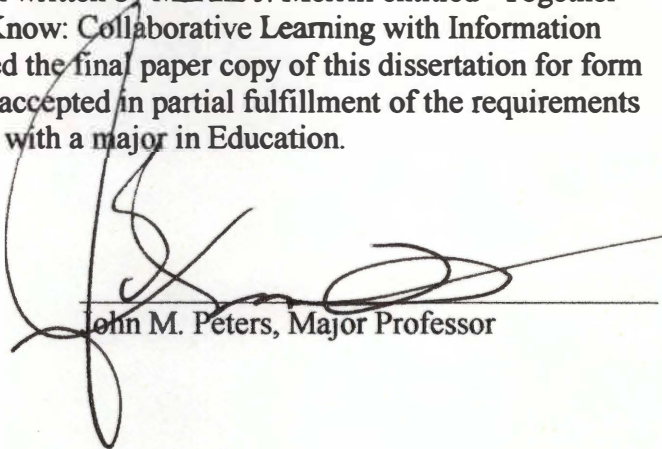


To the Graduate Council:

I am submitting herewith a dissertation written by Martha J. Merrill entitled "Together We Know More Than We Know We Know: Collaborative Learning with Information Technology Students." I have examined the final paper copy of this dissertation for form and content and recommend that it be accepted in partial fulfillment of the requirements for the degree of Doctor of Education, with a major in Education.

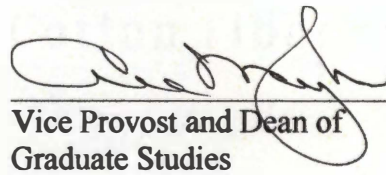


John M. Peters, Major Professor

We have read this dissertation
and recommend its acceptance:



Accepted for the Council:



Vice Provost and Dean of
Graduate Studies

**TOGETHER WE KNOW MORE THAN WE KNOW WE KNOW:
COLLABORATIVE LEARNING WITH INFORMATION
TECHNOLOGY STUDENTS**

**A Dissertation
Presented for the
Doctor of Education
Degree
The University of Tennessee, Knoxville**

**Martha J. Merrill
May 2003**

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2003b
.M47

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DEDICATION

This dissertation is dedicated to

my mother, Norma H. Merrill, who taught me

to love learning

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ABSTRACT

This study describes the collaborative learning experiences of a community college instructor and her students in an information technology course. Peters and Armstrong's (1998) Types of Teaching and Learning model served as a framework for the instructor's introduction of collaborative learning into a traditionally-taught course, and Peters' (1998) approach to action research was used as the principal method of inquiry. Phenomenological and semi-structured interviews, field notes, and researcher journal entries generated the data. The ethnographic methods of Spradley (1980) and Hatch (2002) were used to analyze data.

The inductive analysis surfaced four themes: relationships, positioning, dialogue, and mindfulness. These themes described the participants' experience with learning how to learn software applications. The themes also closely approximated the description of three of four elements of Peters and Armstrong's Type III Teaching and Learning.

The addition of collaborative learning to the course design enhanced students' learning experience and led to changes in the instructor's practice. Implications for other college instructors who teach information technology courses are discussed, as are suggestions for employing action research in the college classroom.

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CHAPTER ONE

INTRODUCTION

**I am a teacher at heart, and there are moments
in the classroom when I can hardly hold the joy.
When my students and I discover uncharted territory to explore,
when the pathway out of a thicket opens up before us,
when our experience is illuminated by the lightning-life
of the mind—then teaching is the finest work I know.
(Palmer, 1998, p.1)**

Teaching IS the finest work I know. Few teachers would deny, though, that teaching is a challenge. I teach information technology courses at a community college where I search for ways to improve my practice to meet students' learning needs and to provide for their different ways of knowing. Reflection is a daily part of my teaching practice, but I sought a deeper understanding than informal reflection could offer. Action research offered a path to deeper understanding. As I embarked on this action research study, I thought of a proverb that Dr. Paul Brewer, my undergraduate philosophy professor, used; "Physician, heal thyself!" I adapted this proverb to "Teacher, teach thyself!" My purpose in conducting this study was to do just that. The following pages tell the story of my action research to teach myself about my practice as a community college instructor.

This study is more specifically about my facilitating and engaging in collaborative learning—"constructing knowledge collectively as people work, inquire, and learn together based on a shared purpose" (Retrieved July 5, 2002, from University of Tennessee, Collaborative Learning Web site: <http://web.utk.edu/~collab/>)—in an information technology course with community college sophomores. I sought to learn

what features of collaborative learning would stand out, or be most notable, in our experience of implementing collaborative learning. Although the findings reported here speak to me personally about my teaching practice, I hope that the lessons I learned along the way may speak to others involved in "the finest work I know."

