

ABSTRACT

BOUTON, DEBORAH THIGPEN. Thinking Critically about Critical Thinking in the Community College Classroom: An Examination of the Beliefs of Exemplary Instructors. (Under the direction of Carol E. Kasworm.)

The purpose of this study is to explore how exemplary community college instructors describe their beliefs about critical thinking and how they attempt to foster its development in their students. Situated in both constructivist learning theory and theories of action, the study examines how participants make meaning of critical thinking, and how their beliefs are reflected in their teaching practices. In this multiple case study, the author employs semi-structured interviews, videotaped class observations, and course documents to provide insight into the perceptions and experiences of exemplary instructors. Through a cross-case analysis of data, the author delineates elements of common understanding about teaching for critical thinking.

This research demonstrates that the relationship between an instructor's ability to articulate her understanding of critical thinking and her capacity to teach for critical thinking is not as straightforward as some research would suggest. The tacit understandings that these exemplary instructors bring to the classroom provides a valuable framework for their teaching practice. There are commonalities in how participants conceptualize critical thinking, even though their understandings tend to be a product of personal learning and practice rather than adherence to a particular theoretical perspective. The common elements in how they understand critical thinking include the ability to: 1) see underlying connections in seemingly disparate subjects; 2) value multiple perspectives; 3) exercise prudent skepticism; and, 4) articulate and defend a position with credible evidence.

The educational goals that these instructors establish for students show remarkable similarities, in that they reflect the understandings these instructors articulate about the nature of critical thinking. Participants want their students to expand their worldview, question assumptions, articulate defensible positions, and construct a personal understanding of the content. Instructors believe that they can best foster these skills by assuming a facilitative role. Not only do these instructors talk about the importance of critical thinking in the classroom, they put their beliefs into practice. That is, their teaching practices reflect the values they espouse.

Thinking Critically About Critical Thinking in the Community College Classroom: An
Examination of the Beliefs of Exemplary Instructors

by
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BIOGRAPHY

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My father, Dr. Donald Ross Warren, completed his doctorate in adult and community college education at NCSU thirty-five years ago. He was a community college president and an inspiration to me. He and my mother, Barbara Warren, have always believed that I could do whatever I wanted. My husband Hal has been there from the beginning. He even drove me from Charlotte to Raleigh to attend evening classes so that I would not be on the road alone at night. He claims to be even more anxious than I am for this part of my life to reach closure. He thinks I can now jump on the back of his motorcycle and see the sights. Let's not tell him that I recently enrolled in a course on world religions.

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CHAPTER ONE: INTRODUCTION

The intellectual roots of critical thinking date back to the time of Socrates, Plato, and Aristotle. These noted thinkers encouraged their students to question the “givens,” the common understandings that are seldom examined for contemporary relevance and truth. The Socratic Method, the use of probing questioning, continues as a strategy for teachers who wish to encourage students to rationally justify their claims to understanding (Paul, Elder & Bartell, 1997). When teachers help students realize that things are seldom what they seem on the surface, they plant the seeds of critical thought.

The literature on critical thinking provides numerous definitions of this complex construct that detail a variety of skills described with varying degrees of specificity. Although there are common elements in all discussions of critical thinking, no singular definition of critical thinking has gained universal acceptance (Tsui, 1999). Because of this plurality of understandings, an operational definition of critical thinking is used to establish parameters for this study. This understanding of critical thinking is grounded, to a great extent, in the research of Brookfield (1990, 1995), Halpern (1989), and Paul and Elder (2001). From the perspective of this researcher, thinking critically means using reason, reflection, and emotions to consider questions that may not be answered definitively and for which all the relevant information may not be available. It is thinking that is self-regulated and disciplined. It takes into account the context of the situation and is subject to intellectual standards. Critical thinking challenges assumptions and invites alternative perspectives in order to form defensible judgments. Critical thinkers are motivated and willing to exert the effort needed to make credible judgments about beliefs and actions. This definition borrows

heavily from other research of noted theorists in the study of critical thinking. Listed below are some of the more salient features of the definition and the rationale for their inclusion:

- Reason and emotions convey the importance of both the rational and affective aspects of critical thinking. Emotions are often seen as the antithesis of critical thinking. However, one can recognize and honor the role of emotions without uncritical acceptance or ratification of feelings (Richhart, 2006). Valuing multiple ways of knowing (Belenky, Clinchy, Goldberger & Tarule, 1997; Clinchy, 1989) makes critical thinking a more robust and useful construct.
- Reflection, a commonly recognized component of critical thinking, (Brookfield, 1987, 2007; Ennis, 1987) addresses the self-regulatory nature of the concept. Reflection allows the thinker to evaluate her own thoughts, behaviors, and feelings and make adjustments as deemed necessary.
- Critical thinking applies to ill-structured problems where “truth” is always tentative and the goal is to construct reasonable and defensible judgments. The skills required for critical thinking are not necessary when dealing with well-structured problems where a clear and verifiable answer exists (Ennis, 1987; King & Kitchener, 1994).
- Context is included in this definition because it provides the lens through which content is understood (Brookfield, 1997; Ennis, 1987; Nosich, 2005). In this case, context is not limited to McPeck’s (1990) conception of critical thinking as subject specific, but refers to the potential influences of the broader environment.
- Critical thinking involves identification and examination of assumptions. Brookfield (1987, 1995, 2006) suggests that examination of these “taken-for-granted-beliefs” is an essential aspect of critical thinking. Without examining the foundation upon

which thinking is anchored, one has only a partial understanding of how and why beliefs have evolved in the way that they have.

- Recognizing the value of multiple perspectives affords the critical thinker the opportunity to see how other thinkers might interpret or approach a problem or situation. (Thayer-Bacon, 1993; Tsui, 1999).
- The skills needed to thinking critically remain dormant without the attitude or disposition to use them. Halpern (1995) defines a disposition for critical thinking as valuing “good thinking and the work that is needed to achieve that goal” (p.72).

This definition does not address questions about the generalizability of critical thinking, nor does it specifically answer how critical thinking is to be distinguished from the critical thinker. It does, however, provide a reasonable way to understand critical thinking.

Critical thinking has become a dominant topic of discussion in adult education. Understanding the theoretical positions that inform one’s practice provides insight into what one believes about the nature of this intellectual process that goes beyond a technical understanding. Brookfield (2005) offers four different traditions that frame how critical thinking is understood. This researcher’s understanding of critical thinking invokes two of those traditions of criticality: analytic philosophy and logic, and pragmatist constructivism. Analytic philosophy and logic suggests that for one to be critical, one must be skilled in argument analysis. The pragmatist constructivist perspective emphasizes how individuals “construct and deconstruct their own experiences and meanings” (p.15). Elements of both of these traditions provide a framework for how the researcher conceptualizes critical thinking. (A more complete discussion of Brookfield’s traditions of criticality is provided in the review of literature.)

Background

An important aspect of the college experience is the exposure to different ways of viewing, thinking, and interacting with one's environment (Ignelzi, 2000; Moore, 2003). Through curricular and co-curricular activities, institutions of higher education strive to develop an informed citizenry, i.e., graduates that are critically reflective and that monitor their own thinking about the world and their place in it. At a more practical level, colleges and universities are also expected to prepare graduates to participate effectively in the workplace. The Partnership for 21st Century Skills (2007) has identified skills essential to successful competition in a global economy. Critical thinking is recognized as one of the important learning and thinking skills. Not only will future graduates be expected to be content experts, they will also be expected to be effective problem-solvers and critical thinkers.

This expectation exists regardless of whether the graduate attended a community college, liberal arts college, or research university. Colleges and universities attempt to develop "individuals with the capacity to make independent, reasoned judgments about the complex problems in modern society" (Kronholm, 1996, p.199). However, Brookfield (1995) suggests that although many colleges and universities incorporate values of critical thinking into their mission statements, they often fail to match rhetoric with institutional practice. Such practices are reminiscent of Argyris and Schon's (1977) theories in action, where espoused beliefs are sometimes inconsistent with actual behaviors.

Indeed, there is a national concern about the critical thinking skills of college graduates at both the associate and baccalaureate levels (Burbach, Matkin, & Fritz, 2004). Yet there is limited theory and research regarding the effective development of critical

thinking skills in the college classroom. With over 40% of traditional-age college students entering post-secondary education via the community college, it is particularly important to understand the dynamics of the community college classroom environment in relation to development of critical thinking skills (Outcalt, 2002). Notably, Perry (1970) suggests that the most dramatic changes in the development of critical thinking skills take place not as one approaches graduation, but during the first two years of college, the years that the traditional college transfer student would spend at the community college.

Teachers are the presumptive experts on facilitating the development of critical thinking skills. Effective classroom instructors are expected to “formulate activities so that students create as much of their own learning as possible” (Grubb, 1999, p. 39). They should also help learners “clarify distinctions, construct explanations, and create complex understandings” (Wlodkowski, 1999, p. 184). One wonders if such lofty expectations are unrealistic for community college instructors who often come to the classroom with little training in the art of teaching, while facing students with broadly varying levels of skill and preparation. Teachers may believe in the value of teaching for critical thinking and intend to incorporate it into their classes. However, their beliefs and intentions are not always visible in the classroom.

Indeed, teachers often experience a “disconnect” between beliefs about how teaching should be done and actual methods of instruction. For example, teachers often express the desire to develop students’ critical thinking skills; however, research shows that the most emphasized skills are memorization and recall, which represent lower-level cognitive skills (Nellis & Hosman, 2004). If teachers are expected to help students think in more cognitively complex and inter-connected ways, more attention should be directed to the “how” of

teaching in higher education. Examining teacher belief systems may provide a glimpse into why teachers do what they do. Belief systems “represent the most stable and least flexible aspect of a person’s perspective on teaching” (Pratt, 1998, p.21). Therefore, understanding instructors’ beliefs about critical thinking and its place in the classroom provides important insights into how they may view the teaching-learning environment and their role as teacher.

Given the importance of critical thinking to the mission of educational institutions, it is surprising that there have been few systematic attempts to determine the relationship between teachers’ beliefs about critical thinking and their teaching practices. Although there is select research on faculty development of critical thinking skills in four-year institutions, there is an unfortunate lack of research at the community college level regarding faculty roles and practices in helping to develop the critical thinking skills of college students. Thus, this study will explore the beliefs of a specific group of individuals, exemplary instructors with expertise and commitment to critical thinking in college students, and the intersection of their beliefs and teaching practices.

Conceptual Framework

The conceptual framework for this study draws upon two schools of thought: constructivist learning theory (Fosnot, 2005) and theories of action (Argyris & Schon, 1977). While there are different perspectives within constructivism with different associated understandings of knowing and learning, this researcher views learning to think critically as both a process of individual construction and a process of enculturation into the practices of the larger community (Cobb, 2005). In his discussions of critical theory, Brookfield (2005) proposes constructivism as one tradition that informs the way one understands and practices critical thinking. The beliefs of this researcher about critical thinking draw from both

constructivist and analytic philosophy traditions. This understanding of critical thinking is more consistent with Brookfield's earlier writings.

Constructivist learning theory posits knowledge as constructed from the experiences, perceptions, and mental models of the learner. Accordingly, "meaning is made by the individual and is dependent on the individual's previous and current knowledge structure" (Merriam & Caffarella, 1999, p.261). In essence, learning is "inherently personal, built sequentially upon a scaffold of experiences, deepening in complexity as people develop and gain new information and understandings" (Carlson, 2001, p.5), and therefore evolving and transitory in nature. Stated more simply, knowledge is not received from without; it is the personal construction of individuals who organize various pieces of information into a unique, unifying whole (Halpern, 1989). This personally constructed understanding is frequently developed through interaction with others. A constructivist epistemology recognizes multiple legitimate ways that knowledge can be formed. However, the test for legitimacy of the personally formed knowledge is "whether it can guide action toward preservation or enhancement of human well-being" (Henning-Stout, 1994, p.5).

Critical to constructivist practice is deep introspection into how one engages in the learning process. Critical inquiry requires the learner to become actively involved with the material rather than meekly accepting and parroting content as presented (Abdal-Haqq, 1998; Brooks & Brooks, 1993). Yet rote memorization is common in many classrooms. Clinchy (1989) describes this rather passive activity as "received knowing," one of the least evolved perspectives on knowledge held by learners.

In thinking about how instructors have come to understand critical thinking, constructivist learning theory recognizes the importance of historical, personal, and

environmental factors. Teachers come to the classroom having constructed unique and personal understandings of many important concepts which can then influence their behavior in the classroom. “Like all forms of education, the practice of adult education comes to reflect the beliefs and values of those who participate in it, particularly the teachers” (Dirkx & Spurgin, 1992, p. 21). Similarly, Brookfield (1995) maintains that all teaching is ideological, that the actions and choices made by teachers reflect the beliefs they hold. However, there is a body of research that indicates that actions do not always reflect stated beliefs (Schon, 1983). This seeming paradox forms the basis for one of the fundamental research questions addressed in this study.

The constructivist teacher functions as a guide who encourages learners to question and challenge unexamined assumptions in order to form opinions that have personal meaning and relevance (Abdal-Haqq, 1998; O’Banion, 1997). Indeed, for critical thinking to take place, it is sometimes necessary for the teacher to step aside “to allow students to construct their own knowledge and understanding” (Brookfield, 1999, p.199). The job of the teacher is not to transmit information, but rather to create opportunities for students to build upon their knowledge and experiences. That is, learning is seen as an ongoing process of invention, rather than a mechanical process of factual accumulation (Fosnot, 2005). Constructivist teachers “look not for what students can repeat, but what they can generate, demonstrate, and exhibit” (Brooks & Brooks, 1993, p.16). Indeed Kasworm (2003) in her study of adult learners in undergraduate classrooms found that students were better able to make meaning of the content when instructors “integrated adult-identified prior knowledge into the content...” (p. 85).

Although constructivism values the perspectives and experiences of the learner in

constructing new understandings, the instructor plays a critical role in helping create a learning environment that fosters such understandings. The beliefs and values of the instructor can help set the stage for learning and critical thought. Brookfield (1999) asserts that teachers who value critical thinking and who are themselves critically reflective are more likely to create classrooms that are challenging, engaging, and stimulating. Interestingly, Cranton (1996) suggests that as educators seek to help their students develop cognitively and emotionally, teachers are themselves engaged in the highest forms of reflective learning. In a later work, Cranton (2005) goes further, suggesting that instructors cannot be bystanders in a constructivist classroom. “Teachers’ beliefs need to be illuminated, discussed, and challenged” (p.274) if there is to be a shift in how educators understand learning.

Growth through critical reflection is seldom easy or comfortable. At times even the most reflective teacher is blind to inconsistencies in theory and practice. Although teachers may publicly espouse a set of beliefs or theories of educational practice, they do not always translate those beliefs into observable behaviors in the classroom. This inconsistency is more than just a difference between what people say and what they do (Anderson, 1997).

According to Schon (1987), the distinction is between two different theories of action. He describes theories of action as “values, strategies, and underlying assumptions that inform individuals’ patterns of interpersonal behavior” (p.255).

Espoused theories are theories of action that are public and communicated freely to others. They are what people use to explain their actions. Espoused theories are the values on which they believe their behavior is based (Schon, 1987). In contrast, theories-in-use actually govern behavior; they are what someone observing that behavior might deduce from the actions taken. “In this sense, constructs of theories-in-use are like scientific hypotheses;

the constructs may be inaccurate representations of the behavior they claim to describe” (Argyris & Schon, 1977, p.7). Theories-in-use are often tacit and unavailable to the actor without deep reflection upon their actual behaviors. People are often unaware that their theories-in-use are inconsistent with their espoused theories (Argyris, 1980).

This represents an interesting dilemma. If individuals are unaware of what values and beliefs drive their behavior, how can they hope to manage that same behavior? “Only by evaluating the compatibilities or incompatibilities which exist within and between these two elements of their theory of action...will teachers be enabled to increase their knowledge of teaching, its contexts and themselves as teachers” (Day, 1999, p.24). Everyday teachers make numerous judgments about what and how to teach. These judgments, which are often intuitive, must be examined and made transparent if teachers are to understand why they do what they do in the classroom (Cranton, 1996).

Research Purpose

The purpose of this study is to explore how exemplary community college instructors describe their beliefs about critical thinking and how they attempt to foster the development of critical thinking in community college students.

Research Problem

What are the beliefs of exemplary instructors concerning the development of critical thinking skills in the community college classroom? The research study explores the following questions:

1. How do exemplary community college instructors describe their understandings of critical thinking and what it means to teach for critical thinking?

2. How do instructors describe their roles in helping students develop critical thinking skills?
3. What critical thinking skills do exemplary community college instructors want their students to develop?
4. What teaching practices do exemplary instructors use to help their students develop critical thinking skills?

Significance

There are numerous theories concerning cognitive development and how thinking changes over time or through experiences inside and outside of the classroom (Baxter-Magolda, 1992; Belenky, Clinchy, Goldberger & Tarule, 1997; King & Kitchener, 1994; Merriam & Caffarella, 1999; Perry, 1981). These theorists make assertions about critical thinking that have significant implications for teaching. However, there is scant research examining how faculty beliefs about critical thinking influence classroom practice.

Additionally, much of the available research deals with teaching and learning in university settings. Indeed there is a notable lack of empirical research about teaching in community colleges, America's teaching institutions (Grubb, 1999; McClenney & Peterson, 2005).

Little has been done to make explicit how community college instructors characterize their role in helping students think more critically.

From the perspective of professional practice, this study will be significant in that it will provide insights into how instructors interpret their role in the classroom where the intent is to foster the critical thinking skills of students. The study will also describe teaching practices that exemplary instructors employ in their efforts to help students develop as critical thinkers. The findings will be useful in developing training opportunities for faculty

who wish to encourage critical thinking in their courses. Kane, Sandretto, and Heath (2002) argue that in order to understand teaching at the post-secondary level, it is important to consider teachers' beliefs about the profession and the relationship between these beliefs and teaching practices. An examination of how instructors view teaching and learning, through a focus on their beliefs and teaching practices, will provide insights into the kinds of experiences on which professional development programs should be built.

This study will also contribute to the research on critical thinking by demonstrating how teachers' beliefs about this complex construct influence how it is incorporated into the curriculum. The research will help make explicit teachers' tacit understandings about what it means to teach for critical thinking. With no universally accepted definition of critical thinking (Tsui, 1999), it becomes even more important to have instructors articulate their understandings of critical thinking, consider the intellectual traditions that inform their practice, and identify the critical thinking skills they hope to nurture in their students. This takes on added importance when one considers the state of critical thinking at many community colleges as evidenced by students' scores on the Measure of Academic Progress (Pierce, 2005). Indeed only 3% of community college sophomores were considered proficient in critical thinking (Education Testing Service, 2003).

Summary

There exists a national mandate for educational institutions to help develop the critical thinking skills of its students (21st Century Learning, 2007). Although there is a small body of research on instructional strategies to improve critical thinking, there is scant research addressing the relationship between teacher beliefs about critical thinking and their teaching practices. The purpose of this qualitative study is to explore how exemplary community

college instructors conceptualize critical thinking and how they attempt to nurture the critical thinking skills of their students. The study is situated in both constructivist learning theory (Fosnot, 2005) and theories of action (Argyris & Schon, 1977). Chapter two offers a review of literature that grounds this study.

CHAPTER TWO: REVIEW OF THE LITERATURE

The purpose of this study was to understand the beliefs of exemplary community college faculty about critical thinking and how those beliefs were perceived to influence teaching practices. The review of literature will include three sections. The first section summarizes the research on teacher beliefs, specifically terminology and the relationship between teacher beliefs and teaching practice. The second section examines the literature on critical thinking as it relates to educational objectives, the evolution of the construct, and implications for infusion into the classroom. Because the study explores the beliefs and practices of exemplary community college faculty, the third section provides additional context by examining the literature on community college faculty. This section focuses on faculty characteristics, preparation, and the teaching emphasis of community college faculty.

Understanding Teacher Beliefs

Much of the early research on teacher beliefs was based on teachers in primary and secondary school settings (Clark & Peterson, 1986; Kagan, 1992; Nespor, 1987; Pedersen, 2003). Fortunately, there has been a recent increase in research articles that examine the beliefs of teachers in higher education (Entwistle & Walker, 2000; Hativa, 2000; Menges & Austin, 2001; Murray & MacDonald, 1997; Quinlan, 1998; Samuelowicz & Bain, 2001; Trigwell & Prosser, 1996). While some aspects of school-based (K-12) research were applicable to this research, there were unique elements to the beliefs of instructors in higher education settings that were best understood within their natural context (Becher, 1989).

For example, Kember's (1997) review of the teaching conceptions of university faculty illustrates a major difference between secondary and post-secondary settings. He

suggests that many university faculty members identify more with their specific discipline than with the teaching profession in general. Community college instructors, with their emphasis on teaching, find themselves somewhere in the middle, identifying with the discipline but not to the extent of their university colleagues (Outcalt, 2002). Additionally, colleges and universities function differently than primary and secondary schools, with distinct traditions, organizational structures, and value systems. Menges and Austin (2001) also argue for the separation of higher education research from K-12 studies, because higher education institutions enroll learners with a wide variety of ages, personal experiences, and developmental challenges. Community colleges, with the most diverse student population of all post-secondary institutions, represent yet another distinct research opportunity.

However, Entwistle and Walker (2000) assert that, “While teaching in higher education is bound to have distinctive characteristics, it also has elements in common with more general ways of describing teaching. Consequently, we can draw on research on school teaching” (p. 343). Kane, Sandretto, and Heath (2002) also advocate the prudent application of findings from school-based research to questions dealing with teachers in higher education. While some relevant findings from school-based research will be included, the majority of the literature cited in this review will be drawn from research in institutions of higher education.

Another issue encountered in the review of literature on teacher beliefs is the inconsistency of the terminology used by researchers (Kagan, 1992; Kember, 1997; Pajares, 1992). Terminology used in the research on teacher beliefs includes such descriptors as personal theories, epistemologies, perspectives, conceptions, intentions, and personal constructs. This lack of consistency suggests that perhaps researchers are describing

different but related constructs or that there is some utility in maintaining such ambiguity.

The confusion often revolves around the distinction between beliefs and knowledge. Beliefs often have their genesis in evaluation and judgment, where as knowledge is based on verifiable facts (Pajares, 1992). This distinction between knowledge and beliefs is in some ways artificial. When knowledge is viewed from a constructivist perspective, the line begins to blur. To the constructivist, all knowledge is interpreted based on the beliefs and experiences of the individual. Debating the finer distinctions between knowledge and belief is less important than consideration of how “teachers’ beliefs – or what they may take to be knowledge - affect their experience” (Thompson, 1985, p.129). However in the interest of clarity, for this study, beliefs are understood as “personal constructs that are important to a teacher’s practice; they guide instructional decisions, influence classroom management, and provide a lens for understanding classroom events” (Roehrig & Luft, 2004, p.1510).

The Influence of Teacher Beliefs

Although the thought processes of teachers have been a topic of research for years (Clark & Peterson, 1986), recent studies have broadened in scope to include an examination of their belief systems (Hativa & Goodyear, 2002; Kane, Sandretto, & Heath, 2002). There is general agreement that beliefs greatly influence teaching practices (Clark & Peterson, 1986; Kember & Kwan, 2002; Prawat, 1992; Prosser & Trigwell, 1997; Samuelowicz & Bain, 1992, 2002). Indeed, there is research that suggests that a teacher’s beliefs take precedence over subject matter knowledge when considering classroom practice (Pajares, 1992).

Kember (1997) extends this connection, asserting that teaching practices also affect student learning approaches and learning outcomes. The research of Goodyear and Hativa

(2002) describes “strong, though not necessarily simple, links between these areas of (a) teacher thinking, beliefs, and knowledge, (b) teachers’ classroom practices and (c) student learning” (p.1). While there is an instinctive desire to trust the connection between teaching beliefs and teaching practice, the research of Argyris and Schon (1977) raises interesting questions about just how closely espoused beliefs are reflected in day-to-day classroom behaviors.

In his research on teachers’ beliefs, Pajares (1992) found that the “earlier a belief is incorporated into the belief structure, the more difficult it is to alter, for these beliefs subsequently affect perception and strongly influence the processing of new information” (p.317). Thompson (1999) takes a quite different position in his research on the beliefs of mathematics teachers. He suggests that belief systems are “dynamic, permeable mental structures, susceptible to change in light of experience” (p.149). Although Thompson’s study provides promising results for those attempting to influence teacher beliefs, most of the research reported in this review portrays beliefs as enduring and rather static.

Indeed, several research studies indicate that teachers adhere to previously held beliefs, even when they are ill served by those beliefs and there is ample evidence to support contradictory positions (Bennett, 1996; Doyle, 1997; Kagan, 1992; Nespor, 1987). This may be explained in part by Festinger’s (1957) cognitive dissonance theory, which suggests that individuals often avoid dealing with information that may prove contradictory because they strive for consistency. Although beliefs are sometimes based on faulty information or unexamined emotional reactions (Bandura, 1986, Douglas, 2000), they do provide a useful organizing framework and are often difficult to dismiss. Beliefs allow the individual to categorize, organize, and prioritize knowledge and information and “play the important role

of determining the task to be performed or defining the problem” (Nespor, 1987, p.321).

Much of the research in this area suggests that one must first change educational beliefs in order to make meaningful or lasting changes in instructional practice (Kane, Sandretto & Heath, 2002; McAlpine & Weston, 2000; Quinlan, 1999; Trigwell & Prosser, 1996). “By helping teachers make explicit what was previously implicit, researchers also help teachers become more reflective, rational, and thoughtful in their approach to planning and teaching” (Dirkx & Spurgin, 1992, p.22). Such reflective practices could help surface and examine any inconsistencies between espoused beliefs and actual teaching practices. “College teachers are being asked to be intentional and reflective in their teaching, that is to examine their basic beliefs and assumptions about the nature of the teaching-learning process, to examine their basic practices as instructors, and to revisit questions of both what and how they teach” (Nunmedal, 1994, p. 290). By having an understanding of their theories-in-use, teachers are better able to achieve intended consequences (Anderson, 1999).

If beliefs affect how teachers interact with students, interpret course content, or determine their level of responsibility for student development, it is logical to assume that teacher beliefs about critical thinking influence how it is infused into the course curriculum. Additional research is needed to explore the potential relationship between teacher beliefs and practices, especially as it relates to critical thinking (Entwistle & Walker, 2000; Kember, 1997).

Teacher Beliefs and Teaching Practices

All teachers enter the college classroom with a philosophy of teaching. They come to the classroom with beliefs about the role of the teacher and about how students should be taught (Entwistle, Skinner, Entwistle & Orr, 2000; Leamnson, 1999). Beliefs may have been

acquired through intensive study and reflection, or they may be unconscious and unexamined. Regardless of how they are acquired, beliefs are important in their power to influence behavior. This is interesting when one considers that many academics in higher education begin their careers with little or no formal training in how to teach (Cranton, 1996; Grubb, 1999; Kane, Sandretto & Heath, 2002; McShannon & Hynes, 2005). In fact, fewer than 40% of community college instructors have had previous experience as K-12 teachers. This also means that it is unlikely that those instructors completed teacher education training (Outcalt, 2002). Community college instructors are quite likely to enter the classroom steeped in the traditions and canons of their particular discipline, but unschooled in the basic principles of teaching.

Instructors are often left to “teach as they were taught,” drawing on the lecture and knowledge transmission that likely dominated their educational experiences (Haas & Keeley, 1998; King, 1994). In the absence of clearly articulated directions or successful role models, instructors resort to their own, often unexamined and non-evidential belief systems for guidance. In many cases, the pedagogical beliefs of faculty are given life through their design of classroom learning experiences (Simmons et al, 1999). The classroom experiences, in turn impact student learning.

Novice teachers in higher education settings often feel unprepared when they first enter the classroom. They may have little to guide them but their beliefs. The beliefs that novice teachers hold are shaped in part by their own experiences as students, by observations of other teachers, and by trial and error (Calderhead, 1987; Grubb, 1999; Thomas & Pedersen, 2003). Not surprisingly, they tend to rely on their own experiences and beliefs when faced with instructional problems (Kagan, 1992). In turn these beliefs, which are often

uncritically acquired, influence the acquisition and interpretation of new information and contribute to emerging pedagogies. In describing a similar phenomenon, Hativa (2002) asserts that during undergraduate and graduate study, individuals experience an apprenticeship of observation - an idiosyncratic accumulation of expectations and beliefs that can happen without conscious thought. That is, students acquire an unspoken understanding of the rules that govern the classroom. Indeed, Pajares (1992) claims that "...unexplored entering beliefs may be responsible for the perpetuation of antiquated and ineffectual teaching practices" (p.328). Teachers must bring these tacit beliefs into critical awareness if they hope to extricate themselves from their conceptual ruts (Browne, 2000; Day, 1999).

Kagan (1992) argues, "the need for an elaborate personal belief system among teachers arises out of the many uncertainties endemic to...teaching: In a landscape without bearings, teachers create and internalize their own maps" (p.65). Similarly, Calderhead (1987) describes teachers' behavior as often intuitive, responding to situations without the opportunity for reflection or research. The teaching domain is "characterized by an almost total absence of truths, unimpeachable 'correct' answers to the most important issues" (Kagan, 1992, p.73). Teachers constantly deal with problems that are ill-structured and emotionally-laden, but which require an immediate response. Regardless of the soundness of beliefs, individuals are often guided by them in their attempt to make sense of such a chaotic environment (Nespor, 1987). In other words, when teachers are unsure about how to respond in the classroom, they tend to rely on their personal belief system for guidance and direction.

In his research, Pratt (1992) interviewed 253 teachers to understand their beliefs about teaching. He found that in most cases, "beliefs informed their intentions, which in turn directed the process of teaching" (p.208). Although Pratt's findings support much of what is

intuitively believed in teaching, his research was based solely on self-reports from teachers. Although the self-report is a widely accepted research technique, it has obvious limitations. Self-reports can be especially problematic in light of Argyris and Schon's (1977) research on theories-of-action. Classroom observations would have provided insight into the relationship between teaching intentions and actual teaching practices.

Quinlan (1999), in her study of academic historians' educational beliefs, found that teachers of introductory classes had more latitude to select the most important points to include in the discussion. She found that areas of emphasis and approaches to covering the material were strongly influenced by teachers' unique beliefs about teaching and the subject matter. It therefore seems reasonable that teacher beliefs would play a key role in determining how one might infuse critical thinking into the curriculum as the student learns the concepts of a particular discipline (Elder, 2000).

