two places: one, with the members of the knowledge community, and two, with the professors' confidence that they can recognize validity.

Dr. Roberts uses the process of critical thinking to guide her determination of valid knowledge within her field of study. The application of theory-based research by respected thinkers in the field does not ensure knowledge validity for Dr. Roberts. She includes critical thinking as a course goal. "I see those as more important goals than for example, being able to cite the different theories of women's development or being able to apply X theory to Y. I see those as important goals of any students' college education." Dr. Roberts' instruction emphasizes that determining knowledge validity

requires an ability to critically examine hidden political or social assumptions that bias research findings.

Even as Dr. Roberts wants the students to discern valid research based knowledge, she recognizes that this is particularly difficult for the students because they have becomes accustomed to regarding research findings as valid knowledge.

> It's difficult for the students to understand that we really don't know the answer. And I say it right on the syllabus, we will see that there are no hard and fast answers in this field and that's very hard for them because they see science as having the answers. It's difficult for them to see that human behavior is always changing and moving and it has to be interpreted in its particular context.

Dr. Roberts is teaching the students that knowledge regarded as truth by many psychologists is always subject to interpretation. She encourages the students to expand their concept of theory driven research as an unqualified determinant of valid knowledge. She wants the students' knowledge to include the notion that research reflects implicit assumptions that influence interpretation.

Dr. Hughes relies on his research-based knowledge for determining valid knowledge for classroom instruction. Dr. Hughes emphasized that the knowledge he teaches in the classroom has been validated and made vivid for him through his research experience. He explained that every part of the course he taught on organizations involved a part that he has researched.

> My head hunter stuff enters in. It was motivated by Rosabeth Moss Kanter's ideas about homosocial reproduction. Other parts of the course are infused with

ideas that I've had. I can talk from personal experience with interviewing folks who sell Amway and Mary Kay cosmetics. I've been to Mary Kay meetings. Dr. Hughes' research experiences gave him confidence in selecting this material as worthy course content and infuse his statements with a passionate interest. Dr. Hughes, like the other three professors, has a passion for his knowledge and finds joy in working and studying in a field of deep personal interest. He knows his subject matter through the interplay of his research experiences and the wider knowledge community in his field of study.

Valid knowledge, for the professors, is supported by the research methods specific to each discipline. Marketing uses several research techniques to determine valid knowledge. Dr. Alexander conveys examples of these techniques through sharing the results of marketing surveys with the students and using the results as a basis of his questions to the students. When he uses marketing surveys with the students he always cites the source and the date.

Dr. Alexander's classroom instruction relies on the textbook as a source of valid knowledge largely because he is teaching out of his research area and because he teaches a large class. "In the large classes the textbook is a bigger deal, because you're relying on it more. I think you rely on it more because of the forced testing mechanisms and multiple choice questions." Dr. Alexander is irritated to see the definitions of marketing terms change from author to author and even within editions by the same author. His statement, "Come on, these people are students trying to learn this," expressed his concern that authors do not consider the needs of the learners who are trying to use the texts.

The four professors speak of their knowledge with a conviction bolstered from their research as well as from interactions with people in their fields of study. There is a quality of passion the professors have for their subject matter areas and teaching in their subject areas. Dr. Alexander explained the personal confidence that comes from a professors' researched based way of knowing and its contribution to a professor's subject matter knowledge for instruction. He alluded to a stack of dossiers he was reviewing on professors who had been nominated for the university's top teacher award and said, "Nobody in this group would do what they do if they didn't have a lot of knowledge of the field and most of that knowledge comes from research." Dr. Alexander explained that even as professors know what others in their field are saying, they also need to know when to break new ground.

The professors' stories of why or how they chose their particular areas of study demonstrates an inability to articulate their tacit knowledge in a step by step fashion. They used the words "fascinating" or "interesting" spoken with an expressive enthusiasm that was obvious in the audio tapes. Dr. Hughes explained his delight in discovering sociology as a college student.

> I found it just absolutely fascinating to think about a lot of issues in the social sciences mostly from the standpoint of how can you possibly understand human behavior or try to predict it or model it in the way that the social sciences try to do.

Similarly, Dr. Romling described part of the attraction of linguistics as driven by her interest in the everyday use of language. "I don't know if it's part of my populist

leanings or something, I just think it's fascinating." Dr. Alexander told of finding his interest in the field of transportation and logistics during his work in the U.S. Navy. "That's where I started working in transportation and logistics. I loved it." All four professors expressed a sense of satisfaction at being able to study and to conduct research in fields that were of passionate interest to them.

Dr. Romling discussed the use of a disciplinary community as a basis of determining acceptable or valid knowledge in class. Dr. Romling tells the students, "Some questions don't have answers. It depends on your finding out whether anyone will agree with you, someone who is respected. And sometimes there is not agreement within that field as to what the answer is." Dr. Romling's response encourages the student to conceptualize knowledge validity as including the ability to communicate and argue their knowledge with respected scholars in the field. This conceptualization implies valid knowledge is not fixed or determined by an outside agency. Rather, knowledge believed to be valid by the knower may be argued through scholarly dialogue as valid, and potentially to become accepted as such by members of the discipline's field of study.

Summary of Fourth Theme

The professors are concerned with issues of knowledge validity, although validity is not always discussed explicitly in each professor's classroom. The professors regard valid knowledge as derived from theory based research yet not wholly determined by such research. The professors place trust and confidence in their personal judgment of valid research findings. Each professor has discipline specific techniques for conducting research. The fourth theme, the professors are guided in their determination of valid

knowledge by their confidence in their ability to discern valid knowledge and their interactions with members of their knowledge community, is summarized by the following three points:

- Interaction and dialogue with respected members of the disciplinary community,
- Critical reflection on research methods and findings,
- Comparing research results to personal research experience.

The professors' confidence in their research experiences contributes to their ability to determine valid knowledge. The professors' data indicate that determining valid knowledge is an intrinsic and highly integrated process difficult to articulate.

How The Professors Describe Their Roles as Teachers

The professors assumed their roles as teachers with a seriousness that indicated they considered teaching to be an important a part of their work. Their teaching was as interesting and satisfying to them as their research and publishing. Two themes supported by many categories emerged in response to the question of how the professors described their roles as teachers.

5. The professors considered themselves to be facilitators who are teaching more than content matter.
6. The professors felt a solitary privacy in their classrooms as they developed instruction heuristically.

The *fifth theme* reflected the professors' sense that their interactions with students formed an important part of the students' knowledge development. The professors regarded their students as people who would continue to grow and develop in their knowledge after they left the classroom. The professors found satisfaction and

motivation in their belief that their teaching extended beyond the confines of the discipline and the classroom.

The *sixth theme* reflected both the private nature of the professors' classroom teaching as well as their way of developing instruction. The professors realized that it is customary to regard the classroom as a professor's personal space. Instruction within that space is developed by trial and error as the professors learn from their students what works and what does not work.

Fifth Theme: They were facilitators who are teaching more than content matter

All the professors, in their own way, expressed a notion that they were facilitating learning in the classroom and through that facilitating process, they were teaching more than content matter. Dr. Roberts was explicit in her statement. "I am doing more than teaching content matter. I know that I am teaching a different and critical way of examining data in psychology and looking at the world in general." Dr. Roberts expects the students to take the knowledge they have learned beyond the classroom.