Approach to the Study

I chose action research for this study because action research "emphasizes integrating: being in the world, acting in the world, and inquiring into and reflecting on being and action. This contrasts with all forms of research that are founded on a separation of the researcher from action, putting the researcher 'outside' what is being studied. Action research immerses the researcher in the action setting." (Patton, online communication, 1999). I used the DATA-DATA model for action research (Peters, 1997, 2002) because it provided a disciplined approach to reflecting on my practice as well as a framework for selecting and implementing a research methodology appropriate to the formal study of my practice. DATA-DATA is a cycle of eight phases of action involved in an action research project. The first letter of each phase forms the DATA-DATA acronym. DATA-DATA is not necessarily a linear process; moving back and forth between the phases lends flexibility to the model. A brief description of the eight phases follows:

1. **Describe:** Describe the area of practice that the practitioner wants to improve and the situation in which the practice occurs
2. **Analyze:** Identify the underlying assumptions that have contributed to the present area of concern or interest and the reason for the concern or interest

3. **Theorize:** Formulate a practical theory for alternate ways to approach the area of interest or concern and the questions that will guide inquiry
4. **Act:** Act on the basis of this practical theory and/or identify research questions to guide a study of the practice
5. **Design:** Design or identify the method and procedures for collecting data
6. **Analyze:** Analyze and reflect on the data collected
7. **Theorize:** Refine the practical theory
8. **Act:** Depending upon what is learned, modify the practice

(For more on DATA-DATA, see Table 2 in Chapter Two).

I also used the framework of the DATA-DATA model to structure the presentation of this study. As I cycled through the first set of four phases (**DATA**), I explored my practice and its underlying assumptions and developed a practical theory for how I might implement collaborative learning in one of my courses. The first four phases, **DATA**, comprise Chapter One of this study. I moved into the second DATA as I discussed how I designed this inquiry into my practice. Chapter Two discusses the design of the study, which is the Design phase of DATA-**DATA**. Chapter Three is an expression of my practical theory in practice. In Chapter Four, I report and begin to discuss the findings that I identified in the sixth phase of DATA-**DATA**, Analyze. Chapter Five further explores the findings in terms of related literature. In Chapter Six, I cycle through the last two phases of DATA-**DATA**, Theorize and Act; I revisit my practical theory and discuss revisions and recommendations for further research.

DATA-DATA: Describe

The first phase of the DATA-DATA model of action research is to describe my practice as a community college instructor in the field of information technology.

Background of the Practice

I teach at Pellissippi State Technical Community College (PSTCC), which has been providing career and technical training to the Knoxville, TN area since 1974. Founded as State Technical Institute of Knoxville, PSTCC quickly grew into a two-year community college with an average enrollment of over 7,500 students. Although many programs at Pellissippi State fashioned themselves as springboards to other higher education institutions offering four-year degrees, several programs maintained their career/technical status, offering associate of applied arts degrees designed to move students into the workforce. The Office Systems Technology (OST) program, located in the Business and Computer Technology (BCT) Department, is in this latter category.

The educational background of information technology instructors is often steeped in business education teaching techniques, featuring a “describe, demonstrate, and do” method as the tried and true way to develop computer skills. For example, in computer use, knowing the right key combinations or the right mouse moves is considered essential to mastering computer application software. The traditional format for teaching computer skills is often limited to these actions: describe the feature or function, demonstrate the feature, ask the students to practice the feature, move to the next feature, and so on. Although this “describe, demonstrate, do” approach to teaching incorporates a seminal adult learning principle—that adults learn by doing—it assumes

the role of learner as a recipient of information rather than an active participant in the co-construction of knowledge.

This approach to teaching is typical of Type I, the first of three Teaching/Learning Types identified by Peters & Armstrong (1998). These three Types describe the relationships between teachers and learners in a learning environment. Type I, described as “teaching by transmission, learning by reception” (Peters & Armstrong, 1998, p. 78), positions the teacher as the knowledge caretaker who imparts “knowledge” to learners. A Type I teacher makes the decisions about what is to be learned, how it is to be learned, and how learning is to be assessed. The information flow is generally unidirectional and the relationship is between teacher and learners.