In their study of polytechnic teachers concerning their conceptions of teaching, Gow and Kember (1994) found two divergent schools of thought. Broadly speaking, teachers saw themselves in one of two roles: learning facilitator or knowledge transmitter. "This study suggests that the methods of teaching adopted, the learning tasks set, the assessment demands made and the workload specified are strongly influenced by the orientation to teaching" (p.31). Trigwell and Prosser (1996) found a similar connection in their study of the congruence between intention and teaching strategy in a university setting. They discovered a strong relationship between conceptual change intentions and student-focused teaching strategies. Alternately, information transfer intentions were linked to a focus on teachers and instructional strategies. However, findings from a later study suggest that a general orientation to teaching may be less predictive of teaching practice than first believed. Martin

et al. (2000) found that context significantly influences the relationship between teachers' beliefs, intentions, and teaching practices.

There is a growing body of research that describes a complex linkage between teacher beliefs and teaching practice. The literature review conducted by Kember (1997) categorized teacher beliefs as multidimensional and hierarchical rather than bifurcated. The least developed conception of teaching falls within the teacher-centered/content-oriented classification, which constitutes a positivist approach to teaching and emphasizes reproduction of a right answer. The student-centered/learning-oriented approach represents the most highly developed conception of teaching and is consistent with constructivist teaching practices that help develop students' higher-order thinking by encouraging them to construct their own understanding (Pithers, 2000).

A recent study of the teaching beliefs of community college faculty found three different conceptions of pedagogy: teacher-centered, student-centered, and student support (Grubb, 1999). Instructors who use a predominantly teacher-centered approach tend to focus on content, coverage, and progressive mastery of a hierarchy of skills. A student-centered or constructivist approach to teaching reflects a belief that for true learning to take place, students must make meaning for themselves. Meaning is built upon what the student already knows or believes. The new ideas and events that they encounter inside and outside the classroom are integrated into this existing framework (Richardson, 1997). Instructors who subscribe to a student support approach believe that students can be successful if given sufficient encouragement and time. The student support approach may resonate with community college instructors who often encounter students without adequate preparation for the academic and personal demands of college. However, unless instructors are highly

skilled in the art of teaching, the student support approach can sometimes lead to lowered academic standards (Grubb).

In her study of the beliefs of law professors, Hativa (2002) found that teachers' beliefs about their students significantly impacted their instructional approach. Teachers tried to match the material and the way it was presented with the learner's ability to understand. She discovered several beliefs about students and student learning that "can undermine a positive climate for learning: 1) a view of teaching as knowledge transmission; 2) an expectation that students have sole responsibility for learning; 3) an emphasis on content coverage over depth of understanding; and, 4) an unwillingness to adapt instruction to students' needs" (p.247).

Her words of caution are valid, but one must be wary of making assumptions directly linking teacher beliefs and practices. In practice, teachers may display similar classroom behavior but do so for very different reasons. They often find themselves in situations that require them to negotiate between educational beliefs and contextual factors that can affect instructional options (Kagan, 1992; Scott, Schovanec, & Young, 1994). Certainly the priorities of college administration, accrediting bodies, and other key stakeholders can influence what instructors are required to do in the classroom. Context is an important consideration, but espoused beliefs may fail to match the theories-in-use reflected in actual classroom behavior even when intervening influences are not a factor. While this incongruence might be obvious to the careful observer, it is often unknown to the individual teacher (Schon, 1987).

While different terminology has been used to describe teacher beliefs and subsequent teaching practices, Eley (2006) suggests:

The analysis of the teachers' responses have consistently shown gradations from an emphasis on the teacher and the content, and notions of transmitting information from the teacher to the student, through to an emphasis on the student's need to construct some sort of representation of the content, and the notion that the teacher's role is to provide support and guidance to the student in that enterprise (p.192).

Although there is ample evidence that teaching practice in higher education is dependent, to some extent, on the beliefs of faculty in the classroom (Quinlan, 1999; Samuelowicz & Bain, 2001; Trigwell & Prosser, 1996), additional research is needed to further examine the complex relationship between teachers' beliefs about teaching and actual teaching practices. There is reason to question the oft-held assumption that the relationship between teacher beliefs, teaching practice, and student achievement is linear and unidirectional (Clark & Peterson, 1986; Fang, 1996).

In fact, some research indicates that the directionality of the relationship between teacher beliefs and teaching practices may be the reverse of what is generally accepted (Devlin, 2006; Eley, 2006; Guskey, 1986). These studies argue that evidence of positive changes in student learning outcomes can bring about changes in teacher beliefs. Clarke and Hollingsworth (2002) propose a complicated relationship between beliefs and practice in their model of teacher change. Their model expands upon the linear relationship proposed by Guskey in 1986. They argue that change occurs through the intersection of four analytic domains: beliefs and attitudes, outcomes, experimentation in the classroom, and external sources of information. The interconnected nature of the model gives "recognition to the idiosyncratic and individual nature" of changes in teacher beliefs and practices (Clark & Hollingsworth, p. 965). It appears that the relationship between teacher beliefs and teaching

practice are dynamic and complex and require careful study before drawing any conclusions that might impact classroom teaching.

Summary of Teacher Beliefs

There has been a recent upsurge in the number of research articles concerning the beliefs of teachers in higher education. Although there is some debate about the terminology regarding teacher beliefs, most of the articles reviewed in this study appear to be describing a similar construct. The beliefs teachers hold about teaching and learning form the lens through which they view their instructional world and provide a significant key to understanding how instructional practice evolves.

Teachers in higher education often enter the field with no training on how to teach. With little or no formal pedagogical training, they tend to rely on long-standing and often unexamined beliefs about teaching and learning. If teachers are to develop as professionals, it is important for them to examine their beliefs for current relevance and truth. Indeed, with the current learning college movement in the community college system, more than ever teachers are challenged to examine their most basic beliefs about teaching, learning, and the role of the teacher in that process (Nummedal, 1994). Simple knowledge transmission is no longer an acceptable goal in higher education. Teachers must also challenge the assumptions that students bring to the classroom, assist students in constructing their own understandings, and model their own epistemological beliefs (McClenney, 1998). Providing the time and space for reflection may help teachers become more rational and intentional in both what and how they teach (Dirkx & Spurgin, 1992).

Understanding Critical Thinking

The second section of the review of literature examines the research on critical thinking as an educational objective. Critical thinking has long been an avowed aim of higher education. “Developing students who are independent enough to think critically about academic subject matter and real-life problems is an educational objective of paramount importance to our educational system as well as society” (Tsui, 1999, p.185). Indeed Paul (2002), a noted authority on critical thinking, suggests that teaching critical thinking is the primary purpose of public education.

Critical Thinking and Higher Education

Although institutions of higher education claim to produce graduates who can think critically, there is a national concern about the higher-order thinking skills of college graduates. In addition, few educational institutions can verify an enhanced level of critical thinking in their graduates (Bollag, 2005; Burbach, Matkin, & Fritz, 2004; Hyslop-Margison, 2003; Keeley, Shemberg, Cowell, & Zinnbauer, 1998). Even when students learn to think critically in college, there is scant evidence to indicate that those skills can be easily transferred to real-life situations (Brookfield, 1987).

In a complex and rapidly changing society, there is an acute need for college graduates who are prepared to deal with real-world problems. Such problems are often fraught with uncertainty and conclusions are always contingent upon new information. Preparing graduates to deal successfully with such fluid situations can be a daunting task.

Teachers are most often the group charged with creating a learning environment that fosters critical thinking; however, typical “classroom practice belies its importance” (Keeley & Meuti, 1999, p.162). In fact, many teachers tend to place content mastery first and assume

that critical thinking will develop as a by-product of the college experience. Increasingly there is a tension between the demand for content coverage, content mastery, and the development of the critical thinking skills needed to understand and evaluate that content (Meyers, 1986).

While there are numerous research articles extolling the virtues of the critical classroom, teachers in search of clear direction may find the route poorly articulated. Indeed research indicates that many teachers who profess an interest in helping students think more critically are unclear as to what to do to promote such skills (Meyers, 1986; Paul, Elder, & Bartell, 1997). Professional development programs may offer only limited support, especially in the community college where Grubb (1999) describes the offerings as “formulaic, contrived, and often not focused on teaching” (p.285).

Recent Contributions to our Understanding

During the 20th century, a complex and dynamic understanding of the nature of critical thinking has evolved. Earlier researchers and philosophers described a prescribed set of skills, traits, abilities, that could be subsumed under the construct of critical thinking. More recent conceptions presented a more holistic perspective, a view of critical thinking as greater than the sum total of its component parts. This perspective elevated critical thinking beyond the constraints of disembodied logicism (Walkner & Finney, 1999). Sumner (1940) recognized the shift and wrote eloquently of the importance of critical thinking in faculty:

Criticism is the examination and test of propositions of any kind which are offered for acceptance, in order to find out whether they correspond to reality or not. The critical faculty is a product of education and training. It is our only guarantee against delusion, deception, superstition, and misapprehension of ourselves and our earthly

circumstances. Education is good just so far as it produces well-developed critical faculty...a teacher of any subject who insists on accuracy and a rational control of all processes and methods, and who holds everything open to unlimited verification and revision is cultivating that method as a habit in the pupils. Men educated in it...can wait for evidence...and resist appeals to their dearest prejudices (p.632).

More recently, Dewey (1982) defined critical thinking or “reflective thought” as suspended judgment and healthy skepticism such that one gives “active, persistent, and careful consideration of any belief or supposed form of knowledge in light of the grounds that support it...”(p.7). Dewey observed that critical thinking required the evaluation of possible solutions based on information which is often incomplete and unverifiable. King and Kitchener, (1994) who expanded upon Dewey’s concept of ill-structured problems, contended that critical thinking involves the ongoing evaluation of beliefs and assumptions and the ability to consider competing explanations.

Paul et al. (1997) examined the research done by Piaget and noted the “need to develop critical thought which is able to reason within multiple standpoints and to be raised to the level of conscious realization” (p.10). While Piaget (1950) did not use the term critical in his explanation of mental operations, there are similarities between his description of formal thought and what might be considered a generic description of critical thinking, “the ability to formulate generalizations, entertain new possibilities, and suspend judgment” (Meyers, 1986).

Developmental theorist William Perry (1970) expanded on Piaget’s learning theory, suggesting that personal beliefs can serve as barriers to critical thought. Perry’s theory proposed a series of nine positions that represent how individuals make sense of their

environments and how they view their world. He charted their development from dualistic thinkers who view the world as either right or wrong, to multiplistic thinkers who acknowledge multiple answers, to relativistic thinkers who see knowledge as contextual. He was also credited with being the first to understand the importance of the underlying assumptions about knowledge that students make and the resulting influence on their reasoning (King & Kitchener, 1994).

Perry's (1970) scheme provided educators with a useful framework to guide educational practice. However, Perry's original research was based solely on interviews with male undergraduates. Belenky, et al. (1997) expanded upon his research to explore women's experiences as learners and knowers. They developed five major epistemological categories: silence, received knowledge, subjective knowledge, procedural knowledge, and constructed knowledge that suggested different ways that women might view reality and understand knowledge.

Paul (1990), a contemporary philosopher in the critical thinking movement, suggested a "new literacy" that recognizes the "centrality of independent critical thought to all substantial learning" (p.41). Those subscribing to the new literacy recognized the importance of the affective dimension of critical thinking, as well as the cognitive dimension (Clinchy, 1989; Halpern, 1992; Paul, 1990). Simply possessing the cognitive skills needed for critical thought was not enough. Clearly there are individuals who possess the skills needed to critically assess their own thinking, but who may not be disposed to use them (Jones, 1993). Without the attitude or disposition to use critical thinking, the skill can lie fallow.

Facione (1998), another expert on critical thinking, considered critical thinking a cornerstone of a liberal education, and viewed critical thinking as a necessary but not

sufficient condition of a rational, democratic society. Facione contributed greatly to the understanding of critical thinking through his Delphi Method research project. The project included 46 national experts who arrived at a consensus of opinion about the skills and dispositions of critical thinking. Although his definition represented a consensus of opinion from these national experts, subsequent research on critical thinking continued to reflect a variety of theoretical perspectives. (The challenges of defining critical thinking will be discussed in more detail in the following section.)

Perspectives on a Complex Construct

As suggested in the preceding section, there is still vigorous debate about the definition of critical thinking and its relationship to other skills such as problem solving, decision making, rational thinking, and reasoning. Early definitions provided a list of skills or abilities that, taken together, enabled one to think in more cognitively complex ways. Such cognitive complexity was thought to prepare the individual to participate effectively in a pluralistic society. This traditional view of critical thinking venerates rationality, universality, objectivity, and abstraction while often ignoring dispositional and constructivist aspects (Walters, 1994).

Research has emphasized the affective aspects of critical thinking (Brookfield, 1987; Clinchy, 1989; Halpern, 1998; Paul, 1995; Thayer-Bacon, 1993), the importance of reflection (Brookfield, 1987, 2007; Ennis, 1993; McPeck, 1990), the contextual nature of critical thinking (Brookfield, 1997; Nosich, 2005), the action domain (Walkner & Finney, 1999), and the emancipatory role of good thinking (Walters, 1994). However, Facione (1990) used the Delphi Method to develop one of the most comprehensive and widely-accepted definitions of

critical thinking. With input from experts in different disciplines, he published a consensus statement describing the nature of critical thinking:

We understand critical thinking to be purposeful, self-regulatory judgment which results in interpretation, analysis, evaluation, and inference, as well as explanation of the evidential, conceptual, methodological, criteriological, or contextual considerations upon which that judgment is based (p.14).

Although the definition is initially appealing, the absence of any language to address the affective aspects of critical thinking proposed by theorists (Clinchy, 1989; Halpern, 1998) limits its applicability. Rather, Facione chooses to use dispositions to describe the critical thinker, rather than the act of thinking critically. Facione's choice of the term "self-regulatory" is also surprising. It is unclear from the definition if criticism or input from external sources is considered important in formulating judgment about one's thinking. Because much of Facione's previous work included the social aspects of critical thinking, his omission of a specific reference to an interpersonal component in the definition is an interesting omission.

Balin et al. (1999) suggest that critical thought includes three fundamental features: it helps the individual decide what to do or believe; the critical thinker maintains adequate standards and pursues accurate information; and, to think critically, one must meet or exceed some threshold level. This concept is sufficiently broad as to allow a variety of interpretations; it thus varies slightly from those of many other researchers. Balin et al. consider it the "quality of the thinking, not the process of thinking, which distinguishes critical from uncritical thinking" (p.288). Unfortunately, the authors fail to adequately address context and the affective dimension in their discussion of critical thinking.

Paul (2001) proposes four interrelated components as the essential elements of critical thinking. In his work with Elder and Bartell (1997), they describe critical thinkers as able to engage in reasoned discourse, reason within intellectual standards, make appropriate inferences, and demonstrate intellectual integrity. This understanding of the construct represents a departure from Paul's earlier definition: "critical thinking is disciplined, self-directed thinking which exemplifies the perfection of thinking appropriate to a particular mode or domain of thinking" (1989, p. 214). This latest iteration may reflect Paul's growing acknowledgment of a social aspect of critical thought.

According to Clinchy (1989, 1994), more emphasis should be placed on the collaborative aspects of critical thinking, what she calls "connected knowing." This is similar to Paul's (2001) "intellectual empathy," the value of being able to reconstruct the viewpoints of others. Clinchy goes on to suggest that the traditional view of critical thinking—as a detached and adversarial form of discourse—puts women at a disadvantage by devaluing a more cooperative approach to evaluation and judgment. Her concerns are understandable, given that the term critical often connotes contentious negativity. One might raise the same objection to McPeck's (1981) use of "reflective skepticism" to describe critical thinking (p.42). The use of the term critical can also represent "a reflection of the character of reasoning in a scientific/academic context, where falsification is... believed to be the only rigorous approach to establishing reliable truths" (Walkner & Finney, 1999, p.141). While the term may have negative connotations in common parlance, most theorists understand it as a means to reflect upon the adequacy of one's thinking (Tsui, 1999).

Clinchy (1989) is not alone in her concerns about current conceptions of critical thinking. There is ongoing debate concerning "the degree to which the standards of critical

thinking, and the conception of rationality that underlies them, are culturally biased in favor of a particular masculine or Western mode of thinking, one that implicitly devalues other ‘ways of knowing’” (Burbules & Berk, 1999, p.4). Additionally, Thayer-Bacon (1993) and Martin (1992) suggest that the emotional aspects of thinking are downplayed in favor of rationality. There is disagreement as to whether this lack of emphasis on emotions represents a bias or simply a deficiency in how critical thinking is defined (Balin, 1995; Ennis, 1998; Norris, 1995). Clinchy sees a role for both rationality and emotions in how one comes to understand their environment. Connected knowing, to use Clinchy’s term, validates the social and emotional. Separate knowing honors the rational and objective. Even with this expanded conception of critical thinking, there are many ways of knowing that have been neglected or dismissed.

Halpern (1989) also emphasizes the importance of a critical thinking attitude and makes little distinction between critical thinking and the critical thinker. “Good thinkers are motivated and willing to exert the conscious effort needed to work in a planful manner, to check for accuracy, to gather information, and to persist when the solution isn’t obvious and/or requires several steps” (p.29). As stated earlier, it matters little if one learns to think critically but fails to put forth the energy and effort required to exercise those skills. Attitudes are more than what animates the skills of critical thinking (Siegel, 1988, 1999). When individuals use the skills of critical thinking to examine the assumptions that guide life choices, they have what Siegel describes as a “critical spirit” (1999, p.210) and what Paul (1995) calls “strong-sense” (p.550) critical thinking.

Ennis (1987) offers another definition of critical thinking that is often mentioned in the literature. He defines critical thinking as “reasonable reflective thinking that is focused

on deciding what to believe or do” (p. 10). However, he offers little to explain if simply deciding what to believe or do is sufficient for critical thought, or if some sort of action is required that follows upon one’s reasonable reflective thinking (Johnson, 1992). Ennis places much more emphasis on the outcomes of critical thought rather than the essential characteristics required for critical thinking.

Although some would find such diversity of definitions problematic, Paul (1990) argues the advantages of having different conceptions of critical thinking. He suggests that such plurality helps maintain openness to different perspectives and prevents the rigidity that comes with definitions that are stagnant and static. This same plurality, however, makes interpretation and application of research findings more difficult and complicated (Williams & Worth, 2001). How is the teacher to infuse critical thinking into the classroom when there is little agreement as to what it is? Certainly how one interprets this elusive construct “determines in large measure the type of instruction one designs to promote it” (McPeck, 1990, p.3).

A meta-analysis of the various definitions discussed previously suggests that critical thinking represents a highly developed form of thought in a hierarchy of cognitive processes (Goto, 2005). This conception of the construct seems reminiscent of Bloom’s Taxonomy of Educational Objectives, which is sometimes confused with levels of critical thinking. Although Bloom (1974) attempts to construct a neutral classification of cognitive processes that is absent any educational value judgments, Paul (1995) suggests that Bloom’s neutral, hierarchical structure is “partly irreconcilable with a commitment to critical thinking skills, abilities, and dispositions” (p.221).

Much of the previous discussion in this chapter related to the technical aspects of critical thinking, with different theorists proposing various dispositions, traits, abilities, or skills. However, beyond the technical aspects, Brookfield (2005b, 2007) suggests that how one understands critical thinking is also informed by certain intellectual traditions. He describes four traditions which provide the lens through which one interprets and conceptualizes criticality. Those traditions include analytic and linguistic philosophy, psychoanalysis, pragmatist constructivism, and ideology critique. Briefly, in the analytic and linguistic philosophy tradition, learning to be critical means becoming skilled at argument analysis; the psychoanalytically inclined tradition represents identification and examination of inhibitions acquired in childhood; the pragmatist constructivist tradition focuses on the individualized way people interpret their experiences; and, in learning, ideology critique focuses on hegemonic assumptions and practices.

These intellectual traditions frame how teachers understand and practice critical thinking. For instance, if a teacher views critical thinking through the lens of ideology critique, then she is more likely to see critical thinking as an inherently political process. Therefore, if one's teaching is informed by ideology critique, then one is more likely to teach with social and political goals in mind. Certainly one's understanding of critical thinking can draw from multiple traditions. However, Brookfield would argue that it is helpful to examine how one operationalizes the technical aspects of critical thinking within the context of the tradition that "frames how one understands and practices critical thinking" (2007, p.3).

Critical Thinking in the Classroom

Of late, there has been a national movement to infuse critical thinking into the curriculum of secondary and post-secondary educational institutions (Partnership for 21st

Century Skills, 2007). Indeed the critical thinking movement promotes the development of reasoning skills, specifically critical thinking, as the purpose of education (Barbules & Berk, 1999). Although there has been general agreement about the need for critical thinking, any agreement about how to teach critical thinking persists “only so long as theorists remain at the level of abstract discussion and permit their use of the term to remain vague. As soon as they interpret the term to provide a clear conception, agreement evaporates” (Balin, Case, Coombs, & Daniels, 1999, p.287).

The approaches to teaching critical thinking are as varied as the beliefs and interpretations of the term. One major area of debate concerns the question of whether critical thinking should be taught within a specific knowledge domain or as an independent subject (Bers, 2005; Plath, English, Connors, & Beveridge, 1999). Some theorists consider critical thinking to be a general reasoning ability that is independent of context and can be taught as a singular skill. Once learned, the skill could be deployed as needed regardless of the situation or context. This approach, championed by Ennis (1989), is diametrically opposed to McPeck’s (1990) position that the “requirements for critical thought vary according to the nature of the problem, and the various forms of rational discourse” (p. 42), further describing critical thinking as “parasitic upon the disciplines” (p.43). Indeed, there is significant research supporting the teaching of critical thinking through the content of the discipline (Brookfield, 2007; Cromwell, 1986; Paul & Elder, 2001; Willingham, 2007).

Proponents of teaching critical thinking within disciplinary frameworks argue that in order for people to think critically, they need to understand what Willingham (2007) calls the “internal grammar” of a subject (p.10). He suggests that the internal rules, foundational concepts, and criteria for excellence are defined differently depending upon the discipline,

and thus frame how one is expected to think. For example, an important aspect of thinking critically in a history course is questioning the source of documents studied to consider who wrote them, when they were written, and the motive of the author in writing the document. Questioning the source of documents may be less important in some other disciplines. The debate over whether to teach critical thinking within disciplinary boundaries or as an independent skill takes on added importance in the community college setting where technical programs have limited space for courses that are not explicitly related to the discipline.

While Brookfield (2007) argues convincingly that critical thinking “can only be learned and practiced from within domain knowledge” (p.1), which most interpret as discipline content, he also suggests that such domain knowledge might represent the events and experiences of one’s life. In that regard, he views the text as comprising the assumptions one makes about how the world works, and what is considered appropriate action. That is, the provisional understandings that guide one’s beliefs and actions become the content about which one learns to think critically. Although Brookfield does not discount the value of teaching critical thinking within disciplinary frameworks, he does assert that critical thinking can be taught successfully outside the confines of traditional academic courses.

There appears to be no universal agreement on how best to teach students to develop their skills as critical thinkers. However, approaches to teaching critical thinking can generally be described in one of four ways: general, immersion, infusion, or mixed (Ennis, 1989). The general approach places critical thinking as a unique and separate instructional course or unit which Ennis would contend, could be taught separately from the subject matter. Other theorists eschew teaching critical thinking as a separate course (Paul, 1995;

Willingham, 2007). However, Brookfield (2007) believes in the efficacy of such a course as long as the course is taught “within the context of the subject’s own life” (p.1). The infusion approach is framed within the content of an academic discipline and the principles of critical thinking are explicitly taught. There is widespread support for this approach to teaching critical thinking (Brookfield, 2007; Cromwell, 1986; McPeck, 1990; Paul & Elder, 2001; Willingham, 2007). The immersion approach is also framed within the content of a discipline but the principles of critical thinking are not made explicit. The mixed approach uses a combination of either the immersion or infusion and general approaches. Much less has been written about the efficacy of the immersion and mixed approaches.

The transferability of critical thinking skills is at the heart of the debate over how best to help students develop as critical thinkers. However, even those teachers who consider critical thinking an important objective seldom teach students the necessary skills of critical thought as they delve into the course content (Bok, 2005; Reed, 2001). It is easier to focus on the acquisition of course content rather than critically examining that same content.

According to the work done by VanGelder (2004) and Hass and Keeley (1998), there are many instructors who expect students to develop critical thinking skills by a process of intellectual osmosis, a gradual assimilation through curricular and co-curricular activities, of the skills required for critical thought. However, research indicates that the development of critical thinking skills is “not likely to be realized spontaneously or as an incidental consequence of attempts to accomplish other goals” (Nickerson, 1988, p.29). This gap between “aspiration and achievement” (Browne & Freeman, 2000, p. 301) underscores the need for faculty training. Fortunately for those instructors who hope to encourage critical thinking in their students, there is now research that provides insight into the issue.

Browne (2000) asserts that the classroom that supports critical thinking usually allows for frequent questions, engagement in active learning, developmental tensions that challenge students to think beyond their comfort zones, and an acknowledgement of the contingency of conclusions. Teachers must challenge students' assumptions and help them consider alternative ways of thinking and acting if they hope to encourage critical thinking (Brookfield, 2007). These strategies require both students and teachers to take intellectual risks that can often be awkward and uncomfortable and require instructors to move beyond lecture as the default instructional strategy.

Fortunately, instructors now have resources and models for the teaching of critical thinking that can help guide their efforts (Paul, 1999). Halpern (1999) proposes an interesting model of instruction that includes teaching the skills and dispositions of critical thinking, structure training, and metacognitive monitoring. Structure training refers to a technique designed to assist students in recognizing when to use a particular thinking skill. They learn to create retrieval cues based on the underlying structure of the problem. Consequently, they are better able to transfer this thinking skill to different contexts. The final component of the model, metacognitive monitoring, describes students' ability to monitor the progress and quality of their thinking. Instructors can make the process explicit by modeling "their own thinking process, so that the usually private activity of thinking is made visible and open to scrutiny" (Halpern, 1999, p.73). The metacognitive monitoring recommended by Halpern is consistent with Paul's (1999) admonition to critical thinkers to think about their thinking in order to improve the quality of their thinking.

Kronholm (1996) also found promising results with the use of structured instructional strategies. She found that these strategies produced documented increases in students'

intellectual growth. Similarly Pascarella and Terenzini (2004), in a review of studies examining interventions designed to increase cognitive growth in college students, concluded that purposeful instruction in critical thinking skills can improve students' abilities in this respect. They did, however, advise against over-interpretation of their findings due to inconsistencies in how the studies characterized instruction in critical thinking.

For those educators who believe critical thinking to be inextricably tied to content, the subject matter becomes the vehicle through which they engage students in critical thinking (Elder, 2000; McPeck, 1981). Students learn to think critically "within the context of academic disciplines rather than apart from them" (Cromwell, 1986, p.2). Questioning then becomes a tool with which to challenge assumptions and explore justifications that are considered foundational aspects of the discipline. Students new to higher education may be unaccustomed to being asked to examine or justify their thinking. They may initially interpret questions as criticism rather than an attempt to encourage consideration of other explanations. It is therefore incumbent upon the instructor to provide the rationale and support for this more intrusive approach to teaching for critical thinking.

King (1994) suggests that the questioning process must be structured, strategic, and supportive if it is to help students think more critically.

Asking questions and accepting answers from those students who immediately volunteer communicates to students that the answer should be readily available without thinking. Allowing ample time for thinking between the time a question or problem is posed and responses are taken says that quality thinking and problem solving takes time. (p.20)

King's comments assume that these questions require more than a simple recitation of factual information. When teachers encourage thoughtful, disciplined questions and responses from students, they help them move from a focus on facts to an attitude of reflection, reason, evaluation, and construction of personal understandings (Elder, 2000; Riordan, 1986). Unfortunately, Grubb's (1999) research indicates that most community college instructors pose questions that might be described as fill in the blank, requiring production of a single correct answer. Instructors are unlikely to get thoughtful and in-depth responses from students without first providing challenging and thought provoking questions.

Not only do instructors need to think about the questions they pose to students, they also need to help students learn to craft questions that drive thinking forward. Elder (2000) asserts that it is impossible to be a good critical thinker and a poor questioner. The quality of the question often determines the quality, relevance, and utility of the answer. Clearly "critical questions provide a stimulus and direction for critical thinking" (Browne & Keeley, 2004, p. 2).

The Community College Faculty Survey of Student Engagement (CCFSSE) raises another interesting issue concerning the quality of questioning in the college classroom. According to the report, 83% of instructors believe that students in their classes regularly ask questions that contribute to class discussion. It is noteworthy that only 65% of students expressed similar beliefs (Community College Survey of Student Engagement, 2005). Without reliable data on student perceptions, instructors tend to rely on their own, often biased interpretation of student classroom behaviors (McClenney & Peterson, 2006).

Cooper (1995), in his research on cooperative learning and critical thinking, found that student-to-student and student-to-instructor interactions were consistent with

improvement in the ability to think critically. In cooperative learning classrooms, students worked together to construct their own understanding of the concept under discussion. Critical thinking often emerged through this social interaction, the conversations and discussions in which thoughts and positions are challenged, defended, examined, and refined. The cooperative learning environment provided an opportunity for students to formulate explanations and then defend those explanations with their peers who, in turn, have the chance to question the assumptions and resources upon which conclusions are based. This process of peer questioning promoted learning and fostered critical thinking (King, 1994; Meyers, 1986).

Cooper's (1995) findings support the use of cooperative learning, a form of active learning, over lecture which often allows the student to participate in the learning experience at a very passive level. However, there may be few opportunities for active learning in the community college when 88% of the instructors continue to rely on a combination of lecture and discussion as their primary instructional methods (Palmer, 2002). Although lecture can be useful in helping develop the context for critical thinking (Brookfield, 1990), when teachers depend on the lecture as their primary instructional tool, students are seldom privy to the disparate ideas and tentative conclusions that go into its development. "Too often students copy down the end product of an interesting and complicated problem for regurgitation on a test containing items that call for rote responses" (Cooper, p. 8). Although there is growing support for cooperative learning, there is research to indicate that cooperative learning is not universally welcomed or appropriate. Ishiyama, McClure, Hart, and Amico (1999), in a study of introductory political science students, found that students with a disposition to think critically preferred lectures to group methods. The focus of the

study was on student ratings rather than skill development, but it does suggest that there is still a place for the carefully-crafted lecture, especially when students are being introduced to unfamiliar content. One also wonders if students might cling to the lecture precisely because it is a familiar and low-risk activity.