Dr. Roberts has an expectation that the students' perspectives will be changed through having interacted with the course content as it was taught. All the professors expressed a similar notion that the subject matter and their interactions with students would continue to have an effect after the conclusion of the class. That notion contributed to the professors' sense of responsibility and their personal satisfaction with teaching.

Part of the professors' expressions of "more than content matter," reflects a desire to make a difference in the students' lives. The professors' belief that they can make a difference in the students' lives, makes their work as professors meaningful. Through

affecting their students' lives the professors believed their work was making a difference in the world. They wanted to believe that their subject matter and their method of teaching would make a difference for the students. Dr. Hughes stated,

> Part of the reason I like to teach this stuff is that I think if students can leave believing that people are sometimes carried by social currents not of their own making, that's very valuable because they sometimes end up being in positions to make policy. I think they will be better decision makers. If I didn't believe that I probably wouldn't be here.

Dr. Hughes' statement conveys the personal significance he places on his teaching role. His belief that what he is doing is beneficial to students' lives indicates the regard he has for students as individual people.

Sharing her personal reflections about her work as a professor, Dr. Romling explained that she came to believe that her teaching was meaningful. She came to realize that her knowledge, skills and abilities could make a difference in the students' lives.

> You have all these students you come in contact with and you say, "Will linguistics be the thing that makes a difference in their life?" I don't know, but you also make a difference in how you treat them, how you interact with them and what types of conversations you have with them.

Dr. Romling's statement conveys all the professors' beliefs that student-professor interactions are an important part of how students learn. The professors planned their instruction with a regard for making a contribution to the students' abilities to develop as scholars and as humans. The professors' descriptions of their roles as teachers were characterized by a desire to believe their work was worthwhile.

Dr. Alexander's desire to make a difference in the students' lives was evidenced by his concern that undergraduates need good role models. "I believe I'm teaching them some things that are incredibly important. More important than factual information." Even though Dr. Alexander described subject content as "really important" in his courses, he also considered that his teaching could help students learn about life and the decisions they have to make. Dr. Alexander believed, as did the other three professors, that what he was teaching and how he was teaching had application for the students' lives beyond the classroom's time and space.

Dr. Alexander had the most teaching experience at the university and the numbers of undergraduates he has seen in his classes gave him a certain perspective as well as a wisdom that he is willing to pass on to students. "They may not want to listen to it, and I don't want to stand up there and tell all this, but for those who are interested, I could make their lives a little easier." Part of making the students' lives easier would be his reassurance that things will work out even though he is aware that the students are facing troubling and overwhelming decisions about their classes and their careers.

Dr. Hughes identified and described aspects of his work that he hoped would provide good role modeling for the students. He wanted to be a role model for scholarly behavior, thinking that his modeling could provide a guide for students trying to learn how to read sociology texts. Dr. Hughes' enjoyment of reading and reflecting on a sociological analysis was developed as an undergraduate. He believes his students can learn to develop this behavior as he models it in the classroom. When he discusses a favorite analysis of the work place, he tells the students why he thinks it is a useful

analysis and explains that he has read it so many times that he sees things in the analysis that he knows they do not.

Each professor recognized that their positions gave them power both in the context of classroom instructions and in the students' personal lives. Realizing the extent of a sociology class's effect on students' lives outside the classroom was jolting for Dr. Hughes. He was startled to be told that his class had become a part of a student's dreams. "It's a weird thing that we do. We enter people's consciousness and heads in ways that are just awesome. I'm in their heads in ways. I think I need to be mindful of that." Dr. Alexander was very mindful of his power in the classroom as a role model working with what he considers a vulnerable population. "Another thing about teaching that is always in the back of my mind is the power of the teacher. Teaching is a very powerful position."

Although the professors described their positions as having power, they did not use power to describe their own roles in their classrooms. Dr. Romling connected power with authority as she briefly described an encounter with a student earlier in her career who expected her to assert an authoritative role in the classroom as the person who held and told the correct answers. As she told this story Dr. Romling stated, "I very much believe in a role of the teacher as a facilitator rather than an authority and I want the students to think they can have good ideas on their own, even at this stage."

At this point, Dr. Romling believed her power or authority in the classroom was undisputed by any students. Yet the transition to this point has become tacit knowledge for Dr. Romling. She has learned it and she cannot specify how it happened.

Now, somehow, I feel like, and I don't know if it's just my own confidence level,

> or I've gotten older, or what it is, I don't ever feel like my position of authority is in doubt. I mean when you're the teacher you have so much power anyway, it's obvious enough that you don't have to do anything in particular to assert that power.

Observations of her classroom instruction led me to conclude that Dr. Romling exerted her power through her active involvement with the students' learning and guiding their involvement in the subject matter.

> In the classroom, I would much rather engage them in a dialogue and see what They're thinking, and how their thoughts on these things are developing. I don't feel that my purpose is to withhold information from them but at the same time I don't feel like they're at my feet waiting for my latest pearls of wisdom. No, that's not the model I'm following.

The professors provided information to the students on a wide range of issues, from classroom goals to their personal reflections on the subject matter. The professors regarded being explicit with information could increase the students' ability to function successfully in their learning process.

The concept of engaging the students in a dialogue to see what they are thinking appeared frequently in the professors' discussions of their roles as teachers. The concept is enacted differently by each professor and may be constrained by each classroom's physical context. However, when engaging students in a subject matter dialogue, the professors enable the students to interact with those who have expertise in the subject matter field.

Even as Dr. Roberts used the students' questions to present course content, she was not worried that students might not give a correct response, or that their responses would not match the class objectives. The purpose was to have the students articulate their thoughts to the whole class. "It's good for them [the students] to take a stand and then we can engage in some kind of dialogue." Dr. Roberts' extensive subject matter knowledge enabled her to work with whatever responses the students gave.

Dr. Roberts' reaction to students' responses seemed to coincide with Dr. Alexander's philosophy that good teachers "welcome discourse. They welcome people's opinions that are different from their own." Engaging in dialogue with students meant the professors had to listen. Dr. Alexander not only remarked about looking at students but also listening. "You have to listen. We really are weakest I think at listening. But you have to listen very carefully and you have to make snap decisions." Listening to the students was another form of feedback that affected the professors' instruction both during the moment of delivery and later as they reflected on their class.

The professors understood the job of being a professor at a major research university as a position with a variety of facets, teaching, researching, and writing. They perceived that variety to be pleasing even while acknowledging that there was pressure to perform every component of their jobs well. Two professors identified the variety of their positions as enhancing their enjoyment of teaching. The variety and the pressures required the professor to develop and apply time management skills. Dr. Romling made decisions about her time stating that when there was a clash, the students came first because she had to face them everyday. "I never teach in the summer. I try to work on

research in the summer, I try to get on a schedule as far as what time I'm going to allot to research."

The professors all mentioned sometimes experiencing a clash between some students' expectations about a professor's role in regards to knowledge and the professors' own beliefs. Dr. Roberts expressed this clash in terms of her desire to stretch the students' minds. "Especially because I know that concept for many students is so foreign and so unusual. They find it easy to read it and go, 'Well, I don't buy this but I'll memorize it for the test'." Even though the professors recognized some students wanted to base their acquisition of knowledge on what would be on a test, the professors' attitudes were well summed up by Dr. Romling's statement: "People just have to get used to this with me."

The clash was most apparent during exams. Dr. Alexander expressed annoyance with the students he called efficiency experts. "All they want to know is what's going to be on the test." Dr. Hughes stated, "I hate it when they try to think about, 'Well, what does he think? I'm going to write that down.' I want them to think what they think and to come to some kind of conclusion." The professors' beliefs about their subject matter knowledge encouraged expansive and long-range thinking, even when that was an uncomfortable notion for students.