Type II Teaching/Learning, described by Peters and Armstrong as “teaching by transmission, learning by sharing” (p. 79), positions the teacher as an important source of knowledge, but also as a facilitator of student-to-student learning. The teacher remains the caretaker of what is to be learned and how it is to be learned, but the learners have some freedom to take the teacher’s learning tasks in different directions. The information flow is from teacher to learners and from learners to learners, as the learners contribute their understanding of the content that the teacher previously determined relevant.

Type III Teaching/Learning suggests a new kind of relationship between teacher and learners. In Type III the line between teacher and learner becomes blurred. The relationship becomes “defined in terms of learner to learner, learner to group, and group to learner” (Peters & Armstrong, 1998, p. 79). The teacher is no longer the caretaker of knowledge, but positions herself as co-creator of knowledge within a community of learners. Knowledge is created as learners, including the teacher, learn with each other

and with the group. All learners in the group share responsibility for what is to be learned, how it is to be learned, and how learning is to be assessed. As learners decide together what the learning tasks will be, work together to create knowledge which did not exist before, and assess together what was learned, the relationships between teacher, learner, and group change. What each learner contributes to the learning experience becomes a part of the others' knowledge as well as a part of the group's knowledge, and the group's knowledge becomes part of the individual learner's knowledge. This co-construction of new knowledge in the redefined teacher-learner-group relationships of Type III is collaborative learning.

I had used both Type I and Type II Teaching/Learning in the information technology courses I teach. Type I seemed to be necessary to learn the terminology and concepts behind efficient software use, so I utilized the "describe, demonstrate, and do" method of teaching so common to business educators' instructional styles; Type II seemed like a good way to have students practice group skills through group activities. But I was also interested in how Type III Teaching/Learning might work in a technology-based course.

DATA-DATA: Analyze

In the Analyze phase, the second phase of DATA-DATA, I identify assumptions and resultant approaches that have contributed to the situation described during the first phase. I also discuss the reason for interest in the present area of concern.

Assumptions about the Practice

As I considered the circumstances of my practice, I reflected on my preparation for and approach to teaching. I often reflected on what I had done in the classroom and wondered if I could have done something differently for better learning outcomes. I tried to practice relational responsibility (McNamee and Gergen, 1999), defined as acting “in ways that might sustain and support the process of constructing meaning as opposed to terminating it” (p. xi), by recognizing the multitude of voices that each student brings to the learning environment and by attending to individual student needs. I designed learning activities that required students to think and to problem solve rather than to memorize software features and functions. I frequently administered Classroom Assessment Techniques¹ to assess the effectiveness of my teaching in supporting student learning. I offered multimedia presentations to reach the many learning modalities represented in a community college classroom filled with diverse learners. Each semester I read journal articles about technology, teaching and learning, adult education, and assessment. I talked with other professors about what works in the classroom for them and about the instructional delivery systems they devise. I did everything that most other professors did to prepare for teaching.

¹Classroom Assessment Techniques (CAT's) are "mini" action research projects. An example is a CAT called "The Muddiest Point"; students are asked to list concepts that were unclear or "muddy" during the day's learning activities (Angelo & Cross, 1994). Teachers use the information gleaned from these CAT's to inform their practice.

However, when I taught using Type I or Type II Teaching/Learning, I felt as if I were performing. I had my lecture notes, my handouts, my multimedia presentations, and my topics for discussion, but the ideas and concepts were the ones that I thought were important, the learning tasks were the ones that I thought would help students learn, and the tests and CAT's assessed what I thought the students should have learned. During the performance, I was limiting students' learning to what I thought was important to them. Didn't the students have some experience and knowledge to share? Didn't they have ideas about what they needed to know to succeed in their practices? Why was I teaching as if I alone held the key to knowledge about computer applications?

I was not convinced that I was teaching as well as I could, that I was making a difference in the way students related to me, that I was creating a space where students felt free to explore ideas and concepts in which they had an interest, that I was teaching and learning in a way that was intriguing to me (I must admit that I was not challenged), or that my students and I were learning more than "content." I was not satisfied. I wanted to learn more about how to make teaching and learning exciting, about how to relate to students, to see and hear what they wanted to learn, to understand with them how they wanted to learn, to determine how to "go on" (Wittgenstein, 1953, no. 154) with them in learning experiences (to learn how to be and how to act as we evolved into a group engaged in collaborative learning).