Teachers realize that students often come to the classroom expecting to have a set of universal truths conferred on them. By resisting the temptation to take on the role of omniscient authority figure, teachers are freed from the need to have all the answers. By allowing questions to linger and certainties to be challenged, teachers introduce the element of doubt into the discussion which can stimulate thinking (Browne, 2000). This developmental tension can be uncomfortable, especially when students see experts disagree and offer convincing arguments in support of opposing viewpoints. However, students need to see the contradictions, inconsistencies, and multiple perspectives that exist in an academic environment and in real life. Without the exposure to conflicting views, students often gravitate toward explanations that are consistent with their current beliefs (Browne & Freeman, 2000).

Students need the opportunity to practice the skills of critical thought in a safe and structured environment. The classroom can provide such an environment. As students gain confidence in their thinking skills, they are better prepared to evaluate options and make informed decisions when called upon to do so in other settings (Kronholm, 1996). Additionally, requiring students to articulate their emergent understandings through written assignments encourages them to explain and justify their thinking. Such work can often reveal inconsistencies of thought and unexamined assumptions that might otherwise go unnoticed (Tsui, 1999).

As stated earlier, students who exhibit a healthy sense of reflective skepticism tend to look closely at claims to truth, an important aspect of critical thinking (McPeck, 1990). Teachers can introduce students to the contingency of conclusions by modeling the ways in which their own perspectives have been shaped by additional information. Modeling is one of the most effective tools available to teachers in helping their students develop critical thinking skills (Brookfield, 2007). “When learners see our open bewilderment and our sifting through contextual variables as a rewarding response to bemusement, they are much more likely to tolerate the discomfort associated with a loss of certainty” (Browne, 2000, p.305). Brookfield suggests that instructors end each class by pointing out unanswered questions or inconsistencies in material presented through the text or the lecture.

A study commissioned by the California Commission on Teacher Credentialing involved interviews with faculty from 30 colleges and universities. The findings indicated that few of the teachers interviewed had a clear understanding of critical thinking or what was needed to successfully introduce it into the classroom (Paul et al., 1997). Based on the report, Paul et al. concluded, “present instruction is likely to produce teachers who, on the one hand, are confident that they not only understand critical thinking but also know how to teach for it, but who, in point of fact, understand neither” (p.31). It may be that teachers believe themselves to be critical thinkers simply by virtue of their advanced degrees (Haas & Keeley, 1998).

The conclusions reached by Paul et al. (1997) find some support in the literature. Haas and Keeley (1998) suggest that many teachers have not “embraced critical thinking as an essential value” (p. 63) and may not truly understand the concept. One possible explanation might be that many teachers have had limited experience with critical thinking in

their own careers as students. Most often, their models were lecturers who were the authority in their field, and knowledge was deposited and banked in preparation for later withdrawals (Freire, 1973). Few teachers entered the classroom having had explicit training on how to teach for critical thinking.

Teachers are also concerned about content coverage. Many teachers feel that an emphasis on critical thinking will interfere with content coverage, which is often taken as the primary instructional goal (Chaffee, 1992; Elder, 2000; Grubb, 1999; Haas & Keeley, 1998). Conflicting allegiances between depth and breadth can create a pedagogical tension. Teachers want to do justice to the complexity and elegance of the discipline and may resist focusing in more depth on fewer content areas (Bean, 1996). Additionally, faculty may resist embracing critical thinking because they lack a common understanding of the concept or are unconvinced of its efficacy in the college classroom. It seems unlikely that teachers will change their approach to instruction unless they are convinced that the changes will result in significant improvement in student learning (Haas & Keeley, 1998).

“The more clear and explicit instructors are about what they want students to learn, the more likely it is that students will succeed in learning” (McPhail, 2005, p.65). But even when the challenges of defining critical thinking, making explicit one’s intentions, and teaching for critical thinking have been overcome, assessing gains in critical thinking skills can be problematic. Assessment procedures typically used in classrooms are often inappropriate measures of critical thinking. Typical multiple-choice tests emphasize lower-level thinking and rote memorization (Tsui, 1999). Teachers face the challenge of finding assessment strategies that accurately reflect learners’ evolving thinking in addition to

developing educationally sound methods for incorporating critical thinking into the classroom.

According to Brookfield (1997), “Assessment of critical thinking should allow learners to document, demonstrate, and justify their own engagement in critical thinking” (p.20). As observers, teachers may not always be aware of the nuanced growth in critical thought that takes place within their students. As long as critical thinking is a valued outcome of higher education, teachers will be called upon to find ways to help students develop the needed skills and attitudes, and to create appropriate tools to assess their growth. It is ludicrous to think that institutions of higher education can revise teaching practices to promote critical thinking without a commensurate examination of their assessment strategies. There is ample evidence to suggest that “what and how students learn depends to a major extent on how they think they will be assessed” (Biggs, 1999, p. 141).

Community College Faculty

The third section of the review of literature will focus on community college instructors, specifically the academic and professional preparation of community college instructors and the value of and support for teaching in the community college system.

As a group, faculty members in the community college system are less likely to hold an advanced degree than professors in university settings. Community college instructors are also less focused on research and its subsequent publication than their university colleagues (Cohen & Brawer, 2003; Grubb, 1999; Sperling, 2003). In some ways, these two factors place community college faculty at the bottom of the higher education hierarchy. For these reasons, many community college instructors struggle to find the professional respect they feel they deserve. Without the instant credibility afforded by the terminal degree, they are

sometimes perceived as less qualified. At the same time, they may also lack the pedagogical training that comes when entering higher education instruction through a teacher education program (Grubb).

Historically, a significant percentage of community college instructors entered the profession via the secondary school system. Generally speaking, instructors with secondary school experience would have had pedagogical training as well. However, the number of community college instructors who have previously worked in the secondary school system has declined over the past several years (Outcalt, 2000). This decline could signal a commensurate decrease in the number of instructors entering community colleges with any pedagogical training. With the growing demands for accountability in student learning, this should be a cause for concern.

While some instructors enter the classroom with pedagogical training, relatively few enter community college teaching having had graduate coursework dealing specifically with adult education or the history and mission of the community college (Keim, 1994). Indeed, there is general agreement that “graduate institutions have largely failed in their efforts to prepare future faculty for the nation’s community colleges” (Gibson-Harman, Rodriguez, & Haworth, 2002, p.79). Without the “philosophical grounding and socialization required for a role that has become more complex over the years” (Miller, 1997, p.89), many community college instructors may enter the classroom ill-prepared for the demands of students and the expectations of supervisors.

According to a survey conducted by the National Center for Postsecondary Improvement, 64% of community college instructors had earned a master’s degree as their highest degree (Huber, 1998). Almost all community colleges require instructors who teach

in academic (as opposed to occupational) areas to have a master's degree to ensure discipline expertise. However, few community colleges demand training in teaching appropriate to the adult learner (Grubb, 1999). One might expect community colleges or teaching colleges as they are often described, to place more emphasis on the pedagogical training of those they hire to teach. Although community colleges boast about their focus on teaching and learning, it is often unclear as to the impact these teaching institutions actually have on student learning, especially on higher-order thinking skills (McClenney & Peterson, 2006).

The demands of teaching can be daunting. Even when students are well-prepared, full-time, enthusiastic, and focused on learning, teaching is a demanding and consuming task. Even when the instructor is a content expert, has successful teaching experience, and is cognizant of adult learning theory, teaching can be challenging. Teaching requires more from the instructor when it involves teaching students who come from diverse backgrounds, are often unprepared or underprepared for college level work, and attend part-time while juggling work and family. As open-door institutions, community colleges serve the broadest section of the population in comparison to other institutions of higher education (Cohen & Brawer, 1996; Grubb, 1999). When 50% of students arrive at the community college requiring some degree of remediation, asking faculty to incorporate critical thinking into their courses represents a significant challenge (Adelman, 2005).

Instructors working in these open-door and open-exit institutions (Barr, 2003) often find themselves in an interesting position. Although they teach some of the most underprepared and overextended students in higher education, many instructors have had limited preparation in how to share their discipline expertise or how to support students who are often considered academically at-risk. This might explain, in part, the sense of

impostorship that Brookfield (2005) attributes to many community college instructors. Brookfield suggests that instructors sometimes feel that they masquerade as competent professionals while secretly fearing that they will be uncovered as educational frauds.

The professional pecking order alluded to earlier is also reflected in the salaries earned by community college instructors. In fact, salaries of full-time faculty in community colleges are approximately two-thirds of that earned by faculty at public research universities (U.S. Department of Education, 1999 National Study of Postsecondary Faculty, 2001). While community college faculty, on average, earn significantly less than faculty employed at public research universities, community college instructors spend over twice as much time engaged in classroom instruction (U.S. Department of Education, 1999 National Study of Postsecondary Faculty). Based on this information, one might conclude that faculty salary and time in the classroom are inversely related (Levin, 2003). These findings send a disturbing message about the value of teaching, the primary focus of the community college.

While classroom teaching remains the central focus in the professional lives of community college faculty, instructors are also expected to assist in advising students and to participate in college committees (Cohen & Brawer, 2003; Palmer, 1994). The teaching and advising demands for community college faculty often leave little time for pedagogical or discipline research. Indeed, only about one-third of community college instructors indicate that they participate in professional research or creative works (Palmer, 2002).

Community colleges are quick to carry the banner as teaching institutions; however, “some state and institutional policies actually have an indirect but negative impact on the quality of teaching” (Townsend & Twombly, 2001, p.297). Funding that is based on enrollment can pressure colleges to increase class size and to decrease support for activities

that do not generate full-time equivalent credits. Fiscal constraints often generate administrative mandates for efficiency. Such calls for efficiency often translate into teacher-centered strategies and didactic instruction (Grubb, 1999). It is more efficient to have one instructor lecture to 100 students than to have four classrooms of 25 students engaged in active learning strategies. Similarly, Levin (2005) suggests that “community colleges have adopted a number of institutional and organizational adaptations in pursuit of revenue, adaptations that challenge their traditional missions” (p.11).

Faculty development programs are often early casualties in lean budget years (Wallin & Smith, 2005). In a study of faculty development in the Georgia system of community and technical colleges, Wallin and Smith asked faculty to rate the importance of professional development activities to successful teaching and then to assess their own competence in that specific activity. Faculty consistently ranked activities in the instructional cluster as very important. Instructors were also very confident in their own instructional skills. There was one notable exception. Instructors were concerned about their ability to utilize instructional techniques that develop higher-order thinking skills in students, i.e., critical thinking. If critical thinking is a core competency expected of college graduates, this study suggests that there is a need for additional faculty training, at least at the community college level.

O’Banion (1997), who has long touted the quality of community college teaching, credits community colleges with innovative approaches to instruction. He believes community colleges to be “national leaders in the efforts to improve the traditional system by applying information technology, developing collaborative learning models, and incorporating assessment and outcome measures” (p.2). The findings from a national survey of post-secondary teachers conducted by The Carnegie Foundation for the Advancement of

Teaching (CFAT) support O'Banion's assertion (Huber, 1998). Community college faculty "may be the best equipped to contribute to a growing scholarship of teaching, building a culture that supports innovation, reflection, and conversation about teaching and learning across all colleges and universities" (Huber, p.56).

While the conclusions drawn by the CFAT reflect favorably on America's teaching colleges, they appear somewhat inconsistent with findings from the National Survey of Postsecondary Faculty (NSPF) which indicate that many community college faculty continue to use lecture, and to a lesser extent, discussion as their primary instructional methods in some or all of their classes. These findings are consistent with those reported by the Community College Faculty Survey of Student Engagement (CCFSSE) which indicate that lecture remains a primary instructional strategy used by community college instructors (McClenney and McClenney, 2005). Approximately one-third of instructors surveyed responded that they lecture for at least half of their class time (McClenney and McClenney). In the literature, lecture is often described as a teacher-centered strategy, because it can be less responsive to the needs of the learner.

Additionally, 73% of instructors who participated in the NSPF used multiple-choice tests for either mid-term or final exams (U.S. Department of Education, 1999). Multiple-choice tests appear more consistent with a teacher-centered philosophy because they don't make allowances for students to articulate their own understandings (O'Banion, 1997). Neither lecture nor typical multiple-choice examinations tend to encourage the development of critical thinking skills in students. If indeed 88% of community college instructors still rely on lecture as a primary instructional method and 75% continue to use multiple-choice

tests regularly or exclusively, one might question O'Banion's claim of instructional innovation in the community college.

Recent research into the scholarship of teaching and learning has focused attention on the effectiveness of classroom instruction. With 46% of all first-year college students being taught at a community college (Outcalt, 2002), the link between teaching and learning in the community college classroom needs to be carefully examined. In order to better understand what constitutes effective classroom instruction, community college instructors must make explicit why they teach as they do, and what they intend for their students to learn (Martin et al., 2000). Articulating their practical teaching knowledge is sometimes difficult for teachers. It tends to be information that teachers have, but teachers are not always aware of the knowledge they possess. In addition, community colleges do not generally "encourage collegiality around teaching, and so teaching is often an isolated and idiosyncratic activity" (Grubb, 1999, p.27). Teaching, regardless of the setting, is often an isolated and solitary activity. Generally speaking, the community college teaching environment is one of individualism and fragmentation where teachers are seldom afforded the opportunity to work collaboratively toward improving the quality of teaching (Grubb, 1999). Without a network of support that creates space for collegiality, collaboration, reflection, and sharing, teaching will remain an individual effort.

Additionally, few community college instructors have a foundation in learning theory (Sperling, 2003).

There is little theoretical scaffolding on which to build or refine teaching practice. As a result, there is little intentional application of what is known or postulated about the teaching-learning process to actual classroom behavior. Community college faculty

most often back into these understandings. They discover them in a hit or miss fashion, through practice and observation. And teaching wisdom in community colleges is often passed along, like folklore, from one faculty member to another (p.596).

In an ideal setting, theory informs practice. As the theory is applied, it is tested and refined. One begins from a theoretical position, applies the theory, and then modifies as warranted by experience. However, from a practical and realistic perspective, it is more likely that community college instructors will uncover or discover theory through practice. What may sometimes appear as idiosyncratic educational practice may actually be rooted in educational theory (Brookfield, 2002). As they do the work of teaching, community college instructors often recognize patterns in their teaching and develop hypotheses about why things seem to work the way they do. Because they often lack a solid foundation in educational theory, they rely on personal experience and trial and error to construct personal theories of teaching. For many community college instructors, educational practice is to be trusted more than educational theory.

Summary

Given the national attention given to improved critical thinking skills, there is surprisingly little research regarding the effective development, especially at the community college level. Existing research, which often focuses on instructional strategies, offers limited and often conflicting results (Tsui, 1999). The research gap broadens when one examines the relationship between teacher beliefs about critical thinking and teaching practices. The studies that have been done have been most often conducted in university settings. With over 40% of traditional-age college students entering post-secondary

education via the community college, it is important to understand more about the learning environment of which they are a part. Teachers and their beliefs represent an important part of the learning environment. The literature presented in this review demonstrates the need for additional research on the subject. Chapter three explains the research methodology for exploring these important questions.

CHAPTER THREE: RESEARCH DESIGN AND METHODOLOGY

There is an almost universal assumption that the college experience will, in some way improve a student's ability to think critically. As the presumptive experts, teachers are often expected to create learning environments that support an institutional goal of improved critical thinking in its graduates. However, faculty members come to every teaching assignment with beliefs, intentions, and perspectives that can significantly influence the dynamics of the classroom and how decisions about teaching are made (Earnest, 1989; Leamson, 1999). If instructors are expected to create learning environments that foster students' skills in critical thinking, an examination of teachers' beliefs about critical thinking could help expand the knowledge about the relationship between the two, and inform decisions about faculty development programs. Unfortunately there has been limited research examining teacher beliefs about critical thinking. Also there has been limited research that explored how beliefs about critical thinking influenced teaching practices (Paul et al., 1997). It is important to examine this area because most institutions of higher education claim that the development of students' critical thinking skills is an educational imperative. Without an adequate understanding of the relationship between teacher beliefs and teaching practices, educational research is missing an important element (Kagan, 1992; Pajares, 1992).

The purpose of this study was to explore how exemplary community college instructors described and acted on their beliefs concerning the development of critical thinking in college students. The study accomplished the goal through a case study approach. In Chapter Three, the researcher described her research design, participant selection, data collection, and data analysis. The chapter also addressed issues of quality,

rigor, and trustworthiness.

Research Design

The study was a qualitative research investigation and used a multiple case study to examine the beliefs of exemplary community college instructors about critical thinking and teaching for critical thinking. The decision to employ a qualitative design was based in part, on Denzin and Lincoln's (2000) description of qualitative research as

a situated activity that locates the observer in the world. It consists of a set of interpretative, material practices that make the world visible...This means that qualitative researchers study things in their natural settings, attempting to make sense of, or to interpret, phenomena in terms of the meanings people bring to them. (p.3)

A qualitative approach was appropriate for this study of exemplary community college instructors because it permitted an in-depth exploration and was especially "relevant, appropriate and promising" for the study of teacher beliefs (Pajares, 1992, p.327). Unlike quantitative research, which attempts to explain phenomena by dissecting the component parts, qualitative research presents a more holistic picture of the phenomenon under investigation by exploring how the component parts work together (Merriam, 1998).

The research problem and the overall intent of the study were used to determine the most suitable research strategy (Merriam, 1998). The case study as described by Stake (1995) depicts lived experiences and thereby provides a rich description of the phenomenon under study. By using a case study approach, the researcher was able to describe to the reader the complex and nuanced beliefs of participants. A case study was especially appropriate because it attempted to communicate the tacit knowledge of participants about teaching practices intended to foster the critical thinking skills of students (Merriam).

Merriam (1998) differentiates the case study from other approaches to research by suggesting three characteristics that are unique to the case study. Case studies are particularistic because they focus on a specific event or phenomenon. They are descriptive by providing comprehensive and literal descriptions of the object of the study. Case studies are also heuristic in that they might expand the reader's understanding of the subject under study or help the reader discover new meanings. The case study also establishes boundaries that represent the analytic focus of the research. This study is bounded in that it focuses on the beliefs of exemplary community college faculty representing certain academic disciplines teaching in one community college. The study is further bounded by time. Data collection was conducted over the course of one academic year. For all the reasons stated above and because the researcher was examining questions of process, a qualitative multiple case study was selected as the most appropriate research strategy to capture the perspectives of those involved in the phenomenon of interest.

Instructors from a variety of academic program areas in the humanities and social sciences were included in this exploration of the relationship between exemplary instructors' beliefs and teaching practices. The research data included surveys, interviews, videotaped class observations, and course documents. Multiple sources of data were needed to provide the rich descriptions that have become associated with qualitative research (Patton, 2002). Moreover, "research that examines only what university teachers say about their practice and does not directly observe what they do is at risk of telling half the story" (Kane et al., 2002, p.177).

Research Setting

This research study was conducted at an urban, multi-campus, community college in

the southern United States, referred to as “CCC” throughout the study. This institution was chosen, in part, because it was an institution in a community college system that had historically emphasized workforce development over the college transfer function. Based on comments from instructors, the emphasis on workforce development was sometimes thought to come at the expense of the traditional courses believed to foster critical thinking. However since 1998, the college transfer enrollment at this institution had risen steadily. During the 2004-2005 academic year, the number of college transfer students represented slightly over 50% of the total curriculum enrollment. The shift in enrollment had refocused attention on the general education curriculum. Although critical thinking had been identified and an important employability skill (Partnership for 21st Century Skills, 2007), responsibility for helping nurture that important skill had traditionally been considered the purview of the general education curriculum in the community college.

In addition, CCC was selected because of its recent commitment to becoming a learning college. A major component of the learning college initiative was the identification of a set of core competencies expected of all CCC graduates. Critical thinking was one of the core competencies identified. Of the nearly 1,000 courses offered at CCC, critical thinking was identified in over 40% of the courses as the core competency to be addressed.

Permission to conduct this case study was obtained from the Vice President of Instruction for CCC. The research proposal was also reviewed by the Office of Planning at Research at CCC and was approved. In addition, the researcher gained approval for the study through the Institutional Review Board for the Use of Human Subjects in Research at North Carolina State University.

Selection of Participants

The phenomena of interest in this study were the beliefs of exemplary community college faculty about critical thinking and how instructors described and acted on their beliefs in the classroom. Therefore, it was important to select instructors who considered critical thinking an important and appropriate educational goal in the community college. The study included only faculty at one community college. CCC offered a variety of different types of courses such as occupational, technical, basic skills, and general education. However, the pool of potential participants was limited to humanities and social sciences instructors, based on the belief that those instructors would provide the most information-rich cases (Patton, 2002).

Courses in the arts, humanities, and behavioral sciences historically have been considered major forces in helping students develop critical thinking skills (Cromwell, 1986; McPeck, 1990). In addition, critical thinking was an expected student learning outcome of the general education curriculum (CCC Catalog, 2006). The researcher believed that these instructors would have given more thought to the issue than instructors who were not expected to address that particular college goal. At the time of the study, there were no classes taught at CCC whose sole objective was the teaching of critical thinking. That is, CCC offered no discrete courses in critical thinking. Instructors teaching general education courses were expected to infuse critical thinking throughout their course content.

A pool of potential participants was developed using two distinct methods. All general education instructors were sent an initial screening survey (see Appendix E). The survey was sent electronically to 101 instructors. They were given two weeks to complete the survey. Responses were received from 57 instructors for a response rate of 56%. Scores

from the survey were tallied. However, the intent was not simply to select instructors with the highest scores, but rather to use the survey in conjunction with nominations from division directors to identify exemplary instructors from a variety of disciplines. When nominations from division directors were not available, the survey provided an opportunity for self-identification by asking instructors to rate their use of teaching strategies that were associated with critical thinking as documented in the literature.

Six division directors in the general education disciplines were asked to nominate instructors who were acknowledged experts in teaching for critical thinking. Individual appointments were scheduled with the division directors to explain the nature of the study and to obtain the names of possible instructors to include in the study. One division director cancelled the appointment and commented that, “All my faculty teach for critical thinking.” The other division directors were most cooperative and suggested anywhere from two to five instructors.

The purpose of this two-part strategy was to identify exemplary instructors for critical thinking from a variety of academic program areas. Based on results from both the screening survey and nominations from division directors, a list of 24 potential participants was developed. In the case of one division where the director declined to offer any nominations, the survey was used as the primary method for initial inclusion in the list of potential participants.

A critical incident questionnaire (Brookfield, 1987) was sent to the 24 potential participants along with a letter of explanation (see Appendix H). Instructors were asked to describe a successful experience they had had in helping students develop their critical thinking skills. Seven questionnaires were returned. The critical incident questionnaire was

used to help clarify how instructors might be considered exemplary. A prompt was used to provide context:

Think back over this past semester. Identify the situation where you “felt” the most success in helping your students to think critically. Write down, in one or two paragraphs, a brief description of the event. Please include the following details: (1) describe where and when the incident occurred, (2) describe who was involved (no names should be included), (3) describe what teaching strategies were you using at the time, and (4) describe what it was about the experience that made it exceptional for you.

Based on survey results, division director nominations, and critical incident questionnaires, the researcher purposely selected individuals who represented a broad range of disciplines. When possible, gender and ethnicity were considered in the selection process. However, the researcher focused on selecting instructors from a variety of academic disciplines represented in the general education curriculum. This selection was considered necessary because CCC taught critical thinking through a course-embedded approach. Seven instructors were initially asked to participate in the study. However, in order to allow for sample attrition, the researcher retained the names of potential participants who were not selected as a part of the original sample.

This purposeful sample (Patton, 2002) of seven exemplary instructors was invited to participate in this research, and all agreed to do so. By selecting exemplary instructors to participate in the study, the researcher hoped to explore how these instructors successfully infused critical thinking into their classrooms. It was thought that as exemplary instructors, they would be “more concerned and thoughtful about pedagogy, and so their responses more considered, insightful, and revealing” (Grubb, 1999, p.14).

After potential participants were identified, they were contacted to discuss the research project in more detail. They were given a brief explanation of the requirements of the study, the reasons they might wish to participate, and the potential benefits of participation. Instructors agreed to be interviewed by the principal researcher, to have each interview recorded, to provide the researcher with copies of course syllabi, major assignments, course tests, and to have at least one class session videotaped. All participants also completed the Informed Consent Form. Table 3.1 provides a comparison of the instructors in the sample and the courses that were observed as a part of the study.

At the completion of the second round of interviews, the researcher made two modifications to the data collection process. Although information was originally collected from seven instructors, the science instructor was eliminated from the study after the researcher discovered marked differences in the way critical thinking was understood by the science instructor and by instructors in the humanities and social sciences. The researcher believed that the differences could be based within disciplinary understandings of critical thinking. In order to provide a robust study, it was decided to focus upon disciplinary areas which allowed for more student interpretation of the course content. There was a concern on the part of the researcher that within the broader educational environment, science was sometimes presented to students “as the way to absolute truth” (von Glasersfeld, 1995, p. 5). Because no other instructors had been nominated from the science division, nor had they completed the voluntary survey, the researcher decided to refocus on humanities and social sciences and to conduct additional probing interviews with the final six instructors. It was the researcher’s belief that this modification would allow her to gain better insight into the phenomena of interest.

Table 3.1

Comparison of Instructor and Course Characteristics

Comparison of Instructor and Course Characteristics							
	Bruce	Phil	David	Rhonda	Holly	Lana	Sally
Education Level	PhD	PhD	PhD	MA	MA	MA	MS
Yrs of FT Teaching Experience	6	18	4	20	2	9	8
Academic Discipline	Religion	English	World Civ	Art	American History	Sociology	Science
Teacher Education Training	No	Yes	No	No	No	No	No
Formal Training in Critical Thinking	No	No	Yes	Yes	Yes	No	No
Course	World Religions	American Literature	World History	Art Design	American History	Intro Sociology	Micro-biology
Class Size	22	23	25	20	27	26	26
Class Schedule	2/week	1/week	3/week	2/week	3/week	2/week	2/week
	evening	evening	day	day	day	day	day
Term	Summer	Spring	Summer	Spring	Summer	Spring	Spring

Data Collection

“The intensive, holistic description and analysis characteristic of a case study, mandates both breadth and depth of data collection” (Merriam, 1998, p.134). Data collected

for this study included individual, in-depth, semi-structured interviews, videotaped class observations, and course documents. In this case, semi-structured interviews provided insights into instructors' beliefs and perspectives and allowed participants to communicate their own intricate understandings of what it meant to teach for critical thinking. In reviewing the videotaped class sessions together, participant and researcher were able to discuss intentions and strategies while simultaneously checking how closely espoused practices were reflected in actual teaching practices. Course documents, including syllabi, tests, and major assignments, were collected as a way to determine the extent to which critical thinking was made an explicit goal for the observed classes.

The sequencing of data collection was intentionally designed to encourage exploration of the espoused beliefs of teachers and their actual teaching practices. The initial interview invited participants to discuss their beliefs about teaching, critical thinking, and the development of students' critical thinking skills. This was followed by a videotaped class session which provided an opportunity to observe the teaching practices of instructors. The videotape served as a prompt during the second interview to help participants reconstruct their thinking related to their classroom behaviors. At that time, participants were given the opportunity to discuss their intentions when selecting instructional strategies. In addition, course documents, i.e., syllabi, major assignments, and assessments were collected to determine the extent to which critical thinking was reflected.

In some ways, this study was distinct from many previous studies in that it did not rely solely on retrospective teacher reports on classroom teaching practices. By using the videotape to stimulate recall, this study linked teacher thinking to specific teacher behaviors. This procedure produced a clearer connection between thinking and teaching practices than

would have been possible using memory alone (McAlpine, Weston, Berthiaume & Fairbank-Roch, 2006). This procedure also provided an opportunity to examine the extent to which participants' stated beliefs about teaching were reflected in their actual teaching practices, e.g., espoused theories and theories-in-use (Argyris and Schon, 1977).

Interviews

Critical data for this study were collected using in-depth, semi-structured interviews. The in-depth interview provided an opportunity to gather information that would have been unavailable otherwise. Patton (2002) explained the value of the in-depth interview as a means to "enter the other person's perspective" (p.341). The in-depth interviews in this study made it "possible for the subjects to organize their own descriptions, emphasizing what they themselves find important" (Kvale, 1983, p.173).

Much of what teachers understand about teaching is tacit knowledge which is often difficult to articulate (Kagan, 1992). However, probes were used to ensure that individual experiences and beliefs were explored in sufficient depth so as to adequately reflect the phenomenon of interest. Through this process, the study endeavored to make explicit the beliefs and intentions of exemplary faculty concerning critical thinking and how they attempted to infuse it into the community college classroom.

The researcher chose to use semi-structured interviews because they allowed "the participant's perspective...to unfold as the participant views it, not as the researcher views it" (Marshall & Rossman, 1999, p.108). Important information was uncovered through the stories of participants as they shared their understandings of teaching for critical thinking. The choice of interview protocol was also based on the assumption that the "perspective of others is meaningful, knowable, and able to be made explicit" (Patton, 2002. p.341).

Because the research design for this study utilized interviews with several individuals, a certain degree of consistency in the interview protocol was needed to ensure that all participants addressed the same basic questions. A semi-structured format provided a general framework for the initial interviews but allowed the flexibility necessary to pursue promising issues that surfaced during the interviews. An Interview Guide (see Appendix A) helped structure the interviews.

The researcher began each initial interview with questions that were relatively neutral (Merriam, 1998). This allowed participants to become more comfortable with the interview process before asking any questions that might have been perceived as more intrusive. Two hours were requested for the initial interviews.

Three interviews were conducted with the final six participants. As stated earlier, the first interview was a semi-structured, in-depth interview. The Interview Guide for this study (see Appendix A) was developed to address some general factors that might influence instructors and teaching practices. The interview included questions about how instructors had constructed their understandings of critical thinking, what they perceived to be their role in a classroom that fosters critical thinking, their beliefs about how critical thinking could be taught, and their perceptions of the value of critical thinking in the classroom.