Summary of Fifth Theme

The professors did not regard themselves as authority figures in the classroom, however they were conscious of the power they had in the classroom. The professors' believed their actions in the classroom helped to guide the students in their learning. The

first theme, the professors considered themselves as facilitators teaching more than content matter, is summarized by two points:

- The professors were guides or facilitators of learning
- The subject matter was beneficial for the students

The professors believed a professor's interactions with students are important to learning subject matter. The professors wanted the subject matter they were teaching to make a difference in their students' lives. The professors' belief that they could make a difference in the students' lives contributes to the satisfaction they find in teaching.

Sixth Theme: The professors felt a solitary privacy in their classrooms as they developed instruction heuristically

The classroom space is private for the professors and the students. Very rarely are there any observers in the classroom for extended periods of time. Although many professors' department heads may comment on their teaching evaluations, the professor's individual instruction is not known in any personal detail by other professors in the department. The professors have a solitary privacy in their classroom instruction. Few outsiders ever entered into a professor's class in a non-evaluative capacity. As Dr. Alexander stated, "Colleagues don't sit in on the class. They don't have any idea what other teachers do." Dr. Hughes referred to the classroom as a private space. He lamented that such isolated classrooms meant that professors often did not have an opportunity to learn from one another.

> It occurred to me it would be so neat to know more about what everybody else is doing but the organization is set up in such a way that I don't have the time or any incentive. We don't learn out of area. It's an odd thing but it's not set up to

> continually increase our skills or to broaden our skills. We've learned enough, we're past the learning stage we're on the professing stage now.

Although conversations about teaching occur in the university's office of instructional support, no one knows exactly what the professors do in their classrooms. The two professors in this study who had teaching assistants valued conversations with them about the class. The solitude or isolation the professors felt was made more apparent by Dr. Romling's remark on her delight in being able to talk with her teaching assistant about the classroom. "It's absolutely amazing to me to have another human being who actually knows what you do."

Although the professors do have a sense of instructional isolation within the walls of the classroom, this is combined with their sense of passing their students onto a larger community that may include their own colleagues. Explaining that the linguistics course had been recently developed and was designated as a requirement, Dr. Romling expressed a sense of responsibility to her colleagues as she developed instruction. "The sooner the students have these common basis to work on in the other classes, I think it will be nice for my colleagues who are getting the students later." Dr. Romling's statement affirmed the professors' belief that subject matter knowledge has a use beyond the walls and time span of the classroom instruction.

When Dr. Roberts was discussing her attitudes towards undergraduates, she expressed a sense of pleasure in knowing that some of the students would decide to go on to study in her field. "I think I've had the most satisfying relationships with undergraduates when they're interested in going to graduate school. They might decide to be a research assistant for me and eventually get into graduate school and move on."

The professors' perception of their job is infused with their knowledge that they are working with students who are standing on the horizon of the future.

The professors improved their instruction in a very heuristic manner of trying it out, then reflecting on the results. Dr. Hughes tried to incorporate students' reactions into the planning of his material. "This kind of stuff [referring to syllabus] was generated through long discussions with students. So in effect students from the past are sitting in my head when I create the syllabus for this term but the current students aren't." As Dr. Alexander moved into teaching large classes, he was very conscious of needing to adjust his instruction. "It was by constant refining. Try this, it didn't work, straighten it out, get rid of it, change it next time. So it took teaching it about five times, like two years, to get to the point where I am now." Dr. Hughes summed up all the professors instructional planning by saying, "I try to do things that I think work."

The students' dialogues and their questions enabled the professors to see and assess what the students were thinking. The students' questions provided the professors with a gauge for determining how they were learning. Although the class exams provided an assessment tool for the professors, the professors relied more on the students' interactions in the classroom for an indication of their knowledge development. The professors believed they could learn from the students and they used the students' questions and interactions as a guide for developing or refining their instruction.

Each of the professors brought their personal qualities to the job of teaching. Dr. Alexander believed that you have to be inspired to be a good teacher. "You have just got to have this internal desire and a kind of contentedness or peacefulness.' Dr. Hughes believed it was important for him to keep his own values out of his classroom

presentations. "I don't think it's my job to teach them what my personal views are." Dr. Roberts believed goals for all students' college education should include thinking critically and effectively expressing thoughts in written or in oral presentations. "It's still a challenge to help students see that. They get scared." Dr. Romling believed students needed to develop a commitment to working with one another in order to be aware of how they were thinking of the subject matter. "To me the only reason you're in a classroom is so that you can interact with the other people who are in the classroom."

The professors tended to think about instruction in terms of their specific fields of study. However, Dr. Alexander's editing role for a book on teaching encouraged him to think more generally about topic of teaching, and more specifically, teaching in large classes. "One time one of my grad students entered the grades in Lotus on the wrong line and they were all wrong. If we hadn't found that mistake we would have had to put in an individual change of grade slip for a hundred fifty people." Although all the professors faced specific challenges in their classrooms, looking across their data revealed there were many beliefs they shared with one another about their students, their instruction and their roles as professors. This chapter strove to preserve a flavor of each professor while presenting the commonality of their themes.

Summary of Sixth Theme:

The professors realized that only they and the students knew what occurred in the classroom. The sixth theme, the professors felt a solitary privacy in the classroom as they developed instruction heuristically, is summarized by two points:

- The classroom is a private space for the students and professor
- The professors learn how to refine their instruction from the students

The professors' instructional practice in the classroom is considered personal. The classroom space is normally a private area the professor and students share.

Overall Summary

The six themes and their summary points are listed below.

1. The professors believe students learn by actively engaging with the course content in a supportive environment.

- Connecting subject matter to the students' everyday lives,
- Treating the students with respect and fairness,
- Supporting the students' need to articulate their perspective of the subject matter or to develop arguments for their point of view.

2. The professors believe that students learn when they are helped to understand that course content is meaningful, useful knowledge.

- Meaningful knowledge has an application extending beyond the classroom.
- Instructional methods can help students to determine meaningful knowledge.
- Information about the course goals and the professors' expectations help the students to determine meaningful knowledge.

3. The professors believe students learn when course content is presented in more than one way.

- A classroom presentation is a way to interest students in reading the text, to connect them with the course content, or to help them test their understanding of the text.

4. The professors are guided in their determination of valid knowledge by their confidence in their ability to discern valid knowledge and their interactions with members of their knowledge community.

- Interaction with respected members of the disciplinary,
- Critical reflection on research methods and findings,
- Comparing research results to personal research experience.

5. The professors considered themselves to be facilitators who were teaching more than content matter.

- The professors were guides or facilitators of learning
- The subject matter can be beneficial for the students
- Professor's interactions with students are important to learning subject matter

6. The professors felt a solitary privacy in their classrooms as they developed instruction heuristically

- The classroom is a private space for the students and professor
- The professors learn how to refine their instruction from the students

The six themes demonstrate that the four professors held many beliefs in common. The professors all believed that learning subject matter knowledge is an active, engaging process just as their own knowledge is active and engages their attention. The professors' beliefs about their subject matter knowledge and their instruction has social components that includes the professors' awareness of the interpersonal nature of learning, and their regard for their students as individuals.