Through my experiences in the Collaborative Learning program at the University of Tennessee, I had seen the promise that collaborative learning holds. I had experienced the power of learning in relationships within "resourceful or mutually enabling communities" (Shotter, 2000). My confidence in my ability to think critically by learning

about the process as well as the content increased. I had seen and felt the value of learning about and within different ways of knowing. In what Katz termed a “community of resourceful learners” (Katz, online communication, 2001), I had experienced making meaning with others. I had learned by engaging with others in dialogue that opened up “new possibilities, new ways of going on with others not before thought possible—because of the fixed ways in which they had previously been imagined. By everyone involved voicing what matters to them, and by exchanging their different views on each others’ concerns, all become engaged in the process of making meaning together” (Katz et al., 2000). I had known firsthand the excitement of co-creating something new in relationship with other learners, of “losing myself” in the relationships created within the group by asking, as Ziegler asks, “Where do I end and you begin? What part of what you say is yours and what part is my responding to you?” (Ziegler, online communication, April 2001). I wanted to create a space where those experiences might occur for the students in my classes.

Although my curiosity about creating that space and my personal positive experience with collaborative learning should have sufficed as reasons enough to begin an inquiry, there was also a documented need for students majoring in technical fields to develop “people skills.” For example, four universities in the Philadelphia area changed their computer science and information technology curricula to include “people skills” at the request of seven major corporations (Olsen, 2001). The technology departments of these universities had previously concentrated on teaching students the value of “getting the widget to work,” but have come to realize that team participation skills, project management skills, and interpersonal skills were also important. As a result of this

perceived need, these universities are incorporating soft skills training that targets the “heads-down programmers who don’t realize the impact of their job on seven other jobs in a project, or how to relate with the team [which]...often includes the customer as well as employees in different business units of the company” (Olsen, p. 1). According to a University of Michigan survey of five hundred U.S. employers, the most sought-after employment skills included interpersonal skills, oral-communication skills, and problem-solving abilities (Newhouse, 1998). These studies indicated that, as the need for workers with technology skills increases, so does the need for those workers to have communication and team/group skills. Technological skills alone are no longer sufficient in current work environments; students of technology need to be students of teamwork and group learning, collaborative learning. I asked myself, “How might I introduce my students to the communication and group learning skills needed in today’s workforce? Further, might a different way of teaching and learning, collaborative learning/Type III, give me the satisfaction and challenge that I need? What would happen if I implemented collaborative learning (Type III) in one of my information technology courses?”

DATA-DATA: Theorize

Development of a Practical Theory

During the third phase of DATA-DATA, I devised a practical theory for dealing with the situation as described and analyzed in the first two phases of the DATA-DATA model. This practical theory of how and why I wanted to address my need for a challenge in my teaching (I was not satisfied with the “describe-demonstrate-do” method of teaching) and my desire to introduce my students to the communication and group skills

sought by employers grew out of a combination of three components. In addition to my personal experience of teaching technology-related subjects in a community college and my experiences of and with collaborative learning during graduate study, my study of literature related to collaborative learning and Types of teaching/learning contributed heavily to the development of my practical theory. Two theories, Peters and Armstrong's (1998) model of three Types of Teaching/Learning and Peters' (2002) model of four elements of collaborative learning, were instrumental in my thinking about a practical theory for implementing collaborative learning.

Peters and Armstrong's (1998) model of three Types of Teaching/Learning offered me a new way to categorize the teaching approaches I had experienced over the years, either as a teacher or as a student. Type III, collaborative learning, seemed to be a way of teaching and learning that promised both a challenge for me as teacher and facilitator and a vehicle for practicing communication and group skills. I considered what each of the three Types would "look like" in one of my courses. How could I characterize the responsibilities of teacher and student for a sample task in the three Types of Teaching/Learning? I followed each Teaching/Learning Type through the responsibility for a learning task, in this case determining what students should learn in a course, and created Table 1 to summarize my interpretation.

I offer one caveat to Table 1. This table seems to suggest that each Type of Teaching/Learning occurs in isolation from the other, but such is the limitation of a table; I do not mean to make that suggestion. Learning tasks might require that I shift from one Type of Teaching/Learning to another within the same learning experience. For example,

Table 1: Task Responsibility in Type I, II, and III Teaching/Learning

Primary Responsibility	Type I Teaching/Learning	Type II Teaching/Learning	Type III Teaching/Learning
Responsibility of The Teacher	✓ Reviews syllabus for material “that must be mastered” in this course ✓ Reviews text to see what “experts” think learners should learn and how ✓ Asks other teachers what they think is important for learners to “take away” from this course. ✓ Designs assessment instruments to measure learner “retention” and learning ✓ Decides when to assess learning and how	✓ Decides important concepts ✓ Designs small group topics	TEACHER/ LEARNER LINES BLUR: DUAL RESPONSIBILITY ✓ Decide together what we as a group want to learn about this software ✓ Decide together how we as a group are going to learn what