During a second interview, each participant was asked to review the videotape of his/her class with the researcher and to describe how his/her actions in the classroom reflected his/her beliefs about critical thinking. Additionally, the researcher reviewed the videotape prior to the second interview and made notes about instructor behaviors to be explored in more depth during the interview. Several key behavioral events were flagged because of their connection to the literature on critical thinking (see Appendix F).

Participants were asked questions based on the videotape, but were also invited to stop the videotape to comment on any actions that they wished to discuss. Questions concerning course syllabi or course tests were also included as appropriate.

A third interview took place approximately six months later. This was in response to an initial analysis in which the collected data did not demonstrate a saturation of data. The researcher believed that additional data collection might generate themes that had not emerged during the initial analysis, or confirm previously identified themes. She determined that a third interview with participants would provide the thick description necessary for her to test her emerging understanding of the data. During the intervening months between the second and third interviews, participants suggested that they had spent significant time reflecting on their teaching practices. The discussion and videotapes served as a catalyst for what Schon (1983) described as “reflection-on-action” (p.278). The insights shared by participants during the third interview provided for further saturation of data. That is, participants volunteered that they had made changes in their teaching practices based on reflection on the interviews and videotaped class sessions of the study. Another set of interview questions (see Appendix I) was developed to supplement and enrich the information collected during the initial interviews and to address gaps in the researcher’s understanding of the data. Specifically, the researcher wanted to explore in more depth participants’ beliefs about any differences between effective teaching and teaching for critical thinking. She also wanted to follow-up on participants’ views about limiting or enhancing factors vis-à-vis teaching for critical thinking. Interview questions were sent to participants in advance via email to give them an opportunity to think about the questions prior to the actual interview. The third interview took approximately one hour with most

participants.

Videotapes of Instructors' Teaching Practices

Observation of participants actually teaching a class helped move the researcher toward a broader understanding of the case (Stake, 1995). In this case study, one class session was videotaped by the researcher. Participants and the researcher jointly determined which classes to videotape. In some cases, instructors had particular classes that they wanted videotaped; and in others, it was strictly a matter of convenience in scheduling.

The researcher videotaped each instructor teaching at least one class. In so doing, the researcher was able to discuss with participants their actual teacher behaviors and how those behaviors coincided with their stated beliefs about teaching for critical thinking. It was believed that videotaping classes presented a more complete and accurate picture of behaviors than relying solely on observer notes about teaching practices. The videotaped class was reviewed with the instructor during the second interview session and provided the basis for discussion of beliefs and intentions that informed the teaching practices of participating instructors.

An observation protocol (see Appendix B) was used as a tool to help collect observational data and supplement what was captured on videotape. The role of the researcher was that of non-participant observer, and notes were taken unobtrusively while videotaping each class. The notes, in addition to the videotape helped the researcher frame the prompts for the second interview. Immediately following the observations, the researcher converted the field notes into write-ups (Miles & Huberman, 1994). This process allowed the researcher to more clearly describe the setting, interactions, behaviors of interest, and any follow-up questions for the second interview.

Course Documents

Documents “constitute a particularly rich source of information” in a qualitative research study (Patton, 2002, p.293), and can help to effectively communicate the values and beliefs of participants in a real and concrete way (Marshall & Rossman, 1999). This study supplemented data collected from interviews with course documents, which served as substitutes for activities to which the researcher did not have access (Stake, 1995). Additionally, course documents are nonreactive and therefore unaffected by the research process (Merriam, 1998). This is especially relevant when so much of qualitative data is open to interpretation.

The documents collected in this case study helped support and strengthen evidence from other sources (Yin, 2003). For this research, the author thought it important to collect copies of course syllabi for the observed classes, tests, and major assignments. By collecting course syllabi, the researcher was able to determine if instructors made the goal of critical thinking explicit through inclusion as a course objective. Course tests and major assignments also provided evidence of how instructors made visible their beliefs about critical thinking.

A contact summary sheet (Miles & Huberman, 1994) was used to briefly outline important issues and lingering questions that resulted from each contact (see Appendix C). This sheet helped organize data as they were collected. Although data collection and analysis were outlined as distinct components of this qualitative research study, it is sometimes recommended that both steps be carried out in conjunction with one another (Marshall & Rossman, 1999; Merriam, 1998). This recommendation was followed in the work presented here.

Data Analysis

The challenge of qualitative analysis is to transform large amounts of raw data into findings that communicate the essence of what the data reveal (Patton, 2002). The process is highly intuitive and only recently have resources been developed to adequately describe and explain the process of qualitative data analysis (Merriam, 1998).

Data analysis for a case study begins by making a detailed and comprehensive description of the case including important contextual cues (Creswell, 1998). To aid the reader in better understanding the environment in which study participants exist, a narrative description of participants is included (see Appendix J). However, description is only the beginning of data analysis. Marshall and Rossman (1999) offer a developmental approach to data analysis, suggesting that the typical qualitative research study includes six phases. These are: “(a) organizing the data; (b) generating categories, themes, and patterns; (c) coding the data; (d) testing the emergent understandings; (e) searching for alternative explanations; and (f) writing the report” (p.152). These general guidelines were followed in this study and provided a basic framework for discussion.

Data for this study were organized by the researcher using a notebook and redundant electronic files. Interview transcripts, critical incident questionnaires, researcher field notes, instructor schedules, informed consent forms, and all course documents were kept in binders and categorized by instructor for easy access. Each case was examined in its entirety. Interview transcripts were read several times along with observation notes and course documents. This recursive process helped the researcher to consider various interpretations of the data (Merriam, 1998).

Although the researcher was intent on allowing the process of categorization to emerge

from the voices of participants, the interview questions themselves and the researcher perspective were grounded in the extant literature on critical thinking and teacher beliefs. In other words, the researcher was guided initially by concepts described in the literature, but shifts and adjustments were made during the process of analysis in order to capture the indigenous categories of those interviewed (Marshall & Rossman, 1999; Patton, 2002).

This multiple case study employed two stages of analysis. The first stage, within-case analysis, examined data gathered from each instructor separately, as if it were a single, comprehensive case. When the analysis of each individual case was completed, the process of cross-case analysis could begin. This process allowed the researcher to “see processes and outcomes that occur across many cases, to understand how they are qualified by local conditions, and thus develop more sophisticated descriptions and more powerful explanations” (Miles and Huberman, 1994, p.172).

Through both stages, a two-level coding scheme was used in the analysis of data. Analysis began with open coding and was descriptive in nature and involved little interpretation. The indigenous typologies reflected faculty beliefs and practices concerning critical thinking (Patton, 2002). This inductive, context-sensitive approach was selected because it closely reflects the language used by participants. The intent was to create categories that were “internally consistent but distinct from one another” (Marshall & Rossman, 1999, p.154). The next task was to re-examine the initial categories to determine any relationships among them. Pattern codes, the second level of coding, provided more interpretation of the data in an attempt to create a “conceptual web” (Miles & Huberman, 1994, p. 63) that conveyed larger meanings. A cross-case analysis revealed themes that cut across cases. However, the researcher also looked at the evidence within each case so as not

to make unwarranted assumptions about patterns or themes.

The researcher expected the first interviews to be more reflective of the stated beliefs of the participants and that the second interview, based on the videotape of classroom sessions, would reflect more their beliefs-as-practice. These terms borrow heavily from the work done by Schon and Argyris (1974) on espoused theories and theories-in-use. However, both interviews included discussion about beliefs and practices and were not coded separately. As themes emerged from the data, the researcher tested her emergent understandings (Marshall & Rossman, 1999) by reviewing the data for disconfirming cases, determining the relevance of the data to the original research questions, and searching for alternative explanations that might fit the research data.

Quality, Rigor, and Trustworthiness

Stake (1995) cautions all researchers to be accurate in their efforts to measure phenomena and to use logic during the work of interpretation. This advice is especially relevant in qualitative research where the researcher is considered to be the primary instrument in collecting and analyzing research data (LeCompte & Preissle, 1993). This multiple case study employs several strategies to ensure that the research has integrity and rigor.

One such strategy was the triangulation of data sources. In using multiple sources of evidence, the researcher created “converging lines of inquiry” (Yin, 2003, p.98). Denzin and Lincoln (2000) described triangulation as the “display of multiple, refracted realities simultaneously” (p.6). This study used in-depth interviews, videotaped instructor observations, and course documents to provide a more holistic representation of the beliefs and practices of instructors than would be possible with a single data source.

The researcher used an interview protocol so that all participants had the same opportunity to address the interview questions. Interviews were recorded using a digital voice recorder and later transcribed. Verbatim transcripts of the interview recordings were completed within one week of the interviews and shared with participants to verify accuracy of meaning and intent. In this process of member checking (Stake, 1995), participants were invited to examine the transcript for accuracy and provide “alternative language or interpretation” when appropriate (p.115). Only one instructor suggested any changes to the transcripts. His revisions expanded upon his earlier comments, but did not substantively change his responses. The researcher also contacted three instructors via email to request clarification on some of their comments. Their responses were incorporated into the interview transcripts. This process added to the trustworthiness of the study.

As participants were interviewed, they were assigned a pseudonym to ensure confidentiality. Only the principal researcher had access to the actual names of participants. By sharing the rigorous standards of confidentiality used by the researcher, it was hoped that participants would feel free to be open and candid.

Creating write-ups began the audit trail (Merriam, 1998; Patton, 2002) which could verify the rigor of the fieldwork and helped make the research procedures and findings transparent to the reader. Data were collected, coded, and filed in an organized way that would facilitate retrieval and maintain the audit trail. The research design and methodology were clearly detailed so that readers could understand how the researcher arrived at the stated results.

The researcher included a bias statement (see Appendix G) acknowledging initial assumptions and perspectives that could have influenced the design of the research or the

interpretation of data. A research journal was also used to chronicle the development of the study and to provide a paper forum for the reflections and insights of the researcher. This process of reflection and self-disclosure added to the credibility of the study.

A colleague with experience in qualitative research was asked to review the transcripts as a way to verify or question the themes initially proposed by the researcher. Discrepancies in analysis were discussed until consensus was achieved. “Important insights can emerge from the different ways in which two people look at the same set of data, a form of analytical triangulation” (Patton, 2002, p.464).

CHAPTER FOUR: DISCUSSION OF FINDINGS

This qualitative multiple case study is designed to explore the beliefs of exemplary community college instructors regarding critical thinking, a generally recognized goal of higher education. With over 40% of traditional-age college students entering post-secondary education via the community college, it is important to understand how the community college experience influences the development of students' critical thinking skills. However, there is limited research at the community college level regarding faculty roles and practices in helping to develop the critical thinking skills of students.

The study examined how participants believed they contributed to the development of critical thinking in community college students. The questions that guided the study were:

1. How do exemplary community college instructors describe their understandings of critical thinking and what it means to teach for critical thinking?
2. How do instructors describe their roles in helping students develop critical thinking skills?
3. What critical thinking skills do exemplary community college instructors want their students to develop?
4. What teaching practices do exemplary instructors use to help their students develop their critical thinking skills?

Findings from this study are presented in five areas. The first section examines how participants describe their understandings of critical thinking. This section also explores the participants' journeys in becoming teachers for critical thinking. In section two, instructors describe the relationship between effective teaching and teaching for critical thinking. The third section explores the instructor's role in helping students develop critical thinking skills.

The next section explores the instructional goals of participants, vis-à-vis critical thinking and the teaching practices they employ to achieve those goals. A comparison of participants' stated beliefs about critical thinking and their actual teaching practices is presented in the final section.

Instructor Understandings of Critical Thinking

To better understand participants' beliefs about what it meant to be a teacher for critical thinking, it was necessary to explore how instructors constructed their understandings of critical thinking. Without first knowing how participants made meaning of critical thinking, it would be difficult to understand the relationship between beliefs about critical thinking and teaching practices that support its development.

Indeed, participants appeared to struggle to find words to accurately reflect their beliefs. Several instructors mentioned that they had not spent much time trying to describe their understandings of critical thinking. They had each internalized an understanding of critical thinking in their own, idiosyncratic way with little need to explain or defend that understanding. In fact, prior to participating in this study, few of the participants had ever been asked to discuss their beliefs about what it meant to teach for critical thinking. During the initial interview, instructors were asked to define critical thinking. At that point, their understandings appeared to be more tacit than articulated. However in subsequent interviews, they tended to frame their understandings of critical thinking within the context of actual experiences as teachers. In those instances, they espoused more clearly delineated ideas and beliefs about the nature of critical thinking and what they do to nurture it in the classroom.

Instructors felt that their understandings of critical thinking were evidenced through their teaching practices, even when they could not clearly communicate those understandings. While they may not have produced a “textbook definition” as one instructor put it, participants did believe that their understandings were adequate for what they hoped to accomplish in the classroom. They all considered critical thinking an important goal in their classrooms and believed that they were helping their students develop those skills.

Participants suggested that their understandings of critical thinking were products of personal experiences rather than adherence to a particular theoretical framework. Their beliefs about critical thinking had developed gradually throughout their careers as students and teachers. Most saw this development as unintentional and unconscious. For example, Ronda suggested, “In some ways it is easier to explain what it isn’t, rather than what it is. It [critical thinking] is very complicated and I feel that I am just on the doorstep of understanding what it is.” Similarly, Bruce described his understanding of critical thinking as “vague,” although he felt that he was encouraging critical thinking in his classes. In fact, he admitted that until a few years ago, he would not have been able to provide any definition of critical thinking. Only recently in his career had he begun to reflect upon the meaning of critical thinking and the implications for his teaching.

When asked to share their understandings of critical thinking, instructors used a variety of terms to describe their conceptualizations of the term. While their responses did not suggest adherence to a clearly articulated definition of critical thinking, participants shared certain beliefs about the nature of critical thinking. Although some instructors’ views of critical thinking were more highly elaborated than others, four key elements emerged as central to their understandings of critical thinking. These elements included the ability to: 1)

see the common threads in seemingly disparate subjects; 2) recognize the value of multiple perspectives; 3) exercise prudent skepticism; and 4) articulate and defend a position. The four elements did not fit neatly into four distinct categories for these participants. There was considerable overlap, but each represented a slightly different perspective that added to a deeper understanding of critical thinking for these instructors. Interestingly, these understandings of critical thinking were revealed within the context of discussions about teaching and learning as opposed to descriptions of critical thinking as an abstract concept.

Seeing Common Threads

Instructors suggested that critical thinking required the individual to see aspects of commonality in ideas that, on the surface, appeared unrelated. Participants believed that critical thinking challenged students to see beyond the literal and the present in order to see how seemingly dissimilar subjects might be connected through time or context. Throughout their interviews, participants spoke about the importance of helping students develop a broader perspective by understanding the underlying issues and connections. Participants believed that critical thinkers did more than just understand a concept; they also saw how a concept influenced and was influenced by other events, issues, and contexts.

For example, one instructor encouraged his students to consider how politics might influence economics, and how the economy of the period might be reflected in a piece of art. He wanted students to recognize the interconnectedness of their worlds. In a similar way, Holly described the importance of making connections in history:

In history it is not enough to know what has happened in the past and describe it, but to be able to understand how and why – not just in a linear fashion. Sometimes students can tell a beautiful story about presidential history but not understand how race and

class play a role in politics. Some of the students know all the facts but don't understand some of the deeper issues. For me, it is not only the story line but the other issues that may not seem related on the surface and then apply it to the world around us now.

David described this process of discerning the common threads as “bridge building.” For him, critical thinking meant seeing the underlying connections or patterns. As students discovered the connections between ideas, they built an intellectual bridge that gave depth, breadth, and substance to their understandings. Several instructors reported challenging students to “take a step back” in their thinking in order to gain a broader perspective. Participants expected their students, as developing critical thinkers, to look for the common threads that connected the subject matter within a larger context.

Although all the participants believed in the integrated nature of learning, instructors felt that many of their students came to college accustomed to thinking in silos. According to David, silo thinking meant learning a topic for a particular subject and in a particular context without understanding the broader implications. He felt that students often failed to see the relevance of the content beyond the boundaries of that particular classroom. In other words, instructors believed that student thinking, as it related to course content, tended to be compartmentalized rather than integrated, and superficial rather than deep. David said that students were often amazed to discover that what they learned in American literature was related to what they learned in American history. Participants felt that as critical thinkers, students should be able to discern those relationships; that only through seeing the common threads could students begin the process of critical thinking.

If instructors believed that critical thinking was about connecting ideas, then one could have expected to see evidence of their beliefs in the classroom. During observed classroom sessions, participants typically invited students to relate comments or insights to other topics or comments from previous classes. Instructors encouraged their students to look for possible connections between the issues under discussion and students' experiences. For instance, Lana suggested that she frequently used class discussion to invite students to "...share different points and ideas. They can then take these different viewpoints and synthesize them to the point that they have a fuller understanding of the questions and answers involved in the issue."

Bruce asserted that, "When I see them begin to make those connections, then I feel that my job is done." He specifically commented on the importance of helping students see the common ground in his religion classes. He believed that there was more that united students than divided them. That is, students had many characteristics in common, but often chose to focus on the traits that separated them. He wanted to help students see the interdependence that bound together people, events, and beliefs. Over the years, Bruce had seen students become rigid and intractable when discussing religious issues. He wanted students to see the underlying similarities that existed beneath the surface. For him, connecting ideas to form more complex understandings was a foundational aspect of critical thought.

Appreciating the Value of Multiple Perspectives

Participants suggested that thinking critically required stepping outside of one's typical way of looking at the world to consider other viewpoints. Often those other viewpoints offered interesting insights and opportunities for learning. Instructors believed

that opening one's mind to other ways of seeing the world was a crucial step in making progress towards thinking critically.

Appreciating multiple perspectives was more than just a skill to be learned; it was also an attitude to be cultivated. Participants believed that such an attitude of openness required a certain tolerance for ambiguity. Being open to ambiguity meant letting go of a personal attachment to a position, at least to the point of being able to hear and understand other perspectives.

Bruce found that students often came to his class with deeply entrenched beliefs about religion. He found that helping students open themselves to other ways of thinking about religion was a necessary but sometimes risky exercise. His intent was not to have students abandon their beliefs, but to better understand how others might believe differently. He wanted his students to form judgments after having openly considered different perspectives. He considered his religion class an excellent training ground in the development of such thinking.

In fact, all participants in this study believed that their particular disciplines were especially well-suited for exposing students to different worldviews. For David, the intersection of different points of view was what made history a natural breeding ground for critical thinking:

We all have different points of view. History is interesting, in part, because you have different legitimate viewpoints. For instance, there is a British perspective on the American Revolution and an American perspective. Although different, both have something to add to our understanding.

Some instructors purposefully designed their classes to encourage students to share

their perspectives during discussions. Participants created time and space for students to exchange ideas and perspectives. For example, Lana designed her sociology class so that students were expected to address issues from three different theoretical frameworks. She felt that by structuring the course in this way, she was sending the message that there was never just one way to look at an issue.

In her design class, Rhonda developed a review process that encouraged students to critique the work of fellow students. She believed that artwork improved when different viewpoints were considered. She hoped that her design students would see contrasting viewpoints as an opportunity to gain insight. “When they communicate to each other through another person’s eyes, they begin to think more critically about their work.”

Participants believed in the importance of considering multiple perspectives as a part of learning to think critically. They also felt that students often entered college unprepared to think in such a manner. Instructors reported that many students entered their classes with a right or wrong mindset. Students were more interested in getting the right answer than thinking through the complexity and messiness most issues required. Regardless of the challenges, instructors stated that they were committed to helping their students open their minds to other ways of seeing the world. They wanted their students to appreciate the potential value of other viewpoints and to understand the origins of other perspectives. As Holly put it:

I want to plant seeds of how to view the world from different perspectives, understanding that you don’t have to agree with them. You may strongly disagree; but being able, even if just for a moment, to put oneself in someone else’s shoes...A lot of

it is trying to breakdown that simple black/white world that many of them live in and show them that the world is complicated.

In the observed classes, there were many instances where instructors challenged students to think more critically by playing devil's advocate to introduce other ways of viewing an issue. Students were expected to keep an open mind while they listened to other, often contradictory positions. Although instructors explained to the class the purpose of playing devil's advocate, students often had trouble separating the speaker from his comments. Holly mentioned that students frequently stopped by after class to challenge her about "advocating an unpopular position." In using this technique, she hoped that students would gain an appreciation for how others might see the world in different ways.

Exercising Prudent Skepticism

For many instructors, developing an attitude of prudent skepticism was another important aspect of thinking critically. By prudent skepticism, they meant a tendency to temporarily suspend judgment, knowing that seldom does one have access to all the needed information nor can all information be assumed to be 100% accurate. Prudent skepticism was considered a rational response to situations involving claims to truth. According to participants, an attitude of prudent skepticism was valuable to critical thinking in two important ways: 1) it helped develop a habit of critical examination; and 2) it moved one toward more informed decision-making.

However, participants felt that some students did not truly believe that they had permission to critically examine information from a textbook or information provided by a teacher. This was especially true for younger students and students who were new to higher education. "They assume that because it is in a textbook, it must be true," suggested one

instructor. Participants recognized the value of having adequate and credible information. Therefore they believed that critical thinkers should avoid a rush to judgment, preferring instead that students take time to wonder about the issues under discussion and evaluate the available evidence. Instructors wanted students to realize that not only did they have permission to critically examine what they read and what they were told, but also a responsibility to do so. Holly believed that her students, as critical thinkers, should be able to draw their own conclusions based on their own reasoning rather than automatically accepting the judgments and conclusions of those in positions of authority.

Several instructors used political examples to illustrate how statements from those in power could sometimes mislead, either intentionally or unintentionally. Instructors encouraged students to think about such things as motive, bias, relevance, context, and credibility. As critical thinkers, students were admonished not to accept everything at face value. For example, Holly cautioned her students about political posturing, advertisements, and newspaper articles. She told her students that “we can easily be controlled if we don’t question what we are being told.” Lana shared similar sentiments and challenged her students to question the social norms that have influenced society. She wanted students to understand that norms were socially constructed and not ordained by God. She emphasized the importance of having an attitude of prudent skepticism; “I will know they are really becoming critical thinkers when they have more questions than answers.”

Participants believed that the critical thinker must always question claims to absolute truth and be skeptical of those who offer the only answer. For example, Phil was especially interested in having his students consider the motives of various writers. From his perspective, nothing was value-free and the critical thinker must be aware of and take into

consideration possible biases. Instructors believed that critical thinking began with questions and an attitude of inquiry.

Articulating and Defending a Position

The ability to clearly communicate one's position on a topic and then provide convincing, or at least credible evidence to support that position was the final element in participants' understandings of critical thinking. Participants believed that critical thinkers should be able to evaluate evidence before taking a position. In so doing, students collected confirming or disconfirming evidence that also allowed them to adjust their position, if necessary. Through the process of articulating and defending a position, students clarified their thinking and were better able to provide a rationale for their beliefs. In her sociology class, simply stating a position was insufficient. Lana expected her students to:

make the argument but then they damn well better be able to justify their arguments. Not only do you have to justify getting from point "A" to point "B," but why you didn't consider certain information. It is not just memorizing something and spitting it out. It is building arguments and considering all this information as you do so.

Phil was less concerned about students' ability to find the right answer than about their ability to forge and defend a point of view on a literary text or contemporary issue. He believed that a critical examination of the text produced a deeper understanding of the topic. Sometimes that meant asking the student to take an intellectual risk by going beyond a superficial understanding and trying to ferret out what the author was really trying to say. "There are no wrong answers, as long as you can defend your point of view," he said. Like many of the instructors, Phil believed in the importance of asking students to commit to a position. That act alone helped students clarify their thinking on an issue.

In some disciplines, even the idea of right or wrong was quite foreign. For example, art, as a discipline, had a high degree of subjectivity. However, Rhonda did not feel that the subjective nature of art eliminated the need to explain or justify one's opinion about a work of art. She expected her students to take a stand. Simply stating, "I like it" was considered an insufficient rationale. Students were expected to explain why they liked or did not like a piece of art. Rhonda wanted her students to develop their own evaluative criteria to explain their likes and dislikes. She did not judge a student's position on a question; instead, she assessed the quality of the student's rationale in coming to that position.

In a similar way, Bruce challenged his students to back up their beliefs with evidence. For instance, during a discussion of impermanence in Buddhism, students were quick to offer an opinion. The discussion was spirited and fast-paced, but Bruce did not let it evolve into a debate about personal beliefs. He reminded students to support their statements by referencing the book, previous discussions, or other relevant material. He allowed students certain latitude in where they took the discussion; however, he always asked that their suppositions be supported by evidence.

Summary of Instructors' Understandings of Critical Thinking

Each instructor acknowledged the importance of critical thinking in becoming an educated citizen. They considered themselves critical thinkers and encouraged their students to develop as critical thinkers. Although participants thought of themselves as critical thinkers, they often had difficulty in clearly describing their understandings of the concept. Their understandings were not easily articulated because, as several instructors suggested, they were unaccustomed to having to explain their beliefs.

Few of the instructors had completed any formal training in critical thinking. All of the participants, even those with formalized training suggested that their beliefs about critical thinking were a product of personal experience rather than adherence to a particular theoretical model. They did not describe themselves as critical thinking experts; however, they did believe that their understanding of the concept was adequate to work effectively with students in developing their skills as critical thinkers.

While none of the instructors offered what they considered a textbook definition of critical thinking, there were similarities in their beliefs about the basic nature of critical thinking. Four elements emerged as integral to participants' understandings of critical thinking. These exemplary instructors understood critical thinking as the ability to: 1) see the common threads in seemingly disparate subjects; 2) recognize the value in multiple perspectives; 3) exercise prudent skepticism; and, 4) articulate and defend a position based on credible evidence.

Journey to Teaching for Critical Thinking

Unlike Botticelli's *Birth of Venus*, teachers seldom emerge from graduate school re-born as expert practitioners. Most teachers experience significant changes in how they approach teaching as they journey from novice to seasoned professional. The six participants in this study recounted how they developed their personal understandings of what it meant to teach for critical thinking. All described a professional journey through which their teaching beliefs and practices were tested. As novices, some were terrified to face a room full of students; some lacked confidence in their abilities; and some entered the classroom feeling equal to the task. As participants matured as professionals, they refined their teaching skills.

At the time of the study, each instructor had been identified by supervisors and colleagues as an exemplary teacher for critical thinking. Although considered exemplary, participants described their own understandings of critical thinking as merely adequate. Participants believed that helping students develop their critical thinking skills was an essential goal of education; however, they were sometimes unclear about their role in helping nurture those skills. They felt that they were still evolving as teaching professionals, especially in teaching for critical thinking. As teachers, they tried to find a balance between teaching the fundamental concepts of the discipline and challenging students to think about those same concepts in a critical and reflective way.

When the participants began their careers, their attention was often focused on the mechanics of teaching, i.e., filling the 50 minutes allotted for the class, keeping the overheads in order, covering the material indicated in the syllabus, or getting through the lecture without embarrassing themselves. Lecture was typically the default teaching strategy, in part because it was the instructional approach with which they were most familiar. In addition, there were few resources available to educate them in the use of other teaching strategies. When they sought out alternatives to lecture, they often felt that they were “on their own,” as one instructor described. Therefore, their teaching often evolved through a process of trial and error.

Even as novice teachers, participants viewed critical thinking as an important goal of higher education. However, they were often unclear as to how to introduce it into the classroom. For instance, Bruce acknowledged that “until about five years ago, I could not have told you what critical thinking was. I thought I was doing it in my classes, but that was more at an intuitive level. I think I would approach it a little differently now.”

As they matured as professionals, participants began to think more about the quality of their teaching, the quality of the learning, and the purpose of higher education. They also reported a parallel shift from a lecture-focused approach to a more interactive and collaborative approach to teaching and learning. For many of the participants, the most fundamental purpose of higher education was to help students learn how to learn and then to think critically about what they were learning. Phil asserted, “If you are not bringing in critical thinking, what is the point? What kinds of skills do you want your students to leave with? If you just want to teach the facts, what are you doing in the classroom?”

While individual paths varied, there were common threads that connected instructors’ stories. These threads represented aspects of how they had come to understand teaching for critical thinking, and how they had developed confidence and competence in nurturing students’ critical thinking skills.

There were four common elements in their progress from novice to “not quite expert teachers,” to use the words of one instructor. These common elements included creating an environment to challenge and support students’ higher-order thinking, teaching with intention, reflecting on teaching, and using personal experiences as a tool for teaching.

Creating an Environment of Challenge and Support

Two of the most influential motivating factors that led participants to teaching were a love of the subject and an interest in helping others learn. They all began their teaching careers with a concern for students and a desire to become what they considered a good teacher. Being a good teacher meant challenging students to think about the subject in a way that enhanced their understanding. It also meant providing the support and encouragement needed to nurture the higher-order thinking they expected of college students. By creating an

environment that both challenged students to think in a more critical way and supported them in their efforts to do so, participants believed that significant learning could take place.

Teaching presented an opportunity for participants to make a difference in the lives of their students, especially at the community college where students were often academically or financially disadvantaged. Participants wanted to help students become independent thinkers, but they weren't always sure how best to accomplish that goal. Rhonda suggested that instructors often struggled to find the right balance between "raising the bar" on student thinking, and simultaneously communicating care and support. In other words, Rhonda wanted to challenge students to exercise their critical thinking skills, but to do so in a way that was not intimidating or dismissive. This balance of challenge and support was often a difficult path for instructors to negotiate.

Participants acknowledged the potential havoc that could be caused by asking students to think critically. In asking students to question some of their taken-for-granted beliefs, participants challenged students to examine "the core of their being," as described by one instructor. Instructors believed that challenging questions could be successfully introduced only when students felt supported and their beliefs respected. Without having first established a trusting environment, students were unlikely to expose their beliefs or formative understandings to review or critique. Lana shared an experience where she, as a college student, felt unsupported as she struggled to understand important social issues:

When I was in school, I saw a disconnect between what I was learning in school and the way my parents viewed the world. I would come home and tell them what I learned and ask those *why* questions. They would say, "What you learned in school is just wrong." We learn that racism is wrong in school but then you see the world

condoning racism. Some people still refuse to acknowledge it or discuss it. What do we do with that?