A theme underlying the professors' commitment to teaching was a desire to make a difference. They saw their instruction as more than just content material. They believed

their subject matter knowledge has potential meaning for the students' lives beyond the classroom. Through instruction based on meaningful and useful subject matter knowledge, and their interactions with the students, the professors hoped to make a positive difference in their students' lives.

They shared a belief that students were greatly helped in their learning by a professor who exhibits interest in the subject matter and exhibits interest in the students. They were all aware of having power as professors, however, they had no desire to function as powerful, all-knowing authority figures in the classroom. The professors focused on using their subject matter expertise and experience to support their students' active learning.

The professors valued knowing how the students think. They wanted the students to develop their own personal knowledge of the subject matter, not to memorize what they perceived to be the professors' knowledge. The professors made an attempt to present their subject matter knowledge in a form that did not replicate the textbook.

All the professors, to a greater or lesser extent, believed that each student was a potential member of the professors' knowledge community. Therefore, they believed the students needed to know or to understand that knowledge community's way of thinking. They encouraged the students to use the language of that community.

The professors felt a sense of satisfaction when they could see their students learning, and when they taught in a way that helped their students to learn. It is significant that the professors attended to their sensing of satisfaction. Polanyi (1974) argues that what humans give their attention to, what they attend to, is given meaning and forms part of their personal knowledge.

The four professors exhibited diversity in many areas, yet they shared beliefs that encouraged them to attend to what Dr. Romling described as “Something small tickling at your brain.” Their practices of attending to their reflections on their classes distinguish their beliefs and their development of instruction. They believe their instruction is a meaningful and important part of their jobs as professors in a major research university. They find being able to do that part of their job well is personally satisfying.

CHAPTER SIX

A Passion for Knowing and A Passion for Teaching

> The personal participation of the knower in the knowledge he believes himself to possess takes place within a flow of passion.
>
> Michael Polanyi, 1974, p. 300

The purpose of this inquiry was to describe professors' beliefs about their subject matter knowledge in relation to their practice of learner-centered instruction. The purpose of this chapter is to summarize and bring closure to this study. This chapter presents a discussion of the participants, a discussion of the professors' use of dialogue in their instruction, and a brief discussion of the relationship between dialogue and the professors' beliefs about their subject matter knowledge. Following these discussions are my interpretations of the challenges encountered in analyzing the data. The chapter concludes with a discussion of participant-researcher reflections, recommendations for further study, and closing remarks.

Hearing The Participants

The four participants selected for this study, Elizabeth Roberts, Cally Romling, Sidney Alexander, and Everett Hughes, had subject matter knowledge in four different fields of study. They were different from one another in their personalities, their teaching experiences, their cultural backgrounds, and their learning experiences, yet, they shared a passion for their subject matter knowledge that encompassed their sincere interest in helping students succeed in developing their own knowledge. The professors attended to

their students' reactions, and felt a sense of satisfaction when they perceived their students were learning. The professors considered the students to be learning when they could hear or see their students expressing their development in an understanding of the subject matter. The professors gave energy to thinking about how they might improve active learning experiences for their students because the professors' valued their students' development of knowledge.

- "I feel that my students deserve an opportunity to get to know me, to ask questions, to learn to apply what they're learning to their own lives. I feel compelled to share some of that with my students." - Elizabeth Roberts
- "The students were saying all these great things, and they had it all figured out. It's just really very satisfying." - Cally Romling
- "You have to be inspired inside to be able to do teaching. I mean you have to have this internal desire and a kind of contentedness or peacefulness." - Sidney Alexander
- "I wanted to be a teacher. I thought about it a lot and decided that at the core of what I really wanted to do was to be able to teach." - Everett Hughes

The professors taught their classes to the best of their ability with integrity and concern for their students, their colleagues, and their disciplinary fields.

The Professors' Perception of Instruction

My questions asked the professors to isolate components of their teaching. However, such questions did always reflect the professors' customary way of talking or thinking about their instructional practices. Except for Dr. Alexander who was editing a book on university teaching, it was not unusual for the professors to respond that they had

not thought about defining or analyzing what they considered to be teaching. During the third interview, Dr. Hughes explained that he had asked a former student to give him feedback on the syllabus he was creating for a summer course.

> Well, that's asking for her [the student's] advice. I don't have to do that. It seems, though, like part of what I would think of as teaching. So would that be part of what you call instruction? See, I don't make those distinctions, I don't think hard about the categories under which I would place various interactions or activities but I may do them.

The professors' tendency was to see their teaching as a whole process that involved planning, doing and thinking within an academic context. They did not normally sit down and ponder their beliefs about their subject matter knowledge even though they might ponder their teaching in terms of how their students were doing in the classroom

The Professors' Instructional Planning

The professors believed in the importance of their instruction. However intuitive the professors' practice of learner-centered instruction might seem in this study's findings, the professors did a considerable amount of planning and thinking about their instruction. Dr. Alexander emphasized that planning played a major role in his teaching.

> Every time I teach, my attitude is first to look at the audience, find out who they are, what's their background, what's their level of expertise and knowledge, what are they supposed to achieve, what are their objectives, and what do I want them to accomplish?

A heuristic process led each professor to feel her or his way to constant improvement through attending to many sources of feedback including their feelings and the students' reactions.

The Individuality of Each Professor's Practice

During the course of collecting data, each professor demonstrated a different component of what the practice of learner-centered instruction looks like at the undergraduate level in a research university setting. The professors' individual differences enabled me to see particular facets in the relationship between their instruction and their subject matter beliefs. Dr. Hughes helped me to understand that professors' knowledge included a way of thinking, a way of knowing, or a way of making sense of events. Dr. Roberts helped me to understand the significance of articulating knowledge as a part of active learning and integrating new knowledge. Dr. Alexander helped me understand the importance of respecting and listening to students as they attempt to develop knowledge. Dr. Romling helped me to understand that the classroom is a social environment inhabited by people who are coming together to construct knowledge.

The Prominence of Dialogue in The Professors' Beliefs

The major finding of this study was the importance of dialogue both in the professors' beliefs about their subject matter knowledge and in their practice of learner-centered instruction. The professors' belief that dialogue is critical to the process of developing active knowledge was prominent throughout the professors' data. Dialogue was important to the professors' own knowledge development, and they tacitly extended

this same process of knowledge construction to their students through their various instructional practices.

Dialogue fulfilled a variety of functions in the professors' instruction. The professors encouraged the students to enter into a dialogue with others believing the process of dialogue helped the students to articulate and integrate their knowledge. The professors also believed that dialogue helped the students to develop an interest in the course content. Equally important, a dialogue with students played a role in evaluating the students' learning because dialogue helped the professors to know how the students were thinking.

The professors' incorporated dialogue in a variety of ways. Dr. Romling's use of groups in the classroom gave the students a small space within which they could compare their understanding of the subject matter with one another. Dr. Romling explained, "In the classroom, I would much rather engage them in a dialogue, and see what they're thinking and how their thoughts on these things are developing." Dr. Alexander asked questions to encourage students to connect their knowledge to the course content. Dr. Alexander considered the spontaneity of the students' responses to be an important part of the dialogue process, and he cautioned that being able to "run with" the students' comments required good listening. "I think that's what a good communicator tried to do. You have to listen. We really are weakest at listening. You have to listen very carefully." Dialogue in learner-centered instruction requires good listening combined with the ability to respond appropriately.

Dialogue and Listening

Dr. Hughes was delighted when students initiated dialogue on any aspect of the course content. He continued to listen to the students' dialogue with one another outside the classroom in order to gather information about the students' interests. "I try to learn enough about them as I'm talking to them informally, to suggest a book they might be interested in." The quality of his listening enabled him to recommend or share books intended to help the students continue to develop their knowledge.