Lana insisted that her most significant learning in college came from experiences that she considered uncomfortable and provocative. Those experiences helped her realize how vulnerable students could feel when asked to think about their worlds differently. She was concerned not only about creating a supportive environment for her students, but in explicitly communicating her concern and support. She wanted to introduce her students to critical thinking in a nurturing environment where they trusted the teacher and the surroundings. Indeed, all participants recognized that thinking critically might force students to renegotiate their sense of self and their place in the world. Participants wanted to create a safe space where that could happen.

Each instructor had a unique way of showing concern. Phil began several classes by making announcements about possible scholarship opportunities. He explained, “Just going over the...scholarship opportunities sends the message that they are in a supportive environment. You are saying through the announcements that, ‘I care about you’.” Phil asked questions designed to elicit careful thought and judgment. However, he wanted students to focus less on whether or not they got the right answer and more on the soundness of their reasoning. He asked that students take an intellectual risk and trust that he would provide appropriate guidance and support. His practice of honoring the efforts of his students was his way to demonstrate support. As long as students made a genuine attempt to respond, he treated their comments with respect. He recognized and appreciated the courage required to publicly share one’s thoughts.

Bruce tried to communicate his concern by making himself available and approachable. He frequently came to class early or stayed late to chat with students who wished to “continue the dialog,” as he put it. Bruce also volunteered with student leadership groups as a way to connect with students and to show his interest in their lives outside the classroom. For Rhonda, it was her overwhelming sense of enthusiasm and optimism that conveyed her concern for students. “I am so excited and passionate and over the top,” she said. Rhonda communicated her passion and energy in helping students begin to think of themselves as artists and thinkers.

Even as novice instructors, participants attempted to provide an appropriate level of challenge and support to help students develop as learners. However as they gained experience, other aspects of their teaching changed. Some changes were subtle and some were more dramatic. Participants described becoming more intentional in their teaching, more reflective about their teaching practices, and more open to the use of personal experience as a resource for teaching and learning.

Teaching with Intention

Most participants in the study came to the college classroom with little or no pedagogical training. Although they were considered content experts, most were uncertain about how best to communicate the content to their students. Participants were clear about what they hoped to achieve in the classroom, but less sure of the means by which their goals could be accomplished. They felt that there was little to guide them during those first years in the classroom, and often relied on their own experiences as students for ideas about how classes should be taught.

Lecture was the instructional strategy with which participants were most familiar. They lectured, not because they believed it was always the best choice, but because they were unsure of other teaching options. Most participants described their early years in teaching as predominantly lecture based. According to Bruce, lecture represented his “teach as I was taught and hope for the best” method.

Holly was also influenced by her experiences as a learner. As a college student, Holly remembered having really complex discussions in many of her college classes and wanted her students to have a comparable experience. However, when she tried it in her own classroom, she was often disappointed with the outcomes:

When I first started teaching, I would try to have these open, unstructured discussions that were similar to what I remembered from college. People were not prepared. I found that students were not getting much out of it and I was not happy with the results.

She was uncertain as to how to help her students engage in similarly complex discussions. If students thought more critically about the subject under discussion, she believed that they would then be prepared to enter into the discourse at a more substantive level.

As participants became more familiar with teaching, interacting with students, and classroom management, they expanded their portfolios of instructional strategies. However, they continued to experiment with how to use different teaching strategies to achieve the desired result. In many cases, trial and error was the process by which they improved their teaching skills. Lana recounted a story about her first experience using a PowerPoint presentation. She was excited about using something that she thought might enhance the learning environment. Instead of using the technology to its full advantage, she simply read

the slides verbatim to her students. After noticing a lack of responsiveness from her students, she changed her approach. She elected to abandon the PowerPoint presentation and instead invited questions and discussion. Lana quickly learned to read her audience and adjust her teaching approach to accomplish her objectives for the class.

Through a process of trial and error, personal study, professional development, and dialog with colleagues, participants became more intentional in designing instructional practices to support learning goals. One instructor spoke confidently about her ability to design learning activities that supported “what I want to happen in my classroom with my students.” However she said that as a novice, she was uncertain how everything fit together. “I knew what I wanted the students to do. I knew what I wanted them to get from the class. I just didn’t know if the two fit.” She believed that she had made significant improvements in her ability to purposefully design assignments and activities.

Instructors recognized that if, for example, they wanted to encourage students to be open to multiple perspectives, they had to do certain things to encourage it. They no longer expected students to become better critical thinkers simply through the maturation process or through some kind of cognitive osmosis. As more experienced teachers, they recognized the need to have an explicit plan on how to improve students’ critical thinking skills. They believed that critical thinking could be nurtured through thoughtful course design.

For instance, during a discussion about human nature a student in Bruce’s religion class stated emphatically that “we are all born into sin.” Bruce explained:

I stood back and asked on what was she basing that information. She said from the Bible. I asked her how she might explain someone in China 2500 years ago when they didn’t have the Bible. I saw the look of shock on her face because she had never

stood outside of what she was used to in order to consider another perspective. This is what I try to do to get them to put themselves into this place so as to consider another worldview – to critically think from within that worldview instead of the old stuff that they bring to the course – drop their baggage and be open to other ways of looking at things.

Bruce's efforts were intended to help the student to recognize that there were other legitimate ways of looking at the world. Bruce looked for opportunities to help students consider multiple perspectives because of its importance in developing critical thinking skills.

Ronda, a veteran art teacher, claimed that her teaching had changed 180 degrees during the past few years. She described a shift from predominantly lecture to a much more interactive approach. For instance, she revised her approach to reading assignments, instituted a peer review process, and restructured her project design assignment. The changes were made to create an environment in which students were challenged to think more critically about art. Rhonda explained, "I am now able to conduct my classes in a more intentional way. I specifically use methods that raise the bar on thinking. I am clear in my use of methods that are more connected to what I want to happen."

Phil expressed similar sentiments. He expected any student in his class to be able to state his or her position on a topic and then justify that position with credible evidence. Phil's classes were structured in a way that facilitated such outcomes. After teaching for several years, Phil was confident in his ability to design instructional activities that would help his students develop their critical thinking skills. He identified the fundamental and powerful concepts of the course and designed specific strategies to challenge students to explore those concepts in a substantive way.

Reflecting on Teaching

The intentionality in participants' teaching came, in part from reflecting on their teaching practices. Reflection meant making the time to think about what they wanted to accomplish with their students, what they were doing to reach their goals, and the role they should play in the process. This process provided the opportunity for participants to ponder and interpret what happened in the classroom. Some participants had a history of using reflection to help inform their decisions about teaching, while others had more recently adopted the practice. One instructor talked about carving out time to be by herself to "read and write and really think things through." Scheduled time for reflection allowed participants to examine what they were doing to see if it really encouraged students' critical thinking.

Lana insisted that reflection had always been a part of her approach to teaching. However, she believed that the focus of her reflections had shifted. She felt that she had begun to spend more time thinking about her role in fostering students' critical thinking skills. As a novice, she assumed that students would come to her with good critical thinking skills and that those same students would want to examine the principles of sociology in a deep and meaningful way. After much disappointment and frustration, she began to reflect more on her basic assumptions about her students and teaching. The result of this time spent in reflection was the decision to take a more intrusive approach in helping students develop as critical thinkers.

While Lana had always considered her classes engaging and interactive, she had more recently begun to question her focus and priorities as a teacher. She was unsure how to deal with this uncertainty saying, "This is really hard, and it is me changing my ideas about my

role and my importance in the classroom in order to allow opportunities for deep learning to occur.” She went on to say:

I remember when I first started teaching. I thought I was a big fish in a little pond. I think in part we have to because otherwise the pressure of standing in front of students, acting like we know what we are talking about... can be really be a scary state of mind. I know that my earlier arrogance allowed me to present myself as teacher, but it doesn't necessarily allow one to view one's self as learner. There is a type of power-relationship to that change in perspective.

Lana missed the days when she was sure of herself as a teacher, although she recognized that her self-assurance was part myth and part ignorance.

Bruce explained his success in the classroom as “a kind of chemistry.” By the force of his personality, his passion for the subject, the interaction between student and instructor, and the supportive climate he established, Bruce felt that he was able to create a powerful and dynamic learning environment. Bruce had always assumed that his approach to teaching was successful and that students were developing their thinking skills in the process.

Only recently had Bruce begun to question if he was doing all he could to help his students think critically about religion. He explained that he had always lectured because that was the way he preferred to learn. He assumed that it worked equally as well for his students: “My classes always filled up so it must have worked for them.” During the past three or four years he had begun to evaluate his own approach to teaching. He wanted his students to see his class as more than just “interesting and entertaining,” and had begun to question his goals for students in his class. He explained:

Students don't always learn in the same way that I learn, and I am adapting to that. Reflection is a more recent thing for me. Over the last couple of years, I have become more reflective by asking myself, 'Am I doing the best thing for students? Are they thinking critically?' I have seen an evolution in the way I structure my classes.

In trying to help his students think more critically, he found that spending less time lecturing provided opportunities for students to discuss and reflect on some of the difficult issues in religion. Although Bruce was considered a dynamic and compelling lecturer by many, he felt the need to change his approach to better meet the needs of all his students. This change came about as a result of time spent reflecting on what he wanted to happen in his class. He redesigned his class to better support what he wanted his students to learn before leaving at the end of the semester.

Some of the instructors even mentioned this research study as having been an important opportunity for reflection. They suggested that reviewing the videotaped class sessions and discussing their intentions with the researcher had prompted them to re-think some of their teaching practices. Most participants had never been videotaped in the classroom, and had never had the opportunity to look at their teaching from an observer's perspective. Instructors also said that the process of trying to explain their rationale for their choice of teaching strategies had prompted further reflection.

When Rhonda reviewed her videotaped class, she immediately began to discuss possible ways to change the dynamics of the learning environment. She mentioned her position at the podium and wondered about possible impact on student interaction. "I wonder if they would have been more forthcoming if I had not been standing at the podium.

Perhaps I am sending out an ‘I am the authority vibe’ and they are responding to that,” she mused. Lana also found the videotape a valuable stimulus for reflection. After looking at her videotape, she began to wonder about what she categorized as her “affirming behaviors.” She questioned how students might be interpreting those behaviors. “Are they thinking that I am agreeing with everything that is said?” she wondered. She did not suggest that she wanted or needed to change the behavior, only that she wanted to think about why she was doing it and any possible impact it might have on student learning.

Using Personal Experiences as a Tool for Teaching

None of the participants believed that they had enough time in their classes to cover all the relevant content. Participants struggled with how to use their time in class to the best advantage for the learner. Instructors wanted to maintain the schedule outlined in the syllabus and cover as many fascinating and intriguing aspects of the discipline as possible. Conversely, they also wanted to leave the strict confines of the text and invite students to share how the content related to their lives. Finding the right balance was often difficult.

As novices, instructors were reluctant to give up valuable class time to accommodate what they sometimes perceived as extraneous and aimless student stories. Faculty wanted to keep the focus on the stated objectives of the course. With limited class time, instructors believed that they could not adequately cover the content and allow time for students to share personal experiences. Instructors also resisted providing examples from their own lives, believing that to do so would take the focus away from the content. For example, Bruce was very content-focused as a beginning teacher. He felt that students “didn’t need to know anything about me personally.” His focus was on the content and he was not convinced that personal revelations would add to students’ understandings.

However, as instructors gained experience and confidence, they saw the importance of helping students make the connections between their lives and what was discussed in class. Instructors began to use personal experiences, both their own and those of their students, as a tool for learning. Encouraging students to share their personal stories and perspectives helped create an environment where students could safely examine the roots of their own beliefs. Phil looked for opportunities where students could interject relevant stories into the discussion. He wanted students to understand the material in a way that connected to their lives:

It makes it so easy to work it into what I want to accomplish – their understanding certain material and their ability to relate it to their lives today. The students in the classroom can be a resource just as the text is a resource. They have fantastic lives and experiences and points of view. Their personal histories add richness and relevance to the discussion.

David had also become more aware of his students as individuals and the potential contributions their stories could make to a broader understanding. His thinking shifted from students in the aggregate to individual students who had much to contribute to the discourse. He tried to create a warm and supportive environment where they could feel free to disclose personal stories. David felt that doing so would help them see the connection between what was discussed in class and what was going on in their own lives.

The use of personal stories became a tool for helping students understand the course content in a way that was more contextualized and relevant. Participants found that by introducing a personal connection, they could still cover the most important material but do so in a way that promoted deeper learning. That is, students examined the content more

closely and critically when they perceived that it had meaning for their everyday lives.

Allowing students to explore a concept through a personally relevant context helped them construct their own understandings.

Instructors were also willing to share their own stories when it served an educational purpose. For example, Phil questioned how much he should share about his life in order to appear authentic and approachable to students. He considered this important because he wanted his students to feel comfortable asking questions or challenging what they were told. Phil described himself as “intellectual, articulate, and demanding,” and felt that those qualities sometimes made him appear aloof to his students. He believed he could better connect with his students by sharing appropriate personal aspects from his life.

In Rhonda’s art class, self-disclosure was almost a requirement. She encouraged students to bring up issues from their lives and connect them to what was happening in class. She was also willing to share personal experiences when she thought doing so might illustrate a difficult point or encourage student involvement. For instance, Rhonda shared with her students how she had struggled to understand various aspects of critical thinking. She did this to help students understand the effort required to apply intellectual standards to one’s thinking. She believed that disclosing some of her own challenges as a teacher and life-long learner might validate students’ efforts in trying to understand difficult issues.

As novices, participants were intent on covering the content outlined in the syllabus and exposing students to the elegant mysteries of the discipline. With more teaching experience, instructors came to value personal experiences as an important tool for connecting learning to the everyday lives of students. Instructors believed that they could

improve the quality of the learning experience by creating opportunities for students to connect the course content to personally relevant understandings.

Summary of Instructors' Journeys

Even as novices, these instructors saw themselves as conscientious and effective teachers. However as beginning teachers, their effectiveness tended to be related to their content expertise. According to most instructors, it took a few years of experience and some confidence-building before they began to think about their teaching from the perspectives of broader educational purposes and goals.

Participants suggested that becoming a teacher for critical thinking was an ongoing journey. Although they did not claim to be experts in teaching for critical thinking, they believed that their teaching had become more purposeful and focused. Interestingly, their teaching had evolved in ways that they did not always anticipate. They had expected to improve the technical aspects of their teaching. For example, participants believed they would improve their classroom time management skills and the ability to handle student discipline issues. However, they had not anticipated the philosophical shifts that many experienced in regards to their teaching. In progressing from novice to accomplished teaching professional, participants related key aspects of how they had come to understand teaching for critical thinking. The key aspects these exemplary instructors described included: 1) creating an environment to challenge and support; 2) teaching with intention; 3) reflecting on their teaching; and, 4) using personal experiences as a tool for learning.

Effective Teaching and Teaching for Critical Thinking

In discussing beliefs about teaching that supports critical thinking skills, participants appeared to use effective teaching and teaching for critical thinking almost interchangeably.

Both terms were used to convey a general sense of what should happen in the classroom. When asked to explain their understandings of the two terms, they provided unique perspectives on what they described as the intersection of effective teaching and teaching for critical thinking.

Instructors' perspectives could be described in one of two ways. Some instructors viewed effective teaching and teaching for critical thinking as synonymous. In essence, one could not teach effectively without teaching for critical thinking. They believed that effective teaching meant helping students develop their higher-order thinking skills in order to become independent thinkers. Other aspects of teaching could be bundled together as issues of "classroom management," as one instructor stated. A second perspective suggested teaching for critical thinking as an important subset of teaching effectively. They understood effective teaching to be a broader concept, encompassing the administrative, organizational, informational, and personal aspects of teaching. They believed that teachers could be effective in different aspects of their teaching. For example, one might be considered an effective teacher in terms of one's ability to manage the class. This subtle difference was significant in that it related to participants' priorities in the classroom.

For instance, Lana felt that teaching for critical thinking and effective teaching were one and the same. In her sociology class, Lana viewed critical thinking as a required activity, the *raison d'être* for the class. From her perspective, she could not be an effective teacher if she did not help students develop their critical thinking skills. She believed that sociology, as part of the general education core, was required specifically because it challenged students to think from different sociological perspectives. Lana saw this as an essential element in learning to think critically. She insisted, "I am effective when I am teaching for the

objectives of the sociology class which is to teach students to think.” Phil took a similar position stating that, “In a literature class, you can’t be an effective teacher without teaching for critical thinking. Effective teaching is teaching for critical thinking.”

For these participants, the other aspects of teaching were important but somewhat ancillary. The administrative, organizational, and personal components of teaching were seen as necessary but not sufficient in becoming an effective teacher. For example, Phil believed that, to be effective in the classroom, a teacher must stay current in one’s field of study. However, staying current in one’s field did not, in and of itself, make one an effective teacher. The participants felt that they were most effective as teachers when they were teaching for critical thinking.

The second perspective suggested slightly different ideas on the intersection of effective teaching and teaching for critical thinking. This group of instructors understood effective teaching as a broad and multi-dimensional concept. Teaching for critical thinking was one, very important component, of a larger set of skills. For instance, an instructor might be considered effective in terms of her ability to relate to students; she might also be considered effective in terms of her content expertise. In each example, the behaviors described were seen by participants as separate aspects of effective teaching. David’s comment illustrated this perspective:

You are being an effective teacher when you present the facts in an organized fashion. Teaching for critical thinking is a piece of effective teaching. You do need some facts and solid stuff so that it is not all ideas and discussion. They are important but I think that it is only part of effective teaching.

Holly's perspective was similar. Without teaching for critical thinking, she felt that students would not understand the content in sufficient depth to make it their own. Critical thinking was indeed important to teaching effectively. However, she believed that teachers could exhibit many types of effective teaching behaviors that did not necessarily lead to critical thinking. She believed that teachers who helped students understand the basic concepts of the discipline were effective. Going beyond basic content understanding, in order to help their students develop the skills to think critically, represented another aspect of effectiveness.

It was clear from their comments that every instructor believed in the importance of teaching students to think critically and the close connection between effective teaching and teaching for critical thinking. There was, however, a slight but important difference in how they understood the two. Whereas one group saw the two as essentially the same, others believed that teaching for critical thinking was an important component in a spectrum of effective teaching behaviors.

Instructor's Role in Nurturing Critical Thinking

Instructors had significant authority in deciding how their classes would be structured. Their decisions influenced the climate of the class and the nature of the interaction. Instructors faced continual choices about how they could most effectively influence development of students' critical thinking skills. The ways in which participants interpreted their responsibilities for nurturing critical thinking, were reflected in how they described their roles in the classroom.

There was a duality in how they characterized their roles. Instructors sometimes saw themselves as content experts whose main focus was to disseminate the basic principles of

the discipline. They believed that their first responsibility was to provide the foundational material upon which future learning could be built. At other times, participants saw themselves as facilitators. As facilitators, they helped create learning environments that encouraged and supported a process of student discovery. In other words, facilitators encouraged students to consider multiple interpretations of the course content and its connection to them and their environments.

Instructors' epistemological beliefs and contextual factors influenced how, and to what extent these roles were exercised. Participants did not interpret content dissemination and facilitation as mutually exclusive teaching practices, but rather equally rational teaching options depending upon the environment and the needs of the students. Some instructors described content dissemination and facilitation as points along a teaching continuum. For instance, at the beginning of the course, participants were more likely to focus on coverage of basic facts and important principles of the discipline. At that point, their role was more that of content disseminator. As students began to grasp the fundamental concepts of the discipline, instructors encouraged them to consider how the content might be interpreted differently depending on context or perspective. Students were expected to "take what was presented in class and then examine it and explore it in a way that would lead to deeper understanding," to use the words of one instructor. Participants believed they could best accomplish this through facilitation as opposed to content dissemination.

Teacher as Content Disseminator

Participants described the facilitative role as ideally suited for encouraging critical thinking. However, they believed that students must first understand basic content information. In other words, students could not apply higher-order thinking skills without

first comprehending the fundamental elements of the discipline. Therefore when instructors first introduced new material, their focus tended to be on content coverage. They felt they could cover the necessary foundational material most effectively by assuming the role of content disseminator. Lectures were generally used to provide a context for class discussions and to establish intellectual scaffolding upon which future interpretations could be built.

Although participants believed that a well delivered lecture could inspire critical thought, they admitted that lectures were primarily used to cover the content. They tried to balance the amount of time allotted for basic content coverage, and time spent on activities designed to foster critical thinking. Most participants experienced a tension in deciding when to move from content disseminator to facilitator for critical thinking. This was mentioned repeatedly during the interviews and was demonstrated in the review of videotapes. One instructor stated:

I think we teach for critical thinking by giving them the basic knowledge first. In order to see the big picture, they have to have the underlying knowledge. I have to impart a certain amount of basic lecture stuff because they don't have certain sets of knowledge. But then it is my role to say, "With that basic information, what are you going to do with it?"

Several of the observed classes began with lecture. Instructors acknowledged that they did not feel comfortable asking students to think critically about topics to which they had just been introduced. For instance, in introducing the concept of socialization, Lana felt that she had to "get a certain amount of content across – like forming the foundation. Then I can look at what kind of activities I can use to get students thinking and applying." As students became more familiar with the content, instructors were more likely to transition to

a more facilitative role. Instructors were convinced that students needed to engage in discussions and activities that required them to interpret, translate, and evaluate what they were hearing if they were to learn to think critically.

Teacher as Facilitator

Instructors identified the facilitative role as the best way to support the development of students' critical thinking skills. Participants viewed facilitation as a pedagogical choice that reflected a desire to function less as a content expert, whose job it was to pass on content to students, but more as one who created a learning environment that encouraged students to think for themselves. They believed that by assuming the role of facilitator, they encouraged students to critically examine what they read and what they were told. Facilitation also meant stepping back to allow students' voices to be fully heard and recognized.

There were several reasons why participants favored a facilitative role to encourage critical thinking. As facilitators, they felt they were better able to help students integrate new material with existing understandings. By taking advantage of the life experiences students brought to the classroom, participants hoped to make the learning process collaborative and relevant. Instructors wanted students to develop the deep understanding needed to critically consider the fundamental questions of the discipline. They believed that as facilitators, they could create environments where students constructed their own understandings through a collaborative approach to learning. Participants believed that the decision to facilitate rather than disseminate communicated a confidence in students' ability to "figure it out for themselves," as one instructor stated. Instructors believed that they could create the conditions that encouraged students to think at a deep level, reflect on what they had learned, and consider the broader implications.

For example, Lana intentionally structured her sociology class in a manner that would encourage discussion and peer-to-peer interaction. In that way, she explained, she could “step back and allow students to get ‘there,’ because out ‘there’ is where knowledge is created.” She said that her decision to take on the role of facilitator was made after much thought and consideration. Solving the problems for students would have been an easier approach to teaching, but Lana did not believe in giving students the answers. She felt that she could best support student thinking by “allowing them the opportunity to fall off the bike...and to learn from that journey.”

In explaining their roles as facilitators, participants mentioned the value of “stepping back,” as Phil described it, to allow the voices of students to be heard. By stepping back, participants encouraged students to take more control of their own learning. It also created opportunities for students to understand the content in a way that was meaningful to them. Holly described it this way:

I see my role as creating situations where the teacher plays a more invisible role – not that they are not there – but the focus is not on the teacher’s knowledge. They create a situation where students come up with the knowledge and understanding themselves. I think the first step is to move away from being the center of attention.

As facilitators, instructors asked students to assume a more active role in their own learning. David explained, “The instructor is more of a facilitator because the students have to really develop themselves and open up. You can’t really make it happen, but I try to encourage it.” As facilitator, he felt he could encourage his students to engage in an ongoing dialog to test their emerging understandings.

On the day his history class was observed, David facilitated an exercise using small group discussion. The purpose was to have students work collaboratively to develop and defend a position on questions concerning the Roman Empire. David encouraged his students to capitalize on the expertise of the group. The activity was structured to encourage students to work through questions themselves or to call upon other group members in formulating a response. David intentionally refrained from rushing in to provide an answer when students had questions.

Although instructors believed in the efficacy of the facilitative role, they did not believe that the learning environment always allowed for its successful implementation. For example, participants felt that facilitation was productive only when students were active partners in the learning experience. Both instructor and learner brought something of value to the learning experience. Without the positive engagement of both, the ability of instructors to function in a facilitative role was compromised.

Environmental Factors

Instructors frequently stated that they wanted to create an optimal learning environment for critical thinking. However, there were times when they felt they were constrained in their ability to do so. Participants described environmental factors that influenced how they chose to exercise their roles in the classroom. The mitigating factors mentioned by participants were generally seen as external in nature. That is, the environmental factors were generally considered beyond the control of the instructor. At times, the external factors supported facilitative behaviors; at other times, the external factors negatively impacted instructors' facilitative teaching practices. The environmental factors cited as most influential were: 1) daily preparation of students; 2) student readiness for

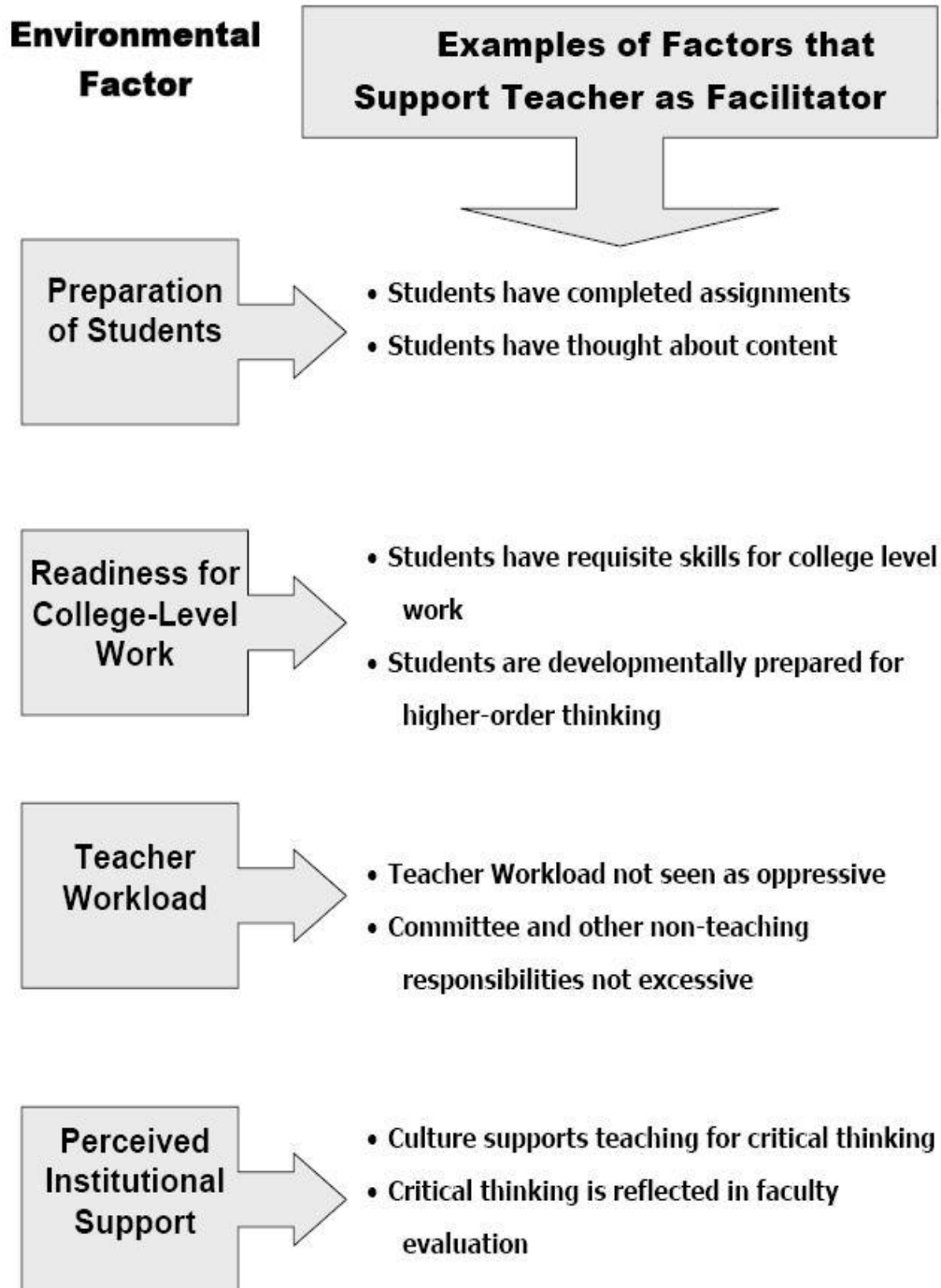
college-level work; 3) workload of teachers; and, 4) perceived value of teaching for critical thinking to the institution.

These factors created decision points, i.e., required choices about teaching strategies which often challenged the instructor's intention to function in a facilitative role. According to participants, when these four factors were in alignment, it was much easier to adopt the role of facilitator. Specifically, positive alignment meant that students were prepared for class, had the requisite skills for college-level work, teacher workloads were not considered excessive, and the college recognized and valued teaching for critical thinking. These factors were important if instructors wanted to encourage students' critical thinking skills. This did not mean that participants could not function as facilitators unless conditions were ideal. However, when even one of the environmental factors was absent, assuming a facilitative role became more problematic because instructors believed their instructional options were more limited. Table 4.1 provides an overview of the environmental factors participants identified as promoting a facilitative role.

For instance, Bruce recounted several classroom situations where he chose to "just get through the chapter" by reverting to lecture. Although his preference would have been to play a more facilitative role, he felt his options were limited. He explained that when students were unprepared for class or when his workload was oppressive, he sometimes chose to lecture instead of following a more interactive format. Citing different external factors, Holly explained that during the final days of class she had reverted to lecture because "by the end of the semester, I had simply run out of time." She felt she needed to at least touch on all the material listed in the course syllabus, and therefore could not spend time on discussions and interactive activities.

Table 4.1

Environmental Factors that Support Facilitative Role



When environmental factors were not in positive alignment, participants faced decisions about the role they should assume to best support student learning. Some instructors chose to continue with their planned activities even when conditions were not optimal, others reverted to lecture, and some developed creative approaches to address the external factors. (Specific instructional strategies used by participants will be discussed in more detail in the section on teaching practices.)