Dr. Roberts believed her practice of faculty-led discussions in the classroom encouraged the students to articulate their knowledge and assumptions. Regarding dialogue as critical to the students' integration of knowledge, she listened for the students' understanding of the subject matter knowledge rather than listening for right or wrong responses.

> No matter what a student says, it fits into the bigger picture of helping them to understand what's going on. So, even when they give wrong answers, I can understand how they got there and say, "OK. It seems to be this is what you're trying to say, so let's consider this other piece." That kind of dialogue is so important.

Rather than hearing the students' words as though they were transparent, as described by Freeman (1996), the professors expended effort to listen to the students' thinking. Dr. Romling listened to the students' questions and their responses to her questions for the ideas the students were expressing. She stated, "I am interested in their ideas." She also explained that listening primarily for their ideas was sometimes, "an amazing concept" for the students. According to Dr. Romling, the students were not

accustomed to being listened to for their ideas. The students' experiences led them to expect criticism for their grammar errors or incorrect word usages. The professors were aware that encouraging their students to engage in an interactive exchange of ideas was a dialogue that might be unfamiliar to students.

Summary

The professors' belief in a process of dialogue had a relationship to their beliefs about the active learning of dynamic knowledge and thus to their practice of learner-centered instruction. The use of dialogue, as observed in the classroom, was a tacit expression of the professors' beliefs about their subject matter knowledge. They believed dialogue could facilitate active learning for their students.

Each professor's disciplinary knowledge had a culture in that each had a language, a way of thinking, and a way of organizing problems. Disciplinary knowledge gave the professors a way of understanding or making sense of the world. Engaging the students in a dialogue enabled the professors to share the language and their perceptions of their discipline with the students. The professors' use of dialogue enabled the students to participate in their disciplinary fields' way of knowing. During the process of dialogue, active knowledge was developed, and the culture of the subject matter area was explored.

The professors' dialogues with the students and the students' dialogues with each other were interactions in which learning occurred. Active knowledge was developed during dialogue as the participants articulated their understanding, listened to one another's perceptions, and compared them in a constant process of constructing and expanding their knowledge. The dialogues were an ongoing process in the professors'

classrooms. The students' knowledge of the subject matter and the professors' knowledge of the students' thinking developed within the space and the relationship of the dialogue.

Dialogue and Language

Gagné, Briggs and Wager (1992) allude to the relationship of language to knowledge by stating that knowledge is a vehicle for thought or problem solving. "The thinking that takes place is 'carried' by the associations, metaphors, and analogies of language within bodies of knowledge" (p.79). Gagné et al. explain that people within a particular discipline or subject matter domain participate in a common language that enables them to express and participate in a common knowledge. Gagné et al note the relevance of Polanyi's (1958) work to Gagné et al.'s (1992) notion of knowledge as a vehicle carrying frameworks and associations through the language of its expression.

Polanyi's (1974) contention that people assimilate the presuppositions that underlie a particular discipline by, "Learning to speak of things in a certain language" (p. 59) is evidenced by Dr. Roberts's use of psychological terms in the classroom. When Dr. Roberts introduced the word *scripts* in her response to a student's question, she was bringing the students into the thinking of the discipline of psychology by speaking in its language to the students. The word scripts has meaning for psychologists that it does not have for practitioners in other disciplines; for psychologists, the word carries a psychological way of thinking.

When the students heard Dr. Roberts speaking the language of the discipline, they began to interact with the set of presuppositions carried by language that forms psychology's interpretive framework. Equally important, Dr. Roberts's use of language

and dialogue extended an opportunity for the students to interact with her interpretive framework of psychology, her personal knowledge of the discipline. The professors' dialogues were interactions that welcomed the students to share in their language and thoughts.

Life Long Learning and Dynamic Knowledge

A characteristic of learner-centered instruction is a belief that knowledge is dynamic and develops over a life long process of learning. This conceptualization is critical to the professors' understanding of learning as active, engaging, and meaningful. Although the professors do not foresee and cannot control how their students' knowledge will specifically develop over time, they have confidence that the students will continue to develop knowledge. Dr. Roberts, for example, expressed her hope that she has given her students good tools for continuing to develop their knowledge. Dr. Hughes said, "I'll be proud to send them off, and to have them do that kind of thinking elsewhere."

In addition to perceiving students as people going out into a wider world, the professors believed students came into the classroom from a world of experiences that contributed to their development of knowledge. The professors believed their instruction needed to facilitate the students' ability to integrate their prior experiences and knowledge with the course content. The professors believed students needed to interact with course content in ways that would encourage their development as people. Dr. Alexander stated, "Whatever we're doing, we're trying to develop their thinking, their writing, and their public speaking. We are trying to develop the person as well as the factual information." Underlying these beliefs were a positive feeling the professors had

for the undergraduates. Dr. Alexander's remark, "I learned that they're nice people," aptly summarized the professors' attitudes.

Beliefs as a Source of Motivation for The Professors' Instructional Efforts

A significant quality that distinguished this selection of professors was their choice to attend to their perceptions about their class as a whole, and the students within their class as individuals. The professors were supported in their choice of attending by their beliefs that what they were teaching had value. They believed their subject matter knowledge had the potential for making a difference in their students' lives. Individually, the professors expressed different things to which they attended as feedback for improving their instruction, and they reported different awareness of their attending. Yet, they were made alike in that each professor believed in the value of attending, and each had made a commitment to learn how to improve her or his teaching practices based on that attending.

Polanyi (1974) argues in his theory of personal knowledge that, "From the first intimation of a hidden problem and throughout its pursuit to the point of its solution, the process of discovery is guided by a personal vision and sustained by a personal conviction " (p. 301). Each professor had a personal vision of her or his students being successful in their continued development of knowledge. Each professor was sustained by a conviction that her or his teaching of the subject matter had the potential to make a difference in the students' lives. The professors' belief in the value of accomplishing that potential was an intrinsic motivation that resembled the concept of emergent motivation as discussed by Csikszentmihalyi (1978). The professors had an intrinsic motivation for

improving their instruction, and they continued to set new goals for their efforts to facilitate their students' learning.

The professors felt rewarded by the students' reactions when they displayed learning. Each professor expressed a sense of enjoyment with the process of sharing knowledge with students. Dr. Roberts referred to an, "Aha-click" reaction on the part of the students when they were doing meaningful learning. She explained, "There's a different energy that's being expressed when they get it at that level." That different energy was satisfying and rewarding. Dr. Alexander stated, "You can get through to some of them. And that's good." The professors attended to their instruction's effectiveness in facilitating the students' engagement with the subject.

The professors found different aspects of teaching to be satisfying. Dr. Alexander remarked, "What makes teaching so incredibly enjoyable is the surprise comment somebody makes and then it's just like the perfect time to talk about this." Dr. Romling, stated, "To me it's terribly satisfying to teach a good class, to see my students learning something. I'm not really doing it for them. I'm doing it so that I can look and see, 'wow, they have learned so much'." The professors' comments suggested that the satisfaction of seeing the students learning served to push or encourage the professors towards experimenting with ways to improve their instruction. The professors had beliefs about their knowledge that made the instruction they practiced what it was and made its practice worth their efforts.