Preparation of Students

The degree to which students prepared for each class session influenced the decisions instructors made about the role they assumed in the classroom. When students came to class prepared, instructors felt that they were better able to facilitate discussions, respond to questions, and engage in other activities designed to foster critical thinking. If students had read and thought about the content before class, instructors believed that students could participate in class discussions in a more substantive way. Conversely, if students failed to complete assignments prior to class, instructors sometimes felt the need to focus on content coverage, which often meant resuming the role of content disseminator. Instructors found it difficult to engage in meaningful activities or to get beyond superficial discussions when students had not read or thought about the assignment beforehand.

Instructors shared similar stories about their frustration with students' lack of preparation. Participants often felt torn between continuing with what they had originally planned and reverting to lecture in order to cover the content that should have been completed as homework. In other words, teachers who had perhaps envisioned facilitating a lively debate sometimes chose to lecture when students arrived unprepared believing that this was the most efficient way to keep everyone on schedule.

One instructor complained, “The students know they are supposed to read before class. But I am finding that they don’t. They are coming in and looking for me to spoon feed them.” From the instructor’s perspective, she had a difficult choice. She could cover all the necessary material at a surface level, or she could cover only the most important parts but do so in a more substantive way. She suggested that her decisions were not always consistent, but that she “keeps trying to find the best way to reach them.”

In another example, Rhonda asked one of her students to share his findings from his homework assignment, an assessment of an art review. It was clear that the student had not completed the assignment. Rhonda explained that this was a common occurrence in her class. “I have tried everything I can think of to get them to take this seriously. I want to discuss at a deeper level, but what are you going to do?” She said that when there was a general lack of student preparation, the discussions tended to be more didactic and one-sided.

However, several instructors had developed strategies for dealing with such student behavior that allowed them to maintain their role as facilitator. For instance, Holly chose to “ask those students who were not prepared to leave the class and go to the library in order to complete their assigned readings.” She found that after one or two such encounters, students were more likely to come to class ready for discussion. This strategy allowed her to facilitate meaningful activities with those who were prepared and encouraged student responsibility.

David was also concerned about students’ lack of preparation. Students often came to class without having completed assigned readings. Instead of fighting what he considered an “uphill battle with students” to complete homework assignments, he chose to establish in-class reading workgroups. During the first several minutes of class, students divided the reading assignments and then taught the material to others in the group. David found that

this strategy allowed him to spend more time facilitating than lecturing. David continued the discussion outside of class by requiring students to post comments on the online discussion board. He posed provocative questions in his online discussions that were intentionally designed to generate debate. The activities that students considered mundane were often completed in class, while more engaging activities were assigned as homework.

Readiness for College-Level Work

The students at CCC were typical of most community college students. Many were considered at-risk because they were academically or financially disadvantaged. Some were the first in their families to attend college and had limited awareness of what was expected of college students. Even those students who were not considered at-risk were often unprepared to think about the course content in more than a superficial way. Those students presented special challenges to instructors trying to help students move beyond simple content mastery.

Several participants recounted situations with students who lacked basic reading and writing skills. Instructors questioned whether they could effectively facilitate classroom activities demanding higher-order thinking when students did not possess the requisite skills for college-level work. This lack of readiness to handle the rigor of the college-level work affected how instructors thought about their role in the classroom.

For example, Phil commented on the amount of time he spent helping students understand the basic language in his American literature class. “If a student comes in without the skills they need to succeed, you can’t leave them behind, so I back up. It might mean that we can’t cover everything in the depth that I want.” Phil believed that having students who were unprepared for college-level work forced him to restructure his group discussions. He explained:

I think if I were at some place like Duke University, I would do much more because I can presume a much better reading background. I cannot do that here. You can't rely too much on group work with individuals whose reading background is not there or who have not had experience working with theoretical material. I think that makes me run a discussion more than I would ideally like to.

Holly commented on the diversity of students in her classes saying, "I have students who performed well in high school and I have students in the same class who cannot write a complete sentence." She wanted to help students develop their critical thinking skills, but sometimes felt obliged to spend time on work she considered pre-college. Holly shared her frustration:

I feel that I do so many types of activities because of the gap. However, I won't "dumb it down" to memorization and leave out analysis and critical thinking because they don't have the basics. I just can't do as much of that as I would like and I sometimes need to lead the class more than I want to.

Most of the courses taught by these instructors had no prerequisites. For that reason, they often encountered a wide variety of readiness levels in their students. This sometimes meant spending less time facilitating activities designed to foster critical thinking and more time redressing academic deficiencies.

Not every instructor felt that the readiness gap required them to re-think their role in the classroom. David reported adjusting his class to accommodate different levels of academic readiness but insisted that it was, "not a big deal...The students that I have in my class are the ones that are there. I have a wide variety of students from different backgrounds and that is fine." He recognized that students brought different skill sets to the classroom,

and believed that all had something to contribute. He felt that as a facilitator, he could be most effective in responding to different needs of his students.

Teacher Workload

The standard teaching load for instructors at CCC was 18 credit hours per semester and was considered oppressive by many of the participants. At least one-half of the participants mentioned that they had been asked to teach an overload course as well. Most felt that they were less able to assume a facilitative role because of the demanding workload. They explained that teaching so many courses limited the time spent developing or experimenting with active learning strategies. An overextended Bruce spoke of his inability to respond as often as he would like to students' journal entries, "I am responsible for 160-170 students each semester. If you require them to turn in a journal every week, it is very hard to respond in depth." Journals were used to encourage reflection and introspection, important elements of critical thinking. Had the workload been less demanding, Bruce believed that he would have had the time to write more in-depth responses to students' journal entries and to ask additional thought-provoking questions.

According to Phil, the 18-hour teaching load required him to work longer hours and take on more responsibility without feeling that his efforts positively impacted student learning. His frustration was not just about longer working hours; it had more to do with the impact the workload had on the quality of the learning experience. He admitted to coming in early and staying late in order to provide adequate and instructive feedback on student assignments. As an instructor of English literature, he asked students to complete many written assignments. His feedback dealt with the technical aspects of writing, the students' understanding of the piece of literature, and their ability to articulate and defend a point of

view. However, there many times when he felt that he “just did not have enough time to do all I needed to do.” The feedback that he gave students was intended to stimulate expanded thinking. Without the time to carefully respond to students’ emerging understandings or to ask “just the right question,” Phil thought that he did not do enough to encourage critical thinking.

Participants were considered high-performers, but admitted to sometimes feeling overwhelmed. They believed that students learned best when instructors assumed a facilitative role. However, they agreed that when done well, the facilitative role required more energy, thought, and intention than did the role of content disseminator. As facilitators, they needed to respond to ongoing contextual challenges that could potentially stifle or derail instructional activities. They acknowledged the occasional temptation to lecture on a difficult topic rather than allow students time to develop their own understandings. Although these instructors considered themselves conscientious and committed, most felt that the 18 hour teaching load compromised their teaching options.

Instructors also complained of the out-of-class demands that were made on their time. They mentioned commitments to other college activities that used up valuable time that could be spent preparing for class. “Doing a good job facilitating a discussion requires a lot more preparation than lecturing,” one instructor said. With so many demands on their time, instructors sometimes felt ill-prepared to successfully facilitate class activities. “You end up doing an 80% job instead of the 100% job that you would like,” commented Rhonda when asked how the workload impacted her ability to teach for critical thinking.

Perceived Level of Institutional Support

In 2004, CCC launched a major learning college initiative to create substantive learning experiences for all students, and to hold the College accountable in articulating and measuring the associated student learning outcomes. With the implementation of the learning college initiative, came changes in the organizational structure and the strategic planning process at the College. Some changes appeared superficial and some more substantive. For example, the Vice President for Instruction became the Vice President for Learning, and the Deans' Council became the Learning Council.

A more far reaching change came when the College adopted a long-term plan to require all graduates to demonstrate proficiency in a set of four core competencies. By the year 2010, all graduates of CCC would provide documented proof of proficiency in communication, critical thinking, personal growth and responsibility, and information technology and quantitative literacy. Because critical thinking was believed to be the most difficult to define and measure, additional resources were allocated to provide training for faculty and staff. Workshops such as *Infusing Critical Thinking into Your Work with Students* and *Assessing Critical Thinking Skills* were offered to faculty and staff on an ongoing basis.

However, even with the advent of the learning college initiative, not all participants were convinced of the College's commitment to the learning college philosophy. There was some concern that the learning college initiative was just another "flavor of the month," as one participant described it. Some instructors were skeptical, especially in regards to the College's efforts in fostering critical thinking. They questioned if the College would support the effort needed to help students develop their critical thinking skills. For instance Phil, a

longtime instructor at CCC, doubted if the administration was really willing “to do what it takes” to bring about this change. He believed that by “requiring faculty to teach six courses and by raising caps [capacity] on writing intensive courses,” the College was undermining efforts to help students develop their critical thinking skills. “It’s not about the College helping students learn, it is about the business bottom line,” said another instructor.

In addition, there was no explicitly stated expectation that instructors demonstrate critical thinking in their own work at the College. Teachers at CCC were evaluated neither on their ability to teach for critical thinking nor on their own critical thinking skills. The Student Opinion Survey, an annual assessment of students’ perceptions of their learning experiences, also lacked any direct reference to critical thinking. In fact, some instructors believed that certain questions on the survey actually penalized faculty who were teaching for critical thinking.

One instructor specifically questioned the culture at the College in relation to its support for critical thinking:

The culture of the institution influences a teacher and a student’s willingness to see the value or worth of critical thinking. For example, do instructors perceive that critical thinking is not only valued (via words, comments, announcements), but practiced within their institution? It is one thing to talk the talk, another to actually walk the walk. Does an institution merely advocate critical thinking, or is it present in meetings and activities? Does the lack of critical thinking in a classroom represent a failure of the teacher...or to a degree does it reflect the failure of the institution?

As mentioned earlier, participants were personally committed to teaching for critical

thinking and were fierce advocates for its place in higher education. Some instructors believed that the effort that they put into teaching for critical thinking went unrecognized and unappreciated by the institution. This perceived lack of institutional support made teaching for critical thinking even more challenging for participants.

Summary of Role of Teacher

Instructors believed that their first responsibility was to help students understand the fundamental concepts of the discipline. Therefore, when participants introduced new material, they generally assumed the role of content disseminator. Once students understood the essential principles of the content, instructors believed that their role could change to that of facilitator. As facilitators, they felt they could help students develop as independent learners through a process of discovery. It was when students moved beyond simple content mastery that participants believed they could truly help students begin to examine the content in a more critical way.

Facilitation was seen as the ideal approach to teaching when trying to foster critical thinking. However, there were contextual factors that participants considered as they thought about their role in the classroom. They believed that factors such as degree of student preparation, student readiness for college-level work, teacher workloads, and perceived level of institutional support could either expand or limit their instructional options. Participants were much more likely to assume the role of facilitator when students were prepared for class and possessed the skills needed for college-level work. Instructors also believed that they were more likely to function as facilitators when the workload was reasonable and when the institution supported their efforts to encourage critical thinking in their students.

Teaching for Critical Thinking

Earlier sections described how participants conceptualized critical thinking, and how they interpreted their role in a learning environment that supports development of students' critical thinking skills. This section discusses instructors' intent behind their selection of instructional strategies.

Participants began every class hoping that they could contribute, even in a small way, to students' emerging skills as critical thinkers. Participants were skilled practitioners and could choose from a variety of teaching strategies to encourage students to critically examine discipline content. However, without first establishing a trusting learning environment, participants believed that decisions about teaching practices were pointless. If students did not trust that they would be supported in their efforts to think critically, they would be less likely to progress in their thinking. Therefore, instructors took great care to help their students feel valued and respected as contributors to a community of learners.

Creating a Trusting Learning Environment

Participants believed that a trusting environment was required if one hoped to encourage critical thinking. Without a supportive and trusting environment, faculty believed that students were less likely to take the intellectual risks needed to develop their critical thinking skills. Instructors did not want fear and anxiety to stifle student thinking or participation. In a trusting environment, faculty believed that students would not equate the wrong answer with failure. For example, Phil suggested that he always tried to "honor the efforts" of students. He did not always agree with their responses, but he acknowledged their contribution to the discourse. Students and their ideas were treated with respect.

Holly explained to students on the first day of class, “You don’t have to get the right answer – we are looking for attempts.” Even when faced with responses that she considered incorrect, she communicated recognition of the effort with comments such as, “That is not what we are looking for but I like the way you...” She stressed the importance of balancing helpful feedback with support when students’ responses were poorly articulated or their conclusions unjustified. She wanted her students to think beyond a repetition of the homogenized answers that were often found in the chapters of the textbook. Instead, she wanted them to articulate a personal understanding of content. Holly hoped that her students’ thinking would test the limits of their ability to articulate those understandings. She challenged her students to consider issues that they had previously regarded as fact. While doing so may have made some students uncomfortable, she assured her students that as long as they were making an effort to think through the issue, she would always support and encourage those efforts.

Lana encouraged her students both challenge and support one another. It was important to her that students not only trust her, but that they also trust their fellow learners. She provided guidelines that helped students engage in respectful debate. Several instructors used group assignments to achieve ad hoc support groups. They believed that using student groups helped reduce anxiety and encouraged students to “go out on an intellectual limb,” as suggested by David. When students felt that they could offer tentative answers without opening themselves to embarrassment, they ventured beyond textbook responses.

Developmental Goals for Critical Thinking

Once an environment of trust was established, participants employed a variety of teaching strategies designed to help students develop their critical thinking skills. Although

participants followed different instructional paths, they sought similar goals for their students. Instructors developed instructional strategies to help their students: 1) expand their worldview; 2) question underlying assumptions; and, 3) articulate and defend beliefs with credible evidence. These three developmental goals supported participants' belief that students can and do construct meaning for themselves. While they acknowledged that students would construct their own meaning regardless of the actions of the instructor, participants hoped that by helping develop the above mentioned developmental goals, students would be better able to construct understandings that would be more meaningful and useful. For that reason, *construct meaning* is listed as the fourth developmental goal. Table 4.2 summarizes the critical thinking goals that instructors identified and the teaching strategies employed in pursuit of those goals.

Helping Students Expand their Worldview

For participants, an expanded worldview meant being able to see beyond one's own idiosyncratic perspective and to acknowledge the value of other viewpoints. Instructors expected critical thinkers to listen to different points of view with a sense of engaged objectivity. They believed that critical thinkers could listen for salient points in arguments, without dismissing ideas because of personal bias. Participants believed that having an expanded worldview was essential to critical thinking, and therefore used teaching strategies that exposed students to other ways of thinking about the world.

According to instructors, students often entered the community college classroom with narrow perspectives and deeply entrenched biases. Such parochial views sometimes prevented students from recognizing the legitimacy of other, often conflicting points of view. With an expanded worldview, students could better understand how others had come to their

Table 4.2
Instructional Strategies to Support Developmental Goals

Developmental Goals	Teaching Strategies	Description
Expanded Worldview	Role Play	Challenges student to take on role of someone different from themselves.
	Reflective Journals	Prompts invited student to consider issue from another perspective.
	Service-Learning	Takes student out of familiar surroundings. Challenges them to see through the eyes of another.
	Group work	Allows student to hear their peers' perspectives. Exposes student to other ways of viewing the world.
Question Underlying Assumptions	Probing Questions	Challenges student to examine the underlying beliefs that influence their behavior
	Group Discussions	Uses peers to help group members think about the foundation of their ideas
	Written Exercises	Prompts student to describe the assumptions on which his/her beliefs are based
Develop Defensible Positions	Evaluative Exercise	Asks student to make judgments about topics under discussion
	Whole Group Discussions	Asks student to provide a rationale for every position presented
	Formal Essay Assessments	Requires student to defend responses
	Oral Presentations	Requires students to defend responses
Construct Meaning	Explanation of Answers	Requires student to think about the evolution of his/her thinking.
	Group Work	Fosters student discourse
	Probing Questions	Challenges student to more fully articulate responses
	Whole Group Discussion	Helps crystallize student's thinking

current beliefs. Instructors wanted students to understand that they could listen to and consider other perspectives without it requiring a corresponding change in their own beliefs. Their intent was not to convert students to a particular way of thinking. Their teaching practices were, however, designed to encourage students to open their minds to other ways of looking at the world.

Multiple teaching strategies were used to help students expand their worldview. One instructor used role play as a way to give students permission to think about things differently. Holly wanted her students to consider a variety of viewpoints as they discussed important historical issues and events. She felt that until students were able to understand how others saw the world, they would not be able to move out of their conceptual ruts. She explained her intentions:

I do role playing sometimes. You can't pass over these different perspectives as unimportant. I ask them, "If you were in this position, how might you feel about the situation? How would you reconcile these differing positions?" I often bring in primary documents to help them understand different perspectives.

When using role play, Holly often asked students to assume roles with which they were unfamiliar in order to help them see situations as others did.

Several instructors required reflective journals to encourage students to consider multiple perspectives. Broad prompts were provided to focus students' thoughts about the issues introduced during class or through reading assignments. Occasionally instructors used prompts that were prescriptive in order to challenge students to consider an issue from a particular perspective. Instructors responded periodically to journal entries by encouraging,

questioning, and supporting student thinking. David used journals as a way to give voice to his less verbal students, and found it an effective tool in eliciting thoughtful responses.

Journals were also used in conjunction with service-learning projects. During service-learning experiences, students were often exposed to people and situations with which they were unfamiliar. As a supplement to the activities performed, students were expected to make regular journal entries to chronicle their thoughts, feelings, and reactions to their service experiences. Some of Bruce's students submitted journal entries describing their service-learning experiences as life changing and eye opening. The journals served as a tool to capture those reactions so that students could reflect on their meaning and significance. Bruce believed that students often left his class with a respect for the value of diverse perspectives, in part, because of the service-learning and journaling experiences.

Most participants regularly used group work to accomplish a variety of instructional goals. They were especially interested in having students discuss their thoughts and perspectives about difficult issues covered in class. As in most community college classrooms, participants taught classes with diverse student populations. The class diversity in terms of ethnicity, race, age, and gender often made for energetic and spirited discussions. Lana used groups regularly to create opportunities for students to hear from others who were often different in some significant way. She chose to do this because, as she noted "sometimes these are the only conversations that student will have with students different from themselves. Allowing them to converse with one another and better understand where the other is coming from is important."

David shared similar feelings about the value of group work in helping students expand their view of the world:

Outside the classroom, if you disagree with someone... you don't talk about it because you don't want to have conflict. So if you do talk about these issues, you tend to talk with people who agree with you. No one ever questions you and you never question yourself because everyone agrees. Therefore you assume that what you feel must be right.

He used groups to help expose students, in a safe environment, to other beliefs, perspectives and opinions. The group exercises offered students an opportunity to think through and try out various perspectives. In other words, students could test the internal logic a particular perspective while maintaining emotional objectivity.

Helping Students Question Underlying Assumptions

Students often brought assumptions or “baggage,” as one instructor called it, to the classroom. Those taken-for-granted beliefs strongly influenced how students interpreted the content of their courses. Participants believed that students were generally unaware of the pivotal role of assumptions in the learning process. To help students develop their critical thinking skills, instructors developed strategies to encourage students to recognize and examine their underlying assumptions.

One strategy was the use of probing questions to challenge students to consider possible assumptions that might underlie their beliefs and actions. When done in a respectful and non-threatening way, probing questions could prompt reflection and insight into the framework of one's thinking. By asking such questions, instructors wanted students to consider why and how they had come to their current understandings. While considered a valuable instructional strategy, the use of probing questions could also create potentially uncomfortable experience for students. Instructors were cautious about asking questions that

might lead students to question their sense of self. Phil was concerned about how far he could push students in asking them to consider the origins of their beliefs. He challenged students to consider how their beliefs had been formed. However, he reassured his students that he would not make judgments about them as individuals or their beliefs.

As a sociology instructor, Lana felt it was her responsibility to help students examine their assumptions. From her perspective, students could not become critical thinkers without first examining their basic assumptions about the world and their place in it. She did this by asking “students to think about where their ideas were coming from.” At times, she did this in the context of group discussions; at other times, she required written responses to specific questions. She admitted that she was not always successful. She believed that students were often unprepared to think in this way:

Students are not always ready to examine their own assumptions. They seem to get lost when you start pushing them. They get frustrated and don't understand what you want them to do. For many, this is the first time that they have been asked to do this. We are turning the world upside down for them.

Discussions also provided an opportunity for students to think about their assumptions. Students were encouraged to question each other about their perspectives. In attempting to explain the reasons for their beliefs, students sometimes realized that they had not given much thought to why they believed the things they did. During discussion, peers could occasionally point out assumptions in the arguments of others. Participants thought that peer critique was less intimidating than instructor critique. For instance, Holly used small group discussions as a way to explore issues of race in American history. Students in her class described their assumptions about being a black man or woman in 20th century America.

Initially, students were reluctant to talk. However, according to Holly, when they realized that they were in a safe environment, they began to explore beliefs that they had previously accepted without evidence or question. Holly did not attempt to change students' beliefs. Her goal was to help them realize that their actions were often grounded in unexamined assumptions so that they would become more aware of the origins of their beliefs.

Helping Students Justify and Defend Positions

Many students readily offered their opinions on topics discussed in class. However, these same students were often unprepared to explain their rationale for holding a given position. Instructors suggested that students did not always understand the need to substantiate beliefs with reliable and relevant data. Students often thought that giving their opinion was a sufficient response to any question.

Participants wanted their students, as critical thinkers, to be able to explain the evidence on which their current beliefs were based. Students were expected to offer more than just personal opinion. Positions were to be grounded in research or in thoughtful judgment. Right or wrong thinking was de-emphasized in favor of giving students the tools to define and provide evidence for their points of view.

David used what he identified as an evaluative exercise, requiring students to make judgments about issues dealing with the Roman Empire. Students formed small discussion groups to explore different issues, such as, "What was the most far reaching invention left for future generations by the Romans?" As a group, students worked to develop a consensus of opinion. This process encouraged each student to share their thoughts on the question. When consensus was reached, a spokesperson for the group explained their answer and how they had arrived at their conclusion. Students from other groups were invited to question and

examine the integrity of the argument. This exercise reflected David's belief in the importance of exposing positions to critical review.

Several instructors structured their whole group discussions to encourage students to provide a rationale for their perspectives. Students knew they should be prepared to articulate and defend their positions. For instance, Lana wanted her sociology students to seriously consider what they believed about the issues discussed in class. She expected more than quick and ready responses that reflected little thought. She explained that it was "important for them to go back and justify their argument given the stance they are coming from. It is about understanding why they think the way they do. What justification do they have for their answers?" As students became more adept at articulating and explaining their beliefs, instructors believed these were signs of improved critical thinking skills.

Phil used formal assessments to encourage students to support their beliefs with evidence. His tests consistently asked students to support their arguments with specific examples from the text. He eschewed objective tests in favor of open-ended questions that asked students to think, formulate a position, and provide supporting evidence. For example, on one test, students were required to discuss an assigned text that, in their view, responded to the literary marketplace of mid-19th century America. Students were to buttress their arguments with specific examples from previous readings and an analysis of the cited examples. This strategy made sense to him, because he wanted students "to think critically by presenting a point of view and then backing it up with evidence. They can believe what they want, but they have to be able to defend it."

Phil also required his students to articulate their beliefs through written essays. He asked them to select a topic in which they had an interest, outline their beliefs, and provide

credible evidence to support their position. Holly expanded upon the idea of writing to elaborate beliefs. She not only required students to write position papers; she developed a peer review process as a feedback tool. Students evaluated the credibility of the arguments and provided feedback to their peers. Holly explained the process:

The day after the in-class essay, I put them into small groups to review each other's papers. They are to look for a clear argument and comment if it is missing. They are to number each specific piece of evidence that backs up the point. I ask them why they think it is important to be able to articulate an argument and back it up.

She believed that this process helped both the writer and the reviewer better understand how to effectively build an argument.

Oral presentations provided a forum for students to share their perspectives. In his mythology class, Bruce gave students the option to either submit a term paper or do an oral presentation. Students who chose to do an oral presentation were required to state a position and provide a minimum of four scholarly resources to support their assertions. Presenters were questioned about their findings. Bruce encouraged other students to challenge and question as long as it was done in a respectful and professional manner. He said that he would entertain any idea students put forward, "as long as they had the data to back it up. The more they can show how they arrived at a position, the better."

Helping Students Construct Meaning

The skills mentioned previously, expanded worldview, questioning of assumptions, and defensible positions were seen as critical in helping students make meaning of all the information presented through lecture, readings, and discussions. Instructors did not want students to passively accept information as presented. They wanted students to believe in

themselves as thinkers and to take an active role in interpreting and understanding the world in which they lived. As critical thinkers, students were expected to compare new information to existing understandings in order to affirm or adjust their thinking. In other words, students were encouraged to consider how they might reorganize their thinking when they were “faced with information that was contrary to what they had previously believed to be true,” as Rhonda suggested. Instructors believed that when students negotiated their own understandings, they were, in effect, taking ownership of their thinking. Although accuracy was certainly valued, instructors were more concerned with seeing students demonstrate a sound thinking process.

Instructors in this study designed and developed instructional strategies to encourage students in constructing their own understandings. For example, Rhonda pushed students to expand upon their answers and to explain how they had arrived at their responses. Students were also expected to describe their personal reactions to what they read in the text or what had been discussed during class. She frequently asked students, “Was there anything that you believed to be true that was contradicted in your readings?” If answered in the affirmative, the question was followed by a discussion to help students integrate, in some form, what they were reading with their existing understanding of the concept.

Rhonda modeled critical thinking in her classroom. She took time to explain how and why her thinking about art had changed. She provided personal examples of situations where new information had conflicted with existing beliefs, and how she had restructured her thinking. Rhonda presented it as a process of expansion rather than one of loss. “They have to see me and others thinking critically. It is important for me to model what I expect of them. I try to explain how my thinking has changed to incorporate new ideas.”

Several used specific questioning strategies to help students think through their ideas. Probing questions were used to encourage students to more fully articulate their understandings. In asking students to describe the evolution of their thinking, participants hoped to communicate to students that knowledge was not “transmitted in a wholesale fashion,” to use the words of one instructor. Instead, participants wanted students to think of knowledge acquisition as a process of comparison and evaluation, with the student as the arbiter of the process.

Lana believed that the content of her sociology class was especially relevant for most students. Discussion topics in her class focused on issues that students dealt with on a daily basis. Issues of socialization, gender, ethnicity, race, and socioeconomic status were environmental constants, even though students were not always consciously aware of them or the potential impact of these issues on their lives. In her discussions about topics such as poverty and racism, Lana encouraged students to relate the discussion to personal experiences and understandings of the world. She believed her approach helped the discussion move beyond mere recitation from the textbook. Lana expected her students to question the experts, question their classmates, and question themselves. She explained, “I try not to ask a question when we know what the answer is. I want to promote students’ thinking. I want them to be empowered to analyze and assess information on their own.” Through discussions based in real-world experiences, she helped her students consider what was important and to draw their own conclusions. Lana suggested that helping students develop their critical thinking skills was “all about learning to ask the right questions.”

Although instructors used small group work for a variety of reasons, they found that small groups worked especially well as a means to stimulate student discourse. The

exchange of ideas, the explanations in support of one's way of thinking about the issue, and the feedback from others in the group provided a platform for students to test their understandings. One instructor assigned various research topics to student groups. Students were to research the topic, prepare an informal presentation, and then teach the rest of the class. Through this experience, students had the opportunity to discuss, debate, and make decisions about their beliefs on the topic.

Whole group discussion was also a favored instructional strategy. However, discussions had the potential to become extremely polarizing when not handled properly, especially in courses such as religion. Conversely in some situations, conflict and disagreement presented a teachable moment, an opportunity for students to confront and examine their own beliefs and come to new understandings. Instead of avoiding possible areas of contention, Bruce capitalized on such occurrences to help students work through their feelings of discomfort. In what he hoped was a safe and supportive environment, he encouraged students to explore how one might think about religion in different ways.

Students struggled to reconcile what they were learning with their current beliefs. Bruce supported and validated their efforts to formulate their own unique perspectives on religion. He asked only that they open their minds to other perspectives before forming a judgment. He reasoned:

We do not state religious ideas as facts. I try to keep it open so that students can challenge what is said. That creates an openness that allows students to question and discuss. I want them to tell me what it means to them.

By helping students think through their own beliefs and consider other positions on contentious issues, Bruce hoped to help them construct understandings that were thoughtful and personally relevant.

Summary of Teaching Practices that Encourage Critical Thinking

Participants designed their instruction in ways that helped students develop their critical thinking skills. Instructors believed that the choices they made about teaching and learning contributed to students' development as critical thinkers. Participants wanted students to master the content in ways that reflected an understanding of the essential questions and unique complexities of the discipline.

Instructors commented on the importance of creating a trusting environment in order to encourage critical thinking. They suggested that students were unlikely to take the intellectual risks necessary to think critically in environments that were hostile or unsupportive. Because participants did not want fear or anxiety to limit students' capacity to think, they worked hard to create a respectful learning environment that emphasized the sharing of emerging understandings. Once a safe environment was established, instructors could turn their attention to issues of criticality.

Although instructors used a variety of instructional strategies, they articulated four overarching goals in helping students critically examine the content of the discipline. Instructors attempted to help students: 1) expand their worldview; 2) question underlying assumptions; 3) articulate and defend positions based on credible evidence; and 4) construct personal meaning. Although these are listed as four distinct goals, participants believed that the first three were elements of a larger goal - that of helping students in the process of constructing meaning.

To achieve these goals, instructors used multiple teaching strategies which included written assignments, group work, whole group discussion, online discussions, and assessments. They selected different strategies depending upon which aspect of critical thinking they planned to emphasize. For instance, instructors used group work for multiple purposes but structured the activity differently to accomplish different teaching goals. However, strategies converged along the theme of in-depth student involvement with discipline content in a supportive learning environment.

Espoused Beliefs and Teaching Practices

Thus far the study has examined how participants conceptualized critical thinking, how they described their roles, the learning outcomes they identified for their students, and the instructional strategies instructors used in pursuit of those goals. Each was treated as separate and unique although they are aspects of a more complex and interconnected learning environment. This section explored the relationship between what instructors said they believed about critical thinking and their actual teaching practices.

In general, participants' espoused beliefs were consistent with their actions in the classroom. During the initial interviews, instructors described what they understood critical thinking to mean. There were four common elements in their descriptions: 1) seeing common threads; 2) appreciating multiple perspectives; 3) exercising prudent skepticism; and, 4) articulating and defending a position. Evidence of those beliefs was seen during classroom observations.

In one example, Bruce encouraged his students to explore the common threads connecting Islam and Christianity through discussion and reflection. He asked students to look beneath the surface and discover lines of convergence. Another discussion in his class

dealt with the topic of the hero's quest. Students were asked to think about their own lives and to look for dangerous tests that they must pass. Bruce wanted his students see the similarities between the demands on the mythical hero, and contemporary rites of passage.

Lana required her students to approach sociological issues from three different perspectives grounded in the discipline. Her intent was to demonstrate to students that there was always more than one way to look at issues, and that each perspective offered something of value. She made the comparison to looking into a house through different windows. Each view provided a valuable insight, but no one view afforded a complete and comprehensive understanding of the whole.

Holly asked her students to exercise prudent skepticism in looking at political position statements. She wanted her students to consider questions of credibility and bias before making a decision. In another example, Holly asked students to examine primary documents for issues of perspective, context, potential bias, and trustworthiness as a way to enrich a discussion about slavery. Her point was that no document could be completely understood without understanding the context within which it was written. Lana also asked students to withhold judgment until they could critically examine an issue. In her sociology class, she often asked students to consider questions of motive. For instance, she asked if those in positions of authority sometimes benefit from maintaining the status quo. She did not want students to meekly accept the judgments of those in positions of authority without question. Using group discussion and debate as a teaching strategy, Lana challenged students to consider issues from multiple viewpoints before making a decision.

Students in Phil's literature class were asked to support their positions with credible evidence. Responses that were based solely on personal opinion were generally considered

incomplete. Regardless of whether students agreed or disagreed with the text or the positions offered by others in the class, they were expected to provide elaborated responses. In other words, students were consistently asked to explain why they believed as they did, and to relate that response to the literature on the topic. In her art class, Rhonda also asked students to provide a rationale for their opinions. A peer critique process was employed to encourage students to use supporting evidence in their evaluation of artwork. For instance, “I like it” was considered an inadequate response. Students were expected to consider multiple criteria and to include those in their evaluation.

The learning outcomes identified by instructors were also consistent with teaching practices. Instructors wanted their students to leave their classes with an expanded worldview, the ability to question assumptions, and skill in articulating a defensible position. Participants believed that these skills would help learners as they made meaning of what was presented to them in the classroom. Several participants used service-learning as a way to help students expand their worldview. Through this experience, students were exposed to types of people and settings that were often unfamiliar. Reflective activities were used to help students think through their experiences and process their new understandings.

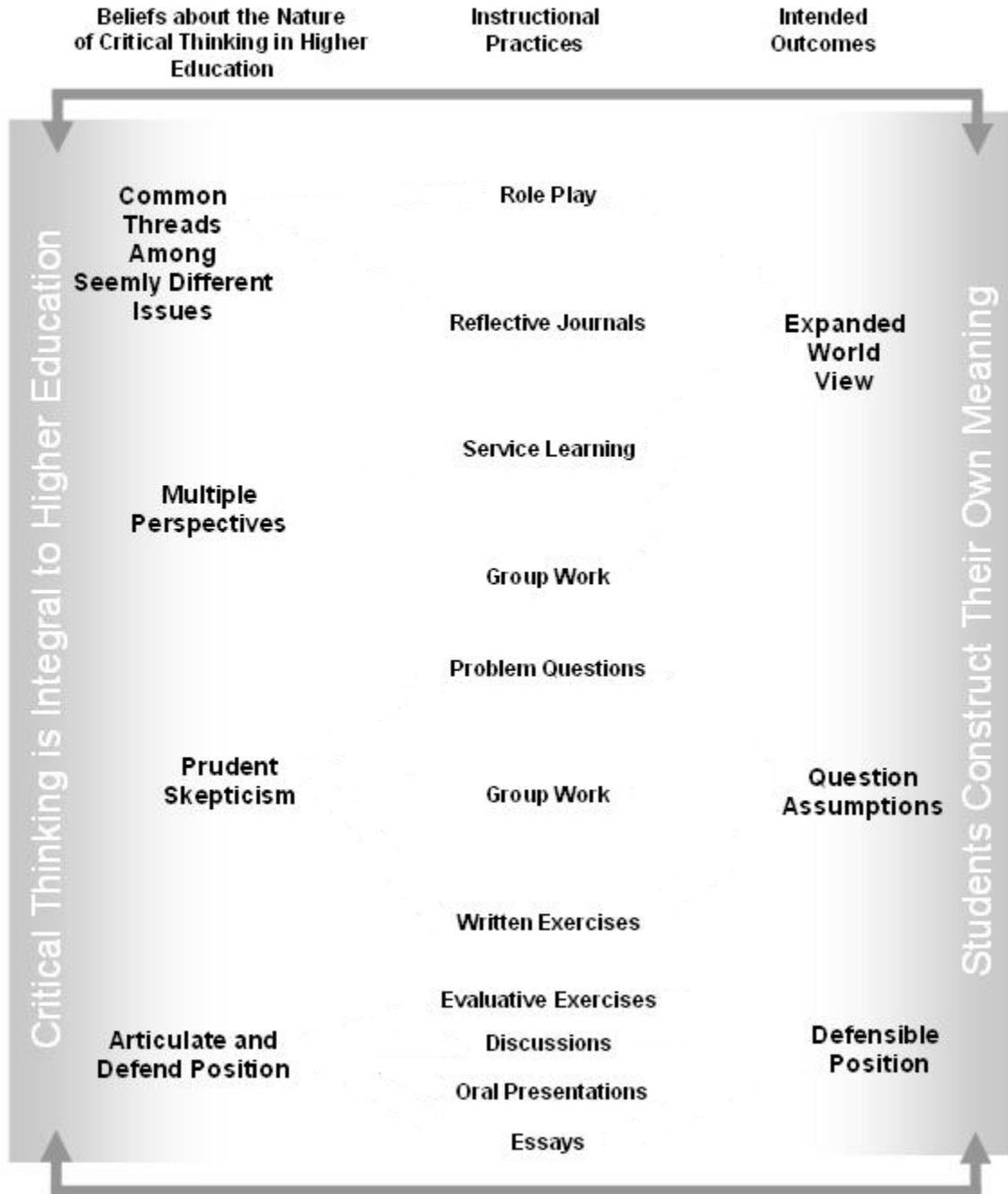
Phil used small group discussion to challenge students to hunt for assumptions in their own arguments and those of others. In one particular class, Holly used group discussion to examine issues of race and the assumptions on which many beliefs were based. She described a personal experience in a department store where she had been followed around the store by a sales clerk. Students were asked to consider possible assumptions that might have motivated the clerk’s behavior. Students were then encouraged to think about the unexamined assumptions that might influence their own beliefs and behaviors.

Oral presentations were often used to have students publicly present and defend a position. David gave students the option to make an oral presentation on issues around the decline of the Roman Empire. He expected students to do research, evaluate information, and then present a defensible position. The audience was encouraged to challenge the speaker on any questionable logic. David stated that, “As critical thinkers, students should be able to justify the positions they take. People need to see that their thinking is not just pulled from the air.” Table 4.3 portrays how instructors’ stated beliefs about the nature of critical thinking, their classroom teaching practices, and their intended learning outcomes were connected.

Although there was considerable consistency between espoused beliefs and teaching practices, there were two interesting exceptions. Participants believed the teaching of critical thinking to be an educational imperative. They also stated that every instructor should take responsibility for helping students develop their skills as critical thinkers. However, none of the participants in the study had improved critical thinking as an explicit objective of their courses. The goal was more implied than explicit. The other exception was in the way students were assessed. While instructors believed that they were helping students develop their critical thinking skills, most participants felt that their tests measured content knowledge without asking students to think critically about the content. These findings, although beyond the scope of the study, were surprising and warrant additional research.

Table 4.3

Espoused Beliefs and Beliefs in Practice



Chapter Summary

Findings from this study were presented in five areas. The first section examined how participants described their understandings of critical thinking. This section also explored the personal teaching journeys of participants. Section two described how instructors understood the relationship between effective teaching and teaching for critical thinking. The following section explored participants' perceptions of their role in helping students develop their critical thinking skills. The fourth section examined the instructional goals of participants vis-à-vis critical thinking and the instructional strategies employed to attain those goals. The fifth section compared the espoused beliefs of participants with actual teaching practices.

Participants remarked that they were unpracticed in articulating their beliefs about critical thinking. Indeed, few had ever been called upon to make explicit their understandings. While participants did not articulate an agreed upon definition of critical thinking, their understandings of the construct revealed common elements. They understood critical thinking to include the ability to: 1) see common threads in seemingly unrelated subjects; 2) recognize the value of considering multiple perspectives; 3) exercise prudent skepticism when faced with claims to truth; and, 4) articulate and defend a position based on credible evidence. Their understandings of critical thinking were based more on personal experiences than conscious adherence to a particular theoretical framework. In fact, most instructors indicated that they had had no formal training in teaching for critical thinking. Although they lacked formal training, participants believed that their understandings were adequate for what they hoped to accomplish in their classrooms,

Most participants in the study were highly experienced instructors. Although they had been identified as exemplary teachers for critical thinking, they themselves appeared less convinced of their proficiency. They described a personal teaching journey that had brought them to their current beliefs about the importance of critical thinking in higher education and chronicled their evolution as teachers. Instructors suggested that their approach to teaching had changed from predominantly lecture to one of collaboration and interaction. In recounting their journeys, participants said that as they gained experience and confidence, they did more to: 1) create learning environments to both challenge and support students; 2) teach intentionally; 3) reflect upon their own teaching; and, 4) use personal experiences as a tool for student learning.

Although participants described their role in a critical thinking classroom as falling along a continuum, they identified two distinct roles as most significant: content disseminator and facilitator. As new concepts were introduced, instructors were more likely to assume the role of content disseminator. They believed that a certain amount of foundational material needed to be covered before students could be expected to think critically about it. As students became more familiar with the content, instructors hoped to function more as facilitators. As facilitator, their role was not so much that of content expert, but more as one tasked with creating a trusting environment for collaboration and critique. Participants believed that they could best help students develop their critical thinking skills by serving as facilitators of that process.

Unfortunately, instructors suggested that they did not always feel empowered to act as facilitators. Environmental factors influenced decisions about how classes should be conducted. Participants believed that they were better able to function in a facilitative role

when: 1) students were prepared for class; 2) students had the requisite skills for college-level work; 3) teacher workloads were not oppressive; and, 4) there was institutional support for the teaching of critical thinking skills. When those conditions were not in evidence, instructors felt their teaching options were compromised.

During the interviews, participants would sometimes use *effective teaching* and *teaching for critical thinking* interchangeably. When asked to clarify their intent in using the terms, participants indicated that they believed that critical thinking was the essence of effective teaching. That is, they believed that there was a significant relationship between effective teaching and teaching for critical thinking. They did however, define that relationship in slightly different ways. All instructors believed that critical thinking was essential to effective teaching. Some instructors suggested that one could not be an effective instructor without teaching for critical thinking. In other words, they saw the two as synonymous. Others saw teaching for critical thinking as one very important dimension of the complex and multi-dimensional process of effective teaching.

Instructors articulated three critical thinking goals for their work with students. As critical thinkers, students were expected to expand their worldview by considering multiple perspectives, question underlying assumptions, and articulate and defend a position based on credible evidence. These goals were consistent with instructors' belief that students constructed their own understandings. As instructors, they believed that, if achieved, these goals would help students in their struggle to make meaning of their experiences.

Participants intentionally designed learning environments to help students develop their critical thinking skills. Instructors used a variety of teaching strategies in different ways, but with similar instructional goals in mind. Teaching strategies such as role play,

journaling, group work, probing questioning, discussion, and assessments were used to help achieve their goals. Overall, there was consistency between instructors' beliefs about the nature of critical thinking, the learning outcomes identified for students, and the instructional strategies used in the classroom. That is, the beliefs articulated by instructors were in evidence during classroom observations; their espoused theories matched their theories-in use.

CHAPTER FIVE: CONCLUSIONS AND IMPLICATIONS

Improved critical thinking has long been a professed goal of higher education. Yet, despite this emphasis there is still much confusion about how educators can best promote this important skill (Tsui, 2001). Indeed, experts continue to debate the very nature of critical thinking. Available research has focused primarily on the impact of instructional variables on the development of critical thinking without looking more holistically at the learning environment. There is only scant research exploring any possible relationship between faculty beliefs about critical thinking and actual teaching practices. If improved critical thinking is a national imperative as described in recent literature (Bok, 2006; Paul, 2001), and if faculty are the group most often called upon to help develop those skills, then the academy could benefit from additional research on this topic.

The goal of the research was to provide insight into the way instructors conceptualized critical thinking and how they attempted to help community college students develop their critical thinking skills. Situated in both constructivist learning theory and theories of action, the study illustrated how instructors explained their perspectives on what it meant to teach for critical thinking at a community college. The questions that guided the study were:

1. How do exemplary community college instructors describe their understandings of critical thinking and what it means to teach for critical thinking?
2. How do instructors describe their role in helping students develop critical thinking skills?
3. What critical thinking skills do exemplary community college instructors want their students to develop?
4. What teaching practices do exemplary instructors use to help their students develop

critical thinking skills?

This chapter discusses key findings from the study as they compare to related theory and research. It also addresses implications for practice and future research.

Discussion of Findings

Potential participants for this study were identified as exemplary teachers for critical thinking based on a combination of supervisor nominations, answers to a Faculty Survey of Critical Thinking (see Appendix E), and responses to a critical incident questionnaire. The pool of potential participants was limited to instructors in humanities and social sciences, based on the belief that those instructors would provide the most information-rich cases for the phenomenon under study (Patton, 2002). Historically, courses in the humanities and social sciences have been considered major forces in helping students develop critical thinking skills (Cromwell, 1986; McPeck, 1990). Participants were full-time, community college instructors teaching an average of six classes or 18 credit hours per semester.

The experiences of these six exemplary instructors suggested that there were common elements in how they understood critical thinking and also how they attempted to encourage it in community college classrooms. The study explored how instructors' beliefs about critical thinking were reflected in how they articulated their role in the classroom and also in the learning outcomes they identified for their students. This discussion of findings is organized under five broad headings: Instructor Understandings of Critical Thinking, Journeys in Becoming Teachers for Critical Thinking, Role of the Instructor, Instructional Goals for Critical Thinking, and Espoused Beliefs and Beliefs-in-Practice. The chapter continues with a section on contributions to knowledge and concludes with implications for future research and implications for practice.

Instructor Understandings of Critical Thinking

Participants stated that they valued critical thinking as an important goal of higher education; in fact, some suggested that critical thinking was the primary purpose of higher education. This belief in the primacy of critical thinking to the educational experience provided the background for participants' perspectives on teaching and learning.

Although participants consistently referred to the importance of critical thinking, most instructors initially had difficulty explaining exactly what they meant by the term. Their understandings of critical thinking at times appeared more tacit than articulated. Indeed, when participants were asked to define critical thinking during the initial interview, they did not always have the words to make explicit their understandings. Their responses were generally brief and they offered little to expand upon their initial statements. However in subsequent discussions about teaching for critical thinking, they elaborated upon their beliefs revealing rich and complex understandings. That is, they were able to articulate their beliefs about critical thinking within the context of teaching as opposed to discussing critical thinking as an abstract concept. While participants may not have been able to produce what they considered a textbook definition of critical thinking, they all believed that they were teaching in ways that supported students' development of that important skill.

Several instructors commented that, prior to this study, they had never been asked to explain their concept of critical thinking. It appeared that participants had developed an intuitive understanding of critical thinking, often without having synthesized those beliefs to form a cohesive and articulated understanding. As one instructor stated, "It is in my head, but I haven't stopped long enough to make it explicit for myself or my students." For many, the interviews presented an opportunity to translate their beliefs and knowledge about

teaching for critical thinking into an explicit statement of understandings.

However, one unifying theme from all participants was the belief that critical thinking represented the highest form of thinking in a hierarchy of cognitive processes. Participants understood critical thinking as synonymous with higher-order thinking. In some ways, their beliefs were similar to the revised version of Bloom's (1974) taxonomy of educational objectives (Anderson & Krathwohl, 2001). Bloom proposed six increasingly complex cognitive processes to serve as a "framework for viewing the educational process" (p.3). The top three levels, analysis, evaluation, and creation are often associated with critical thinking (Goto, 2005).

Although participants referenced different skills and dispositions when describing their understandings of critical thinking, there were common elements that emerged. Participants described elements of critical thinking that were consistent with those in the extant literature. Those elements included: making connections in different contexts (Browne, 2000; Tsui, 1999, 2001), recognizing the value of multiple perspectives (Browne & Freeman, 2000; Thayer-Bacon, 1993), exercising prudent skepticism (Henry, 2002; McPeck, 1990), and articulating and defending a position (Applebaum, 2000; Brookfield, 1990; Chaffee, 1992; Paul, 1992).

According to participants, one element of critical thinking was the ability to see aspects of commonality in ideas that, on the surface, appeared unrelated. By seeing those connections, instructors believed that critical thinkers were able to view issues at a more conceptual and global level. A second element was the importance of considering multiple perspectives. Consistent with the research of Browne and Freeman (2000), instructors felt that students needed to understand the contradictions, inconsistencies, and multiple

perspectives that were present in the world if they were to develop as critical thinkers. Chaffee (1992) also suggested that critical thinking required an examination of different points of view when considering an issue. Participants believed that it was impossible to make an informed decision without having sought out and considered different points of view.

A sense of prudent skepticism was also considered an important element in participants' understandings of critical thinking. By prudent skepticism, they meant a willingness to temporarily suspend judgment, knowing that seldom does one have access to all the needed information nor can all information be assumed to be 100% accurate. McPeck (1990) used a similar term in characterizing critical thinking as "a propensity and skill to engage in an activity with reflective skepticism" (p. 8). Critical thinking was not interpreted as negativity or cynicism by participants; rather they saw it as a reluctance to accept claims to an absolute truth. They believed that critical thinking required one to probe beyond superficial claims and promises.

A final element in participants' conceptualizations of critical thinking was the ability to articulate and defend a position. They believed that critical thinking involved clearly stating one's beliefs and producing credible evidence in support of those beliefs. Participants believed that critical thinkers did not assume the beliefs of others but formed their own judgments based on credible evidence. This view of critical thinking was consistent with Chaffee's (1992) assertion that critical thinkers were distinguished by their ability to form conclusions that were "informed and supported by reason and evidence" (p. 31). Brookfield (1987) reached a similar conclusion stating that critical thinkers make their own judgments without relinquishing that responsibility to others.

The themes revealed in this study were in keeping with many of the key principles found in the literature. However, they did not address all elements normally associated with critical thinking. An examination of the literature on critical thinking offered other aspects of this complex concept that did not surface during the interviews in this study. For instance, participants said little about the affective aspects of critical thinking proposed by experts such as Halpern (1989) and Clinchy (1994). Halpern claimed that the skills of critical thinking were of little use without the energy and effort required to exercise those skills i.e., a disposition for critical thinking. The self-regulatory nature of critical thinking as suggested by Paul (1995) was also absent from participants' discussions of the concept. He described this metacognitive process as essential to critical thinking. Participants' conceptions of critical thinking reflected a fairly traditional understanding of the concept, and focused on the more logical and rational aspects of critical thinking. There was little reference to other ways of knowing such as those proposed by Belenky et al. (1997).

Participants' understandings of critical thinking could also be viewed through the four traditions proposed by Brookfield (2005): ideology critique, psychoanalytic, analytic philosophy and logic, and pragmatist constructivism. It appeared to the researcher that participants' conceptualizations of critical thinking were most often informed by the intellectual traditions of analytic and linguistic philosophy and pragmatist constructivism. Although there were elements of ideology critique in their discussions, most of their comments about the nature of critical thinking seemed more consistent with the two previously mentioned traditions. Specifically, participants described skills in analysis and argument that were quite separate from any political agenda. Participants also focused on how students constructed meaning. This was consistent with Brookfield's constructivist

pragmatism tradition which foregrounds “the variability of how people make interpretations of their experience” (p. 15).

The ability of these instructors to articulate their understandings of critical thinking was in many ways contrary to the findings of one major research study. In a study frequently cited in the literature, Paul et al. (1997) interviewed teacher education faculty about their conceptions of critical thinking. They found that faculty members were unable to give a clear definition of critical thinking or provide examples of how they fostered it in their classes. The researchers surmised that relatively few faculty had given serious thought to the nature of critical thinking. The study concluded, “We are very far from a state of affairs in which critical thinking is a hallmark of instruction...” (p.31). Although participants in this study also had difficulty providing what they considered a textbook definition of critical thinking, when allowed to fully discuss their beliefs within the context of teaching practices, they demonstrated more elaborated understandings of critical thinking with detailed descriptions and concrete examples from the classroom.

A possible explanation for the differences might be due to sample selection and methodology. Paul et al. (1997) used two statewide probability samples for their study whereas this study included instructors who had been identified as exemplary teachers for critical thinking. One might expect exemplary faculty to have given more thought to their beliefs about critical thinking and its place in education. In addition, the methods used by Paul et al. did not include classroom observations. In this study, classroom observations provided prompts for further discussion about participants’ conceptions of critical thinking. This process allowed participants to articulate their beliefs about critical thinking within the context of the teaching environment rather than as an abstract concept.

Participants in this study stated that they had developed their understandings of critical thinking through their own practice. That is, through professional development activities, readings, and classroom experiences, instructors had formulated a set of beliefs about the meaning of critical thinking. In many cases, instructors had had little formal exposure to the study of critical thinking. As suggested by Sperling (2003), perhaps these instructors had “backed into their understandings” of critical thinking (p.596). Nonetheless, participants did believe their understandings were adequate to accomplish the critical thinking goals they had identified for their students. Paul (1990) might disagree with their assessment suggesting that if teachers cannot clearly explain how they conceptualize critical thinking, they are limited in their ability to teach for it. Brookfield (1995) also suggests that teachers should be explicit about their understanding of critical thinking and their standards of evaluation.

Journey in Becoming a Teacher for Critical Thinking

Participants did not begin their careers in education as exemplary teachers for critical thinking. Although as novices they understood the value of critical thinking to the educational enterprise, they often lacked the tools and skills to successfully integrate it into the classroom. As participants gained experience and confidence, their teaching more closely reflected their beliefs about the important goals of education, as defined by participants. Through a process many described as trial and error, they developed new perspectives about what it meant to teach for critical thinking. As a part of this journey, they moved from a lecture-based approach to one that was more interactive and collaborative.

Instructors encouraged collaboration as a means to foster peer learning and feedback. In doing so, participants noticed an associated change in the dynamics of the classroom. As students attempted to make meaning of the content, they needed more support and

encouragement. Students often felt vulnerable when exposing their tentative understandings to public scrutiny. Fortunately, creating a supportive learning environment had always been a priority for these instructors. Even as novices, instructors believed that they had been able to create a balance between challenging students to expand their thinking and supporting their efforts to do so. However, other aspects of their teaching had gone through a more radical evolution.

As participants matured as professionals, their teaching became more intentional. They thought more about “the end game,” as one instructor described it. In other words, participants focused on what needed to happen in the learning environment in order to accomplish the learning goals for the class. Instructors learned how to align teaching practices to support the intended learning outcomes, and designed learning experiences to help students think critically about the content. The experiences of the participants were consistent with Bain’s (2004) contention that the best teachers went “into their classes filled with intentions... to foster deep thinking, to engage, and to entertain multiple perspectives” (p. 120). Willingham (2007) argued that if one is to teach critical thinking, one must be both intentional and explicit. By asking students to critically examine the basic tenets of the discipline, instructors helped students understand the logic of the discipline and the essential questions of the field (Nosich, 2005). Participants in this study believed that they were teaching with intentionality, both in using teaching practices associated with effective teaching, and also in helping students think critically about the content of the discipline.

Reflection was another important aspect of how participants developed as teachers for critical thinking. They used reflection as a way to check for personal biases and to critique their own teaching practices. As in the study by McAlpine and Weston (2000), participants

used reflection to “learn from and about their experience of teaching, and then link it to future action” (p.379). This practice has been widely advocated as an important tool in helping practitioners identify discrepancies between teaching intentions and actual teaching behaviors in order to improve their practice (Brookfield, 1995, 2006; Cranton, 2006; Schon, 1983). Over time, participants believed that they had become increasingly aware of the value of reflection. As novice instructors, they described being overwhelmed in just trying to keep up with everything that was expected. Although no less busy, they indicated that they now made a conscious effort to think more about what they were doing in the classroom and the intended outcomes.

Participants also indicated that they had developed a greater appreciation for the value of including personal experiences in class discussions. As novice teachers, many had avoided the personal stories of their students, thinking they were distracting, sometimes irrelevant, and “used up precious class time,” as one instructor stated. With experience, participants came to believe that personal stories provided an important bridge between abstract concepts and real-life issues. They began to view the personal histories of their students as an important resource for learning. Participants also discovered that by inviting students to share their personal connections to the content, they were acknowledging that students can and do construct their own meaning. This was consistent with Chaffee’s (1992) findings that effective teaching builds “on what they [students] know by systematically integrating new information into their frameworks of meaning” (p.32). Researchers have concluded that learning requires students to relate new understandings to existing experiences, thereby progressing from concrete to abstract understandings (Chaffee; Willingham, 2007). Certainly participants’ belief in the value of personal experience was

consistent with a constructivist perspective, where learning is not transferred from the teacher, but rather conceived by the student based on their experiences and meanings (von Glasersfeld, 1995).

Interestingly, the experience of participating in this study had unexpected benefits for participants. Discussing their teaching practices and explaining the rationale behind the selection of instructional methods served as a catalyst for reflection and evaluation. In addition, the review of videotaped class sessions allowed them to view their teaching from another perspective and to ponder the efficacy of approaches and methods. By scheduling time and providing collegial support, in the person of the researcher, the study created an opportunity for reflection-on-action (Schon, 1983). Through this process of discussion and reflection, instructors suggested that they had progressed as teaching professionals.

Role of the Instructor

Participants described the dual nature of their role in the classroom designed to foster students' critical thinking. They tended to see themselves as either a disseminator of content or a facilitator of learning. When introducing new material, instructors believed that the role of content disseminator was most appropriate. Providing foundational material in an efficient and thorough manner was best accomplished by simply disseminating the information to the students. Content dissemination was a logical choice for instructors who wanted to introduce a new topic, although they sometimes considered it antithetical to teaching for critical thinking. However, this approach was not universally supported in the literature. In their study of the teaching practices of exemplary college teachers, Halx and Reybold (2005) found that participants "universally believe that learning how to think first will allow infinitely richer content acquisition to occur later" (p. 310). This perspective was

contrary to the developmental approach to teaching for critical thinking of faculty in this study, i.e., teach content first, and then teach how to think critically about the content.

Participants believed that when trying to engage students in critical thinking activities, a facilitative role was more appropriate. In many ways, participants saw these two roles as distinct and separate. Brookfield (1990) might have viewed this as a false dichotomy suggesting that “straightforward transmission of information through lecture can be important in an overall critical-thinking effort” (p.69). By providing an introduction to the fundamental concepts of the discipline, instructors helped establish scaffolding upon which later understandings could be built (Henry, 2002).

Although participants readily acknowledged the need to efficiently disseminate content, they sometimes seemed to view that role as less valuable than that of facilitator. However, teacher as both content disseminator and facilitator of learning finds some support in current research (Brookfield, 2006; Browne, 2000). Both can contribute to substantive learning. The lecture that requires students to reflect and integrate can certainly encourage aspects of critical thinking. From a constructivist standpoint, both content dissemination and facilitation can serve important purposes. Steffe and Gale (1995) suggest that “from a didactic perspective, a teacher is a transmitter of knowledge. From a discovery perspective, he or she is simply a provider of experiences. In a constructivist approach, both these functions are combined” (p. 399).

Nonetheless, content dissemination was considered insufficient when participants wanted to engage the class in substantive discussions or when they invited students to question the canons of the discipline. Instructors favored the role of facilitator when trying to help students think critically about the content. Participants believed that thinking critically

would lead to student agency. As facilitators, they worked to create an environment that valued good questions and good answers equally. Most participants hoped to spend more time in a facilitative role, because they believed that deeper learning occurred when students were encouraged to explore and evaluate information rather than simply receive it. In effect, facilitation meant creating the conditions in which a community of learners constructed their own understandings (Fosnot, 1989; 2005).

Although instructors felt they could best nurture students' emerging critical thinking skills by assuming the role of facilitator, environmental factors sometimes created situations that made this difficult. Environmental factors tended to relate to either 1) student issues, or 2) organizational issues. In terms of student issues, participants believed that they were better able to function as facilitators when students came to class prepared and when they had the requisite skills for college-level work. Instructors reported that they were more likely to revert to content dissemination if students had not completed out-of-class assignments, or if they did not possess basic reading and writing skills. In such cases, instructors felt they needed to spend more class time on content coverage or basic skill acquisition. They believed that a focus on content dissemination was necessary to avoid leaving many students behind. For those reasons, participants felt that they often missed opportunities to engage in more substantive discussions with their classes. In her research on teaching critical thinking in selective and non-selective colleges, Tsui (2001) found that even under-prepared college students could benefit from instruction in critical thinking. She cautioned against abandoning efforts to foster critical thinking skills in under-prepared or at-risk students.

In terms of organizational issues, instructors believed that they were more likely to exercise a facilitative role when they did not perceive the workload as oppressive and when

they believed that the institution supported their efforts to teach for critical thinking. Several participants remarked about the negative implications of a heavy workload. With an 18 hour teaching load per semester, participants felt that they often did not have the additional time required to adequately prepare to teach for critical thinking. Instructors at CCC were also required to advise students and to participate in committee work. While they recognized the value of these activities, they felt that the combination of teaching load and out-of-class responsibilities reduced the time they could devote to preparation. Participants continued their efforts to teach for critical thinking, although they believed those efforts were compromised.

Several participants believed that CCC sometimes took a bottom line approach to education, choosing to pursue increased enrollments at the expense of quality learning experiences. A recent decision to raise the enrollment capacity in some writing-intensive classes was cited as an example of such administrative decisions. Participants also described what they considered a disconnect between institutional rhetoric and practice. For example, critical thinking was mentioned frequently in the literature produced by CCC; however, students were not routinely assessed on their ability to think critically nor were instructors evaluated on their ability to nurture those skills. Participants interpreted this as a lack of institutional support for teaching students to think critically. Although the College offered professional development on teaching for critical thinking, the perceived lack of institutional support for such efforts was sometimes a deterrent to participation. Participants reported that many faculty questioned the purpose in attending when it appeared that the administration was more interested in the rhetoric of teaching for critical thinking than in actually supporting that effort.