Challenges to Conducting the Analysis

During the data analysis some challenges became apparent. These challenges were primarily related to the highly interconnected way the professors' thought of their

teaching and the way their expressed their thoughts. Very few things were clearly and distinctly separated from one another. Another challenge was to recognize that the professors, like their students, were learners. They are in a constant state of change and development. This study is much like a camera snapshot. It was conducted during a specific period of time, and reflects a moment that has now passed. It is important to realize that the professors have experienced changes in their thinking about their teaching that have contributed to the development of the teachers they were at the time of this study and to the teachers they are in the process of becoming.

Overlapping categories

Categorizing the professors' responses according to the three questions framing this study was challenging because of the overlapping quality of the professors' responses. Their responses often extended into more than one data category. When Dr. Hughes was asked about meeting his teaching responsibilities in addition to meeting the demands placed on professors in a university setting, his response conveyed information about his perceptions and beliefs. "We confront this daily. It's a daily struggle I think. I probably err on the side of trying to give people time that they need. I do try to be accessible."

A close examination of Dr. Hughes' response as a bit of data, reveals four pieces of information about his perceptions and beliefs. First, Dr. Hughes' words convey information that the pressures he perceives in his role as a professor are felt every day: "It's a daily struggle." Second, his words, "I probably err," imply a perception that he may not be doing something in a standard manner or expected way. Third, his statement, "I do try to be accessible," conveys his belief that accessibility to students and to

colleagues is a part of his job as a professor and that he is making an effort to accomplish it. Fourth, the words, "give people the time that they need," convey Dr. Hughes' beliefs that students need his time and that giving his time helps students to learn.

Finely dissecting Dr. Hughes' data demonstrates the highly intertwined nature of the professors' beliefs. The dissection demonstrates that Dr. Hughes' words, as do the other three professors', have a representational function as well as a presentational function according to Freeman's (1996) discussion of research on teachers' knowledge. Analyzing Dr. Hughes' words from a representational perspective, the words are regarded as transparent. The words have a direct correspondence to Dr. Hughes' beliefs, the words represent his beliefs and thinking. Analyzing his words from a presentational perspective, the words are regarded for how Dr. Hughes uses them. Viewed presentationally, Dr. Hughes's words are seen as a socially constructed language conveying beliefs and a way of thinking.

The professors' use of language during the interviews was complex in that it conveyed who they were and how they made sense of the world. The language the professors used was spoken in the context of an interview; their words were functioning both as representation and presentation. Mishler (1986) explains how this is possible in his discussion on examining interview responses as stories. "I am the audience to whom the respondent is presenting himself in a particular light" (p. 74). The professors' presentations of themselves to me was regarded as another source of information about their beliefs. The analysis for themes examined text units and categories as representing the professors' beliefs. Additionally, the analysis considered the professors' language as presentational data that conveyed the professors' regard for how their students learn, their

determination of knowledge validity in their subject matter areas, and their conceptualization of their roles as professors.

The Professors' Development: Dialogues of Sight and Frustration

During the classroom observations, it became of interest to me that the professors shared a practice of maintaining eye contact with the students. Including all the students in their gaze seemed to be important, and I came to interpret the behavior as a reflection of the professors' beliefs. Dr. Alexander explained this behavior to me with an elegant simplicity. "I look at them because I teach them." The gaze carried a dialogue of sight between the professor, the students, and the subject matter.

The behavior of looking at the students was also a way to speak of a professor's development. For example, Dr. Hughes explained that when he first started teaching he did not look at the students. He was too uncomfortable and nervous about being in front of them. "I felt sick to my stomach each and every day I went to class and I was proud that I got through the day without hurling. And each day I read to them. I could not do otherwise."

Dr. Hughes' statement pointed out two important considerations for analyzing and interpreting this study. First, each of the professors' subject matter knowledge and instructional practices had developed over time. Dr. Hughes explained that his early instruction had been developed to impress, "I wanted to make sure that what I had to say was stunningly insightful." Now, his desire to impress has become a desire to include. "I have changed dramatically from what I thought I'd be as a teacher to what I think I am now, but I'm probably still changing." Dr. Hughes has learned to involve his students with the course content through including them in his gaze.

Dr. Roberts finds herself searching for a change in classroom interactions. She wants to increase the amount of student dialogue, yet she has not yet determined what kind of instructional change will help her. She finds this frustrating.

> If I could change anything, I would make the class experience one where more people contributed kind of across the board more equitably, because there's so much diversity in there. The people who do contribute do a great job but there are folks there who don't, and I'm kind of nervous. I don't know if I just want to call out people. I don't want them to walk into class and feel like, "Oh, the professor's just going to call out my name." But, I think I can tell, there are so many people who have something going on. So I'm still trying to balance that. And I thought I had it down. But I don't.

Dr. Roberts, like the other professors, gives thought to her teaching practices in an attempt to get closer to the kind of learning she wants the student to experience and the kind of knowledge she wants them to develop.

Adjoining Reflections

Personal Biases

A very fine line exists between asking a question in order to hear a particular answer, and asking a question to learn without bias what the respondent is thinking. Due to a limited conceptualization of my own topic, I sometimes asked questions with an anticipation of a particular confirming response. Initially, my concept of learner-centered instruction was sparse, known through a reading of literature that included a set of learner-centered principles couched in terms of school reform from the American

Psychological Association. The concepts have now become complexly detailed and richly individualized.

An overwhelming number of themes or issues became apparent in the course of this study. My thinking at the beginning of the study was very influenced by a pilot study, and by my experiences with instructional design. I became conscious that whenever the professors said anything that sounded like good instructional design practice, I was giving those statements more credence. Reflecting on my original perceptions, I appreciate how much the process of journal writing became a dialogue space for my thoughts.

During the process of transcribing the interviews, I was troubled to notice that my interactions and questions varied with each professor. Assuming my role was to exhibit a uniform consistency in all the interviews, I attributed this observation of difference to a poorly developed interview guide. Later, I came to realize that the professors shaped the interview process in much the same way that they shaped their instruction in the classroom. The professors tried to help me learn what they believed I needed to know in ways that reflected their individuality.

Just as each professor had individualized subject matter knowledge, they also had individualized ways of sharing that knowledge. The professors' interactions during interviews can be seen as an encapsulation of the interactions occurring in the classroom. The professors' shaping of their knowledge during the interviews resonated with the shaping of their knowledge for instruction. The interactions between each professor and me were unique, and that uniqueness was descriptive. The marketing professors told me stories; the linguistics professor asked me what I thought; the psychology professor

reinforced and encouraged, and the sociology professor attempted to give me value-free content.

The responses the professors gave me were of their choosing. It is useful to consider why the professors chose to tell of a particular incident or why it popped into their heads at the time of our interviews. Indeed, both Dr. Romling and Dr. Roberts asked those questions of themselves at one point during the interviews. When I asked Dr. Roberts to explain her remarks about students feeling safe in class, she explained that she felt strongly because of her own experiences in college calculus and organic chemistry classes. Immediately on saying this, she asked herself, "Why would those come to mind?" She was curious about her own thinking. The professors seemed to like to think about their own thinking. They seemed to consider themselves and their thinking to be a source of knowledge.

Just as I interpreted the professors' responses as telling me something the professors believed I needed to know, I ascribed this same essence to their instruction. Even as they taught what they believed the students needed to know, the details of that instruction were intertwined with the professors' beliefs about their subject matter knowledge, the professors' life experiences, their experiences working with students, their values, and hundreds of other things.