CCC is not alone in trying to balance the competing priorities of quality instruction and fiscal viability. Community colleges are generally funded based on enrollment, not on the quality of learning. Grubb (1999) suggests that the funding formulae for community colleges generate administrative mandates for efficiency which often translate into didactic instruction. Cohen and Brawer (2003) also describe the difficulty that community colleges have with balancing the demands for fiscal efficiency with effectiveness in their primary goal, that of improved student learning. It would appear that the business of operating a college sometimes works against teaching for critical thinking.

Instructional Goals for Critical Thinking

All participants in the study hoped that students would leave their classes with improved skills in critical thinking. Regardless of their particular selection of teaching strategies to encourage development of critical thinking skills, all participants believed it important to first establish an environment of trust. Participants were convinced that students would not take the intellectual risks necessary to challenge conventional wisdom unless they could do so in a supportive environment. Students needed to trust that their emerging understandings and tentative positions would be valued as honest intellectual efforts. This did not mean that instructors or other students could not question students' understandings or suggest alternative interpretations. Rather, it meant that disagreement and challenge were welcomed when done in a respectful manner.

Although not specifically focused on teaching for critical thinking, Bain (2004) in his 15-year study of college teachers found that the most effective teachers worked hard to make their students feel valued and respected. Bain quoted one instructor from his study as saying, "The most important aspect of my teaching is the relationship of trust that develops between

me and my students” (p. 140). Trust is important in any learning environment. It is especially important when students are asked to move beyond passive acquisition of knowledge that has been distilled and condensed in order to make meaning for themselves (Brookfield, 1999; Meyers, 1986).

Once an environment of trust had been established, participants believed that they could then turn their attention to decisions about which instructional strategies could best help students develop their critical thinking skills. Although instructors used a variety of instructional strategies, they sought similar goals for their students. Participants articulated four overarching goals in helping students critically examine the content of the discipline. Instructors attempted to help students: 1) expand their worldview; 2) question underlying assumptions; 3) articulate and defend positions based on credible evidence; and 4) construct personal meaning. Although these are listed as four distinct goals, participants believed that the first three goals were subordinate to the fourth goal of constructing personal meaning.

By encouraging students to expand their worldview, participants hoped to move students beyond an unexamined allegiance to their idiosyncratic perspectives, in order to acknowledge the value of other ways of knowing and seeing the world. Instructors found that students often entered CCC having given little thought to how their view of the world might have influenced their interpretation of experiences. This validation of multiple ways of knowing and learning was consistent with other research on how people develop as thinkers and how they give voice to their beliefs (Belenky et al., 1997; Gilligan, 1993).

Students were encouraged by participants to test their beliefs against the strongest possible arguments. This process was similar to what Paul (1995) described as “strong sense critical thinking” (p.383). That is, participants endeavored to help students “reconstruct

sympathetically and imaginatively the strongest versions of points of view and frameworks of thought opposed to one's own" (p.550). When students put aside their own biases in order to consider the merit of other perspectives, instructors believed they were developing as critical thinkers. Reflective journals and role play were used to help students "step outside of who they normally are to consider other perspectives," as described by one instructor. Journals have been referenced frequently in the literature as an effective tool in helping students reflect upon their beliefs and consider other ways of viewing the world (Cranton, 2006; Eyler & Giles, 1999; Mezirow, 1990). Service-learning was also used to help students consider how issues might be seen by others from different backgrounds or perspectives.

As emerging critical thinkers, students were expected to question underlying assumptions. According to Paul (1995), all reasoning was based on assumptions. Participants helped students examine those taken-for-granted beliefs to determine their origins and how those assumptions might influence thinking. Like Paul, Brookfield (2006) also considered "assumption hunting" (p. 112) an essential element of critical thinking. However, participants, like Paul, believed that an examination of assumptions allowed one to become more skilled at argument analysis. This was quite different from Brookfield's assumption hunting as a form of ideology critique.

Class discussion and probative questioning were used by several participants as tools to uncover assumptions. As students tried to explain the reasons for their beliefs or to provide evidence for judgments, they realized that their comments were sometimes based on unclear, unjustifiable, or inconsistent assumptions. In his discussion of constructivist approaches to teaching, von Glasersfeld (1995) endorsed the use of probative questioning to explore how students might have arrived at their current understandings. Without understanding how a

student arrived at an answer, “the chances of modifying the student’s conceptual structures are minimal” (p. 15).

Several other research studies have also endorsed the usefulness of probing questions to examine assumptions and stimulate critical thinking (Browne et al., 1995; Browne, 2000; Litecky, 1992). However, there is evidence to suggest that many community colleges instructors pose questions that require little critical thought and encourage production of a single right answer (Grubb, 1999). Such questions often require only content memorization and entail little higher-order thinking. The selection of only exemplary community college teachers for critical thinking for this study might help explain the disparity between the findings of this study and those of Grubb’s research.

Instructors wanted students to be able to articulate and defend a position based on credible data. While many students were willing to share their perspectives on any number of topics, instructors stated that students were often less able to produce thoughtful and convincing evidence in support of those perspectives. Participants believed that it was important for critical thinkers to explain how and why they had arrived at their current position and to also explain why they had rejected other possible conclusions.

These findings were consistent with research suggesting that providing sufficient reasoning in support of an idea is a critical element of critical thinking (Browne and Freeman, 2000; Garside, 1996; Litecky, 1992). Chaffee (1992) believed that critical thinkers were distinguished by their ability to develop well-informed conclusions. From his perspective, a conclusion represented the culmination of an effective reasoning process which was often more interesting and instructive than the conclusion itself. In their review of research examining teaching critical thinking across the curriculum, Williams and Worth

(2001) also concluded that requiring students to use substantive information in formulating conclusions appeared to hold promise as a tool to develop students' critical thinking skills.

Formal essays and oral presentations were regularly used to encourage students could to articulate their beliefs and the thinking behind those beliefs. At a more informal level, several instructors used group discussions to encourage students to talk through their understandings so that they could benefit from feedback from other students.

Participants ultimately wanted their students to construct their own meaning. These instructors did not think it sufficient to simply pass on to students the perspectives and opinions that they as teachers had acquired. They expected students to reorganize their thinking when confronted with experiences that did not fit neatly with existing beliefs, and encouraged students to use their prior knowledge as a base from which to begin building new understandings. While acknowledging the importance of helping students expand their worldview, question assumptions, and develop defensible judgments, participants suggested that these skills were important in that they helped students build more accurate and well-reasoned understandings of the world and their place in it. Participants believed that students learned by interpreting what they saw, read, and heard based on existing beliefs and knowledge.

Espoused Teaching Beliefs and Beliefs in Practice

In their research on theories-of-action, Argyris and Schon (1977) proposed that individuals often hold one theory that reflects what they say (espoused theories), and another theory, often quite different, which reflects what they actually do (theories-in-use). They suggested that individuals were often unaware of any disparity between the two. The conceptual framework for this study was based, in part, on theories-of-action. Therefore, the

research was designed to examine participants' espoused beliefs about teaching for critical thinking and their actual teaching practices. During the first interview, participants were asked about their beliefs concerning critical thinking and their teaching practices designed to contribute to improved critical thinking. They were then observed conducting one of their classes. The intent was to gain insight into how their espoused beliefs were reflected in their teaching behaviors.

In general, participants' espoused beliefs about critical thinking were consistent with actual teaching actions. Interestingly, instructors were less explicit about their understandings of critical thinking when they attempted to discuss it as an abstract concept. However, during discussions of teaching practices and the review of videotaped class sessions, participants clearly stated their beliefs about what it meant to teach for critical thinking. Although participants were typically observed only once, many of the teaching practices described during the initial interviews were in evidence during classroom observations. For instance, classroom discussion, probative questioning, role play, and presentation of position papers were all observed as examples of techniques designed to foster critical thinking.

These findings were consistent with those reported by Hativa and Goodyear (2002) in their interviews of four exemplary university instructors. The researchers found a consistent link between espoused beliefs about teaching and instructional practice. Martin et al. (2000) interviewed and observed 26 instructors and found intentions and teaching practices to be generally consistent. The results of their observational study clearly showed that instructors teach differently depending upon what they want students to learn – their intentions for learning. Seidman (2004) also found a positive alignment between teachers' beliefs and

teaching practices for critical thinking in her research with exemplary university faculty. However, there is equally credible research suggesting that teaching practices are not always aligned with instructional goals (Murray & McDonald, 1997; Paul et al., 1997). In discussing teaching for critical thinking, Pratt (1998) asserted that instructors in higher education often intend to help their students develop as critical thinkers “yet many of them teach in ways that discourage these noble aims; their actions are inconsistent with their espoused intentions and beliefs” (p. 31).

The disparity in research findings might be explained by differences in sampling strategies. For instance, Paul et al. (1997) used probability sampling in their research. This allowed the researchers a higher degree of generalizability. However, this study as well and the research done by Hativa and Goodyear (2002) and Seidman (2004) used purposeful sampling (Patton, 2002) to explore the beliefs of exemplary instructors. In using purposeful sampling, these studies drew from the experiences of participants who had knowledge of the area being investigated. That is, these studies described the experiences of a certain subset of individuals and therefore, purposefully selected participants based on certain defined characteristics. This was especially appropriate in this study where generalizability was deemphasized. This researcher examined the beliefs of one small, select group of exemplary community college faculty. There was no attempt to generalize to a larger population.

Another possible explanation could be that this study as well as the research done by Hativa and Goodyear and Martin et al. (2000) included both interviews and observations. By utilizing a variety of data sources, i.e., data triangulation (Denzin & Lincoln, 2000) the researcher was able to test for consistency in her findings. The studies conducted by Murray and McDonald (1997) and Paul et al. (1997) relied solely on interviews, which made them

more vulnerable to potential errors linked to that method (Patton, 2002). Additional studies that examine not only what instructors say but what they do in the classroom are needed to help understand this relationship between espoused teaching beliefs and actual teaching practices (Kane et al., 2002). Nonetheless, findings from this study suggest that participants' beliefs about critical thinking are reflected in their intended learning outcomes for students and their actual teaching behaviors.

Contributions to Knowledge

This study makes several contributions to the understanding of teacher beliefs and practices in higher education. Specifically, it adds to an expanding body of literature on teacher beliefs which have been most often focused on teachers in primary and secondary schools. This study provides insight into one group of exemplary community college instructors' beliefs about critical thinking and how those beliefs are reflected in teaching practices.

This study contributes to the knowledge about the relationship between an instructor's ability to clearly describe her understanding of critical thinking and her ability to teach for critical thinking. Paul (1992, 1995) states that without a clearly articulated understanding of critical thinking, faculty are severely constrained in their ability to teach for it. However, this study suggests that the often unarticulated understandings about critical thinking that instructors bring to the classroom provide a valuable framework for how they approach teaching for critical thinking. Although participants were not immediately able to provide their textbook definitions of critical thinking, they had been selected specifically because they were recognized as exemplary teachers for critical thinking. Both Paul and Brookfield (1995) recommend that teachers make their understandings of critical thinking explicit, both

to themselves and to their students. However, most participants in this study chose not to specifically address their conceptualizations of critical thinking as a part of discussions with students about the objectives of the course. Additionally, course syllabi seldom made any direct reference to critical thinking. The findings from this study indicate that instructors believe they can teach for critical thinking when relying on predominantly tacit understandings. This is not to suggest that instructors would not benefit from a more explicitly articulated understanding of critical thinking, but that these intuitive understandings can provide useful guidance. Schon (1983) referred to this as “knowing-in-action” (p.167).

In addition, the findings suggest that congruency between espoused teaching beliefs and actual teaching practices is achievable. Research to date has yielded contradictory findings (Martin et al., 2000; Murray & McDonald, 1997; Seidman, 2004). Although there has been significant research about the influence of teacher beliefs on teaching practices (Kember & Kwan, 2002; Prawat, 1992; Prosser & Trigwell, 1997; Samuelowicz & Bain, 1992, 2002), few studies have examined instructor beliefs about critical thinking and how they teach for it. The study offers evidence to suggest that instructors’ beliefs about the nature of critical thinking are related to the instructional practices they employ and their intended learning outcomes. The results of this study emphasize the significant role that faculty beliefs play in the classroom.

Implications for Future Research

The intent of this research study was to examine the beliefs of exemplary faculty in humanities and social sciences about critical thinking and how those beliefs were reflected in actual teaching practices. The rationale for limiting the research to only those faculty

teaching within humanities and social sciences was based on the belief that those disciplines were important forces in helping students develop an attitude of criticality. However, in technical degree programs at the community college, only limited courses in the humanities and social sciences are required. If all graduates of the community college are expected to demonstrate critical thinking skills, it would be beneficial to explore how instructors in other disciplines understand and teach this important concept.

Future research would also benefit from examining the beliefs of non-exemplars in comparison to exemplary instructors. By definition, exemplars are in the minority. Therefore, it would be instructive to examine how closely the beliefs of non-exemplar instructors are reflected in their teaching actions. In addition, the exemplary faculty included in this study discussed their use of instructional strategies to help students develop their critical thinking skills. It would be interesting to determine if those same instructional strategies would work for instructors who had not been identified as exemplary. One might question if there is something unique to exemplary faculty in the way they employ these instructional strategies.

There is significant research suggesting that in order to make lasting changes in instructional practice, changes in educational beliefs are a necessary precursor (Kane, et al., 2002; McAlpine & Weston, 2000; Quinlan, 1999; Trigwell & Prosser, 1996). Given the enduring nature of beliefs, even when evidence proves contradictory (Bennett, 1996; Doyle, 1997), it would be helpful to have additional research concerning the efficacy of any existing programs designed to modify or transform the educational beliefs of faculty.

This study also raised interesting questions about the interaction between the beliefs and values of the instructor and those held by the institutions that employ them. In other

words, might an instructor perceive an implied constraint or endorsement of their own approach to teaching given the espoused values of the institution? For instance in this study, faculty evaluations and student opinion surveys did not specifically address critical thinking. Participants interpreted that as a lack of institutional commitment to teaching for critical thinking. Future research might benefit from an exploration of the interface between instructors' beliefs about teaching and institutional values.

Although not an explicit goal of this research, participants' discussions sometimes included their beliefs about the assessment of critical thinking. Participants acknowledged some degree of inconsistency between the critical thinking skills they identified as important, and the types of assessments they used. Additional research is needed to examine if faculty beliefs about critical thinking are reflected in their assessment of student learning. It would also be valuable to examine student perceptions of the value of critical thinking if it is not assessed as part of the course requirements or when it is not explicitly stated as a course objective.

Future research might also benefit from an in-depth examination of faculty beliefs about critical thinking as viewed through the four intellectual traditions described by Brookfield (2005). These traditions frame how one thinks about and practices critical thinking. Such an approach would offer insight into the educational journeys that instructors envision for their students, and the aspects of the journey that instructors choose to emphasize.

Implications for Practice

The findings from this study also contain implications for practice. Specifically, this section suggests areas that might be of particular interest to faculty development

professionals. The implications are intended for that audience.

Participants indicated that they were very interested in improving their teaching practice, and welcomed the opportunity to talk about their teaching. The videotaped classroom observations provided a way to examine and discuss teaching intentions and practices in a safe and non-evaluative environment. As mentioned earlier, most of the instructors said that the videotaped sessions reviewed for this study were the first time that they had actually seen themselves teaching. Generally speaking, they had only their own perceptions and student feedback to gauge their effectiveness.

The findings of this study suggest that the use of videotaped classroom sessions could be a valuable professional development tool. By inviting instructors to videotape their classes, faculty development professionals provide an opportunity for instructors to reflect on how their espoused beliefs about teaching are reflected in their actual teaching practices. This recommendation is consistent with models of teacher development that emphasize the link between instructors' knowledge and experience and teaching practices through reflection, practice, and feedback (McAlpine & Weston, 2002). Brookfield (1995) also recommends reflection as a tool to help instructors learn from their own practices. Videotaped class sessions also provide an opportunity for the instructor to observe student reactions without trying to address the immediate demands of classroom management. In one sense, instructors are learning from themselves.

In discussing their role in a critical thinking classroom, participants functioned both as content disseminator and facilitator of constructivist teaching practices. Although they recognized the value of content dissemination in provide the scaffolding for critical thinking, they preferred the facilitative role in teaching for critical thinking. Faculty might benefit

from training in how to make lectures more interactive. However, training alone may be inadequate. Faculty developers might want to begin by asking faculty to think about what they want their students to know and how do they want them to come to know it. Martin et al. (2000) suggest that resolving such questions can provide guidance in how instructors teach their classes. When faculty can articulate essential learnings in their courses, they may be better prepared to integrate their roles as content disseminator and facilitator.

Faculty could also benefit from training on how to make their beliefs and expectations about critical thinking clearer. However, this goes beyond offering workshops and speeches. Institutions need to encourage a culture of reflective practice in order to help faculty examine the beliefs that animate their teaching. Faculty and administrators alike should engage in questioning assumptions and perspectives if they expect to make critical thinking part of the learning environment.

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APPENDICES

- a product of your own thinking and experiences or more a product of a particular theory of critical thinking?
5. Describe your beliefs about critical thinking as a goal of higher education.
 6. How would you describe the role of critical thinking in your particular discipline?
 7. What do you believe to be the instructor's responsibility for stimulating critical thinking in the classroom?
 8. How do you use instructional strategies to support development of critical thinking?
 9. What adjustments (if any) have you made in your teaching approach in order to create a classroom climate that stimulates critical thinking?
 10. What particular instructional strategies do you use in your classroom to promote critical thinking?
 11. What is the role of reflection in learning to think critically?
 12. What do you believe about adjusting teaching to accommodate for different levels of cognitive development in students?
 13. How do you assess critical thinking skills in your classroom?
 14. How do you communicate the value of critical thinking to your students?
 15. How would you model critical thinking for your students?
 16. Some instructors have stated that they have too much to cover to be able to teach for critical thinking. What do you believe?

**Appendix B
Observation Notes**

Time:
Date:
Location:

Descriptive Notes	Reflective Notes

Appendix C
Contact Summary Form

Type of Contact: ___1st Interview
 ___Videotape of Instructor
 ___2nd Interview

Time:

Site:

Course:

Instructor:

Pseudonym:

Date Coded:

(Researcher comments should be set off by double parentheses)

Page Important Points

Tentative Themes

Appendix D
Initial Letter to Faculty

Dear Faculty Member:

In fulfillment of the requirements for completion of the doctoral degree in Adult and Community College Education at North Carolina State University, I am conducting a research study of community college faculty members' beliefs about critical thinking.

The purpose of this dissertation study is to describe how instructor beliefs about critical thinking influence teaching practices. This research is important because there is little information available that describes how educators have come to understand critical thinking and how that understanding influences classroom behaviors.

I have received permission from Jane Smith, Vice President for Instruction, to survey faculty who teach college transfer classes concerning their perceptions of critical thinking. As CCC transitions to a learning-centered college, this type of reflective practice can be helpful to individual faculty members and to the entire College.

Attached is a brief electronic survey asking you to describe your use of certain instructional strategies. Please take a few moments to complete the survey. Although you are asked to provide your name, all completed forms will be assigned a pseudonym as soon as I receive them in order to ensure confidentiality. By submitting the survey, you are granting me permission to use the aggregate data in my research. Some participants, depending on their survey responses, may be contacted for further research about critical thinking in the classroom.

To thank you for your time, every completed survey will be entered into a drawing for a \$50.00 gift certificate to Amazon.com. The winner will be notified within one week of the conclusion of the survey. I appreciate your cooperation and look forward to hearing from you.

Sincerely,

Debbie Bouton

Appendix E Faculty Survey of Critical Thinking

Instructor Name _____ Academic Dept. _____

Please rate the following items on a scale of 1 – 5 with 5 being “Use Consistently” and 1 being “Never Use.” Please rate based your actual behavior in the classroom, not on what you think “should” be done. Circle the number that most closely describes your typical behavior.

	Consistently 5	Frequently 4	Sometimes 3	Seldom 2	Never 1
1.					
	5	4	3	2	1
2.					
	5	4	3	2	1
3.					
	5	4	3	2	1
4.					
	5	4	3	2	1
5.					
	5	4	3	2	1
6.					
	5	4	3	2	1
7.					
	5	4	3	2	1
8.					
	5	4	3	2	1
9.					
	5	4	3	2	1

10. Challenge the unexamined assumptions of your students (Brookfield, 1987).
- 5 4 3 2 1
11. Include written assignments that ask students to develop and defend a position (Tsui, 1999).
- 5 4 3 2 1
12. Give students multiple opportunities to refine assignments (Maki, 2005).
- 5 4 3 2 1
13. Feel that topics such as critical thinking are most appropriately taught in a course focused specifically on that as a content area.
- 5 4 3 2 1
14. Assign a reflective journal for students to work on throughout the semester (Eyler & Giles, 1999).
- 5 4 3 2 1
15. Respond to journal entries regularly and in a supportive manner (Eyler & Giles, 1999).
- 5 4 3 2 1
16. Use active learning strategies such as debate, role playing, simulations, demonstrations, or interactive lectures (Browne & Freeman, 2000).
- 5 4 3 2 1
17. Intentionally introduce uncertainty into the classroom to encourage students to question “right” answers (Browne & Freeman, 2000).
- 5 4 3 2 1
18. Explicitly identify for your students what critical thinking is and what it is not (Cromwell, 1986; McKeachie & Svinicki, 2006).
- 5 4 3 2 1
19. Answer your own questions when students fail to respond in a timely fashion.
- 5 4 3 2 1
19. Ask students to practice critical thinking skills within the context of peer interaction (King, 1994).
- 5 4 3 2 1

Please list any professional development activities that you have attended during the past two years that deal with critical thinking.

Do you include improved critical thinking as a stated course objective? If so, how do you assess development in students’ critical thinking abilities?

Appendix F

Strategies for Teaching Critical Thinking

- Use of active learning methods such as debate, role playing, simulations, demonstrations, and interactive lectures (Browne & Freeman, 2000).
- Writing to learn activities that engage the student in the process of knowledge making (Tsui, 1999).
- Asking structured questions that build on student cognitive skills (Browne & Keeley, 2004).
- Use of well planned groupwork that engages students in shared learning experiences (Garside, 1996).
- Use of cooperative learning activities by developing peer learning communities (Brookfield, 2005).
- Introduction of controversy into the classroom which allows students to “struggle” with the lack of definitive answers (Browne & Freeman, 2000).
- Modeling of critical thinking as an instructor (Brookfield, 2005; McKeachie & Svinicki, 2006).
- Providing ample time for constructive feedback (Tsui, 1999).
- Making explicit what is expected of students as critical thinkers (Cromwell, 1986; McKeachie & Svinicki, 2006).
- Supportively challenging students to explain and defend their answers (Browne & Freeman, 2000).
- Use of reflective journal (Eyler & Giles, 1999).
- Allowing sufficient time for students’ reflective responses (King, 1994).
- Provide time during class for students to monitor their own thought processes to determine if they are thinking critically (Halpern, 1999).
- Foster self-assessment of reasoning (Paul, 1999)

Appendix G

Researcher Bias Statement

The researcher has over 15 years experience in the community college system. She has a strong commitment to creating a learning-centered college and considers faculty members critical to achieving that goal. Although she has assisted in course development, her classroom experience is limited, and it must be acknowledged that the researcher's understandings of faculty and teaching may be naïve at best. However, the researcher's relative lack of actual classroom teaching experience may provide a fresh perspective from which to view the data. Her initial assumptions in considering this research project include a belief in the importance of teacher-student interaction, an interest in the consistency of espoused instructors' beliefs and classroom behavior, and a growing interest in critical thinking as a learning outcome.

The researcher enters this study with a nagging feeling that while many instructors in the community college publicly endorse the value of critical thinking; they may fail to reflect that commitment in actual classroom practice. Although context is an important consideration, it is the belief of the researcher that instructor beliefs about critical thinking impact how the classroom is structured. Instructors often struggle with choices between depth and breadth, and it appears that breadth is often an expedient choice. It was this fascination with the tension between beliefs and practice that first sparked the researcher's interest in the topic.

It will be the responsibility of the researcher to refrain from allowing personal perspectives to influence how questions are asked or interpreted. The use of videotapes will help provide a more controlled subjectivity by addressing specific behaviors rather than the

researcher's interpretation of the behavior.

The researcher definitely has a bias as a practitioner. There is a felt need to “solve the problem.” Throughout this study, the researcher will attempt to bracket her tendency toward practical application in order to give voice to the beliefs and perspectives of the participants in the study.

Appendix H
Letter of Invitation to Exemplary Faculty

Dear Instructor:

You have been identified as an exemplary teacher for critical thinking. As a part of my dissertation, I am asking instructors who have a reputation as model teachers for critical thinking to complete a short critical incident questionnaire. If you could take a few minutes to respond to the attached prompt and return to me, I will use your response to help clarify what make an instructor “exemplary.” Of course no identifying information will be used.

If you are willing to participate, please return your response to me within the next ten days. If you would rather not participate, please let me know and I will not contact you with any additional requests concerning this research study.

Thank you for considering my request.

Debbie Bouton

Appendix I
Follow-up Questions: Third Interview

1. How do you develop your students' critical thinking skills?
2. What particular critical thinking skills are you addressing in this course?
3. What is a good indicator that your students are "getting it" in terms of thinking critically?
4. What is your role in the development of your students' skills or dispositions for critical thinking?
5. Generally speaking, do you feel students come to your course well-prepared by their prior education or experiences to exercise their critical thinking skills?
6. What qualities or intellectual standards do you look for in your students' reasoning that tells you whether or not they are reasoning well?
7. What factors limit or enhance your ability to focus on critical thinking in your course? What factors limit or enhance your effectiveness?
8. What about this institution impedes or fosters the development of students' critical thinking skills?
9. What does effective teaching mean to you?
10. What is the difference between being an effective teacher and teaching for critical thinking?
11. What is the relationship between the two?
12. Please describe any changes in your approach to teaching during your tenure as a teacher, especially in regards to critical thinking?
13. How have you come to understand critical thinking?

14. What is your place in a classroom designed to help students develop their critical thinking skills?
15. At the “end of the day,” what do you want your students to leave with when the class is over?
16. Describe the adequacy of your understanding of critical thinking as it relates to your ability to accomplish what you want in your classroom.

Appendix J Narrative Profiles of Participants

Holly

With only two years teaching experience, Holly has gained a reputation as a conscientious and hard-working professional. Holly was the youngest participant in the study. She teaches history and was a participant in CCC's Critical Thinking Pilot Project. Her current position is her first full-time job. Her father is also a teacher and serves as a sounding board for her ideas about teaching and learning. Holly frequently seeks out advice from more experienced instructors concerning how she might infuse critical thinking into her classes. She was recently asked to join the Strategic Planning Committee at CCC. She reported staying late most days and working on the weekends to grade papers and to fine-tune new instructional strategies. She described herself as "relentless" in her search for strategies that might help inspire her students as they study history.

Phil

When asked to nominate instructors for this research study, Phil's division director described him as "brilliant" and "extremely student centered." Phil is in his 50's and is a veteran instructor with over 15 years of experience at CCC. He typically teaches 6 courses of composition and literature each semester. The courses are writing intensive and require prerequisites to enroll. At the time of the study, Phil was receiving one course reassigned time to chair a faculty research committee at the college. Phil is a self-proclaimed "agitator" who is dedicated to improved student learning. During the interviews, Phil appeared serious and extremely focused. However, in the classroom he exhibited a sense of humor that seemed to be much appreciated by the students.

Bruce

Bruce was employed at CCCC during the 1990s, left to complete his doctoral work and returned to the College when a full-time teaching position became available. He is in his mid-thirties and teaches religion and mythology. He said that his love of teaching pulls him back to the classroom even in the summer, when friends are off for some well-deserved rest. Bruce is one of those instructors who seem to always have a group of students in tow. Students come early and stay late to continue discussions or to ask questions that surfaced during class. He wants them to feel that they have permission to question and challenge. Recently Bruce began offering service-learning as an option in his classes. He believes that the service learning option helps his students expand their view of the world. Bruce is consistently recognized for the quality of his teaching.

Lana

Lana describes herself as a “sociologist first and teacher second.” She splits her time, serving as discipline chair for psychology and sociology and teaching three sociology classes. She is an experienced instructor who recently enrolled in a doctoral program in educational leadership. She tries to balance the demands of a full-time job, family, and school work. Lana is a 30-something professional who claims to have no aspirations beyond that of classroom teacher. She says that she sets high standards for her students although she also provides a great deal of support and encouragement. Lana teaches several online courses. Her colleagues frequently request her help in developing their own online courses.

David

David was a relative newcomer to teaching at the time of this study. After completing work on his PhD in history, he was employed part-time at CCC for two years before being hired as a full-time history instructor. David frequently teaches overload courses, bringing his teaching load to sometimes seven or eight classes per semester. Because of the combination of online and seated classes, he felt that he was able to manage the load.

In his early 40's, David is a dynamic instructor. Quiet and reserved in most professional situations, he is energetic, engaging, and expansive in the classroom. David was also an active participant in the Critical Thinking Pilot Project at CCC. During his participation, he was always willing to share what he was trying out in the classroom. He also appeared very open to feedback from his peers. He said that his first priority was helping students become better thinkers and therefore he welcomed all suggestions to that end. Because of this experience, he was asked by his division director to serve as division liaison in the core competency initiative at CCC.

Rhonda

Rhonda was the most experienced of the instructors included in the study. She had been teaching art for more than 20 years at the time the research was conducted. Rhonda taught in the university system before coming to CCC. In her 50's, Rhonda was a practicing artist as well as a full-time teacher. She involved her students in art projects outside of CCC. It was important for her to share her passion about art and about learning with her students. Rhonda believed that her job was to help students develop as lifelong learners.

Ronda also participated in the Critical Thinking Pilot Project, and was engaged in a continuous dialogue about how critical thinking could be infused into the classroom. Rhonda was always looking for ways to improve what she did in the classroom. Feedback was seen as an opportunity for growth.