Throughout the interviews and in their classroom practices, each professor made sense of learner-centered instruction in her or his own way. Just as there is not one way to understand knowledge, there is not one way to know and practice learner-centered instruction. Learner-centered instruction is shaped by those who practice it as well as by the discourse of those who study it. If the study of instruction is to have meaning for

those who practice it, the challenge will be to keep the discourse of its study close to the discourse of those who practice, otherwise communication between the two communities is greatly hampered and filled with differentials of power.

The Professors' Reflections

During the last interview, I asked the professors to reflect on the experience of having been studied. The professors' remarks about my presence in class and the interviews were generally appreciative. Dr. Alexander said he liked having another person in the class. During the second interview, when we were discussing the class, Dr. Romling said, "This is fun for me because some of it I am conscious of and some I'm not." Sharing my observations with Dr. Roberts about the overwhelming unpleasantness of the physical classroom, I sensed that articulating my observations allowed her to express her awareness of the class space. She stated her feelings with great energy.

> I almost feel like I'm trapped at the corner up in front of the class, and I became very aware of it last Thursday when I had a guest speaker. I sat in class. Number one, I noticed how low those chairs are, but the tables are up to here. I couldn't believe it. This is so uncomfortable. Then I saw [Name of guest speaker] doing the presentation and she looked as though she was just stuck back there. Having this conversation with you allows me to bring this up with the class.

Professors do not experience the classroom setting from the students' point of view. They may not realize that what is uncomfortable for them may be equally uncomfortable for the students.

I also sensed, particularly with Dr. Hughes, that my frequent and continued classroom observations indicated my commitment to the study, and indicated that I

valued his efforts. The professors put so much of themselves into their instruction, my presence gave outside attention and recognition to their efforts. When Dr. Hughes was initially approached about the study, he expressed his unease about doing five observations. Observing the course over the entire semester made more sense to him. During the last interview, he expressed his feelings openly.

> I can say that I've been a little anxious along the way. Especially in class room observations and looking over my materials. But I can say you've sat in on more classes than any of my colleagues, than all of my colleagues put together.

Dr. Hughes felt, as did some of the other professors, some concern that they might not fit the profile or criteria I wanted in the study.

> I did think about this once, and I thought, well, even if you do not like some of the things you observed, even if I'm not the whatever kind of teacher you thought I might be, and you're a little ticked off, that's the way the cookie crumbles. I was going to let it bounce off. You just kind of have to roll on with what you think is right, and evaluate it over the long run.

Overall, the professors indicated a positive reaction to having participated in the study.

Implications and Recommendations

Far more research needs to be done in order for instructional designers to develop a fuller concept of what exemplary professors are thinking about and doing in their classroom instruction. One promising area for further research is the professors' beliefs about their students. The professors recognized that students come into the course with expectations that influence their learning. Dr. Roberts alluded to this topic when she

remarked that students come into the classroom with narrow conceptions of the field. She understood part of her function as helping them to broaden their thinking.

Another rich area would be to compare the professors' beliefs about their own professors to their beliefs about themselves as professors. The professors' stories indicated that their interactions as students with their own professors influenced their concept of teaching. Dr. Roberts remarked about the connection she feels with her professor when she uses his textbook in her classroom. She also observed that the professor, "paid a price for the time he devoted to his teaching." Dr. Hughes mentioned his experiences with professors he described as "bad" and courses that were "heinous" as contributing to his teaching. "I learned what to avoid rather than what to do." Experiencing good instructional practices as an undergraduate, as Dr. Roberts described, is an advantage because it provides a good role model. A good role model can guide a professor's development of learner-centered instruction.

This study alluded to many issues related to evaluation, educational technology, and architectural spaces designed for instruction. These issues would be worthwhile to pursue in additional studies. For example, there is much to be learned by studying how professors practicing learner-centered instruction develop and use student testing or evaluation methods. A discussion of student testing brought responses from Dr. Alexander and Dr. Roberts that indicated the extent to which professors are challenged to balance the constraints of academic and departmental requirements with the need to evaluate student learning in a manner that supports a learner-centered practice.

An additional area of further research raised in this study is an exploration of the professors' use of technology to support their instruction both within the classroom and

in addition to the classroom. Dr. Alexander's classroom was technologically well equipped and facilitated his dialogue with students. Dr. Romling used the bulletin board feature in WebCT as an additional space for student dialogue outside the classroom. Such research has the potential to yield valuable findings for instructional developers who seek ways to help professors use technology to promote active learning.

A third area of critical importance, alluded to in this study, is research into understanding the relationship between architectural spaces as an influence on learner-centered instruction. Dr. Romling and Dr. Roberts remarked about the instructional spaces in their classrooms as a hindrance. Dr. Hughes carried a portable fan into his classroom in an attempt to regulate the heat.

The professors' data suggests the potential richness of a study examining professors' perceptions of classroom space as it functions in their instruction. The classroom space would appear to be one of the least maneuverable aspects of the instructional context and yet it exerts a major influence. The four professors' experiences described in this study also suggest the usefulness of research on how instructional designers take a professor's classroom space into consideration.

Closing Remarks

This study began as the result of a conversation with a professor about her instruction, and my realization that her instructional practices were affected by their relationship to her beliefs about her subject matter knowledge. Thus, this dissertation inquiry was always motivated by my sense of curiosity, and the search for more knowledge about an observation that sparked my interest. This study was always informed by "a personal conviction" (Polanyi, 1974, p. 301) even before I understood the

extent to which that conviction was explained by Polanyi's (1974) theory of personal knowledge.

Fortunately, Dr. Branch shared the language of learner-centered instruction with me, and let me develop the details of my conceptualization of learner-centered instruction in the practices of the four participants in this study. This study was designed to be descriptive, and intended to foster research and dialogue within our field of instructional technology as well as with people in other fields of study.

The learner-centered instruction practiced by the four professors in this study would seem to have had its genesis in each individual professor's self. Their practice of learner-centered instruction was something they had largely chosen to develop on their own and was a practice they were continuing to refine. Although there were a vast number of influences and constraints acting upon the professors' instruction, their beliefs were critical to motivating and supporting the structure they gave to their instruction.

The professors all shared an interest in the students. They demonstrated an interest in sharing their knowledge with students, and spoke of anticipating that the students would develop their knowledge beyond the boundaries of the classroom. The professors shared a sense of confidence that the students could develop an individualized knowledge reflecting their own perceptions, and yet still belong within the disciplinary field. Subject matter knowledge, for the professors, had become rich with complex and often tacit meaning that, through their instruction, they were sharing with the students.

The happenstance of studying four professors whose fields of study had some small places of overlap enabled me to appreciate the way we, as researchers, perceive or problematize an event from within the framework of our discipline's way of thinking, or

from the discourse used within our discipline. As Polanyi (1974) explains, we also bring to our perceptions the influential lenses of our experiences, cultures, values and expectations. This inquiry has demonstrated there are different ways of knowing. It is important to recognize, as explicitly as possible, our own way of knowing within our field of study. As researchers, it is important to have confidence and respect for our own and for others' ways of knowing.

Instructional designers are challenged to function within the framework of another discipline's knowledge while simultaneously bringing the skills of design knowledge to the instructional process. Does an instructional designer have the ability be a transparent conduit for a professor's subject matter knowledge to center on the learners? Could an instructional designer have improved the instruction of these four professors? Situated in the field of instructional design, I am becoming convinced that the ability to perceive our own knowledge from another's framework is challenging yet critical if we are to do our job as instructional designers well. Listening for a professor's beliefs about subject matter knowledge can help instructional designers become effective conduits for learner-centered instruction.

This study's findings have applications wider than the field of instructional technology alone. The findings offered in this study are of use to professionals in the field of higher education who are concerned with fostering active learning environments for undergraduates. Just as the professors in this study were aware of their students needs as learners, professionals concerned with the development of instruction need to be aware that professors are also learners with needs. Professors need the quality of dialogue that will support their own active learning as they seek to develop learner-centered

instruction. Professors need an opportunity to articulate their thoughts in what Dr. Roberts' would call a safe environment. Professors need to be listened to and treated with the same respect that Dr. Alexander extended to his students. Professors need an opportunity for social interaction with one another in situations like the small groups that Dr. Romling created for her students. Just as Dr. Hughes shared a book with Donald, a student, after listening to his conversation, professors need information from scholarly sources related to their development as teachers.

This study may serve to identify a potential role for instructional designers working with professors to develop learner-centered instruction. A potential exists for instructional designers to play a critical role in helping to support professors' development as teachers who can practice learner-centered instruction. The professors in this study have received little systematic guidance in developing as teachers. They have learned to make changes in their instruction based on their feelings about their students' reactions.

Given an instructional designer's knowledge of learner-centered instruction, it is inspiring to envision instructional designers engaging professors in a dialogue for the purpose of helping them articulate their beliefs about their subject matter knowledge in relation to their instruction. The professors in this study indicated in their remarks that they found value and satisfaction in having an opportunity to reflect on their instruction. An instructional designer would find a rich dialogue by asking and listening to professors articulate their thoughts about their subject matter knowledge, and in the process of that dialogue might find that they are facilitating the professors' ability to practice learner-centered instruction.

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APPENDIX A

Introduction Letter

(Date), 1998

Dear Professor (Participant),

I am a Ph.D. student in the Department of Instructional Technology in the College of Education. I am collecting data for my dissertation research and I would like to ask if you would be interested in participating in my research project. The issue I am exploring is the beliefs of professors who practice learner-centered instruction.

The research project includes interviews and classroom observations. I am identifying professors who practice learner-centered instruction as holding four main qualities: A belief that the construction of knowledge is a dynamic, life-long process, an awareness of the students' thoughts and constructs of knowledge, an enthusiasm for sharing subject matter knowledge with the students, and, a reflective aspect to their teaching practice. The data collection will extend over a four to five week period beginning in January. During this time, I would conduct three interviews with you and do five classroom observations. I would also ask to examine your instructional materials such as the class syllabus and tests. When I have completed a first analysis of the data, I would like to bring it back to you for a member check.

I realize that this research project will make demands upon your time. I would like to make an appointment to discuss the project in greater detail so that you will be able to decide whether or not this is a project in which you would be able to participate. I will call your office this week.

Sincerely,

Salley B. Sawyer ssawyer@coe.uga.edu

APPENDIX B

Telephone Interview

This telephone conversation is a follow up from the letter.

Hello Dr. (Participant). My name is Salley Sawyer.

I sent you a letter recently my dissertation research project. I'm interested in doing a research project on professors and their instruction. I sent you a letter giving you a very brief idea about the project. I am calling you because you were recommended as a professor who is doing what I am calling learner-centered instruction.

(anticipated comment from professor)

My research project involves three interviews with each professor and also several classroom observations. I know these will make demands on your time. So, first, I want to ask if this is a project that you would be able to participate in?

(anticipated question from professor)

My research involves professors who practice what I am calling learner-centered instruction. My research design is to do a series of three interviews with you. The interviews will be about an hour long. I would also like to look at your instructional materials such as the class syllabus and tests, and to observe in your classroom for about two weeks. I would not do any taping in the classrooms.

(anticipated question or answer from professor)

Is there a time this week when I can come by your office and we can figure out an interview schedule? I will also bring you a consent form for this study. Thank you. I'll see you (day) at (time).

APPENDIX C

Human Participants Consent Form

I agree to participate in the research project entitled, "Learner-Centered Instruction As It Emerges From the Way Professors Make Sense Of Their Knowledge," which is being conducted by Salley Maddox Benoit Sawyer in the Department of Instructional Technology at The University of Georgia, 706-542-3810, under the direction of Dr. Robert M. Branch, Department of Instructional Technology at The University of Georgia, 706-542-3810. I understand that this participation is entirely voluntary; I can withdraw my consent at any time without penalty and have the results of the participation, to the extent that it can be identified as mine, returned to me, removed from the research records, or destroyed. The following points have been explained to me:

1) The reason for the research is to gain a fuller understanding of exemplary professors' thinking as they develop instruction for an undergraduate class. The benefits of this research for humankind are a description of the relationship between professors' knowledge and their instruction. The benefits that I may expect from this research are an opportunity to share my perceptions about creating instruction. Through the process of the interviews and the member check, I will have an opportunity to reflect on how I regard my role as a professor and my beliefs about the way my students learn.

2) The procedures are as follows: The researcher will conduct three audio taped interviews with me prior to and during the Spring 1999 semester. Each interview will be approximately one hour in length. The researcher will conduct a minimum of four observations in an undergraduate class I am teaching. The observations will be conducted during the beginning portions of the semester. There will be no tape recordings made during the classroom observations. The researcher will examine my instructional materials including tests, handouts, syllabus for the undergraduate course being observed. The researcher will ask me to do a member check of the researcher's initial analysis of the data.

3) No discomforts or stresses are foreseen during this research.

4) No risks are foreseen.

5) The results of this participation will be confidential, and will not be released in any individually identifiable form without my prior consent, unless otherwise required by law. All audio tapes will be transcribed and the original tapes turned over to me by December 1, 1999.

6) The researcher will answer any further questions about the research, now or during the course of the project, and can be reached by telephone at 706-542-3810 or by e-mail at ssawyer@coe.uga.edu

_____ _____

Signature of Researcher and Date Signature of Participant and Date

Please sign both copies of this form. Keep one and return the other to the investigator.

Research at the University of Georgia that involves human participants is overseen by the Institutional Review Board. Questions or problems regarding your rights as a participant should be addressed to Julia D. Alexander, M.A., Institutional Review Board, Office of the Vice President for Research, University of Georgia, 606A Boyd Graduate Studies ResearchCenter, Athens, Georgia 30602-7411; Telephone (706) 542-6514; E-Mail Address JDA@ovpr.uga.edu.

APPENDIX D

First Interview Guide

Hello Dr. (Name), thank you for your willingness to be a participant in this research project. I hope that these interviews will be as much like a comfortable conversation as possible. My research project concerns professors' instruction. For these interviews, I am following a book by Seidman on Phenomenological interviewing. The purpose of this first interview is to understand how you came to be a professor in (field of study). The point of the interview is to help me understand the context of your work. When we are doing this interview, if I ask you anything that does not seem to be a good question or if you are unsure about what I am asking you, please feel free to rephrase the question. I will not be at all offended and it will not spoil the research if you do so.

1. I'm wondering about your experiences in school, elementary school. Were there particular subjects that were interesting for you?
2. Were there any teachers who were important for you?
3. Can you describe how you happened to become interested in studying (discipline)?
4. How did you decide to be a university professor?
5. If you think back to your experiences going through school, as far back as elementary school, are there things that stand out for you?
6. Can you describe any events in your life that led you to think that being a professor of (field of study) was appealing for you?

7. Were there some people or events that supported your interest in (field of study)?

8. Did you have any favorite courses in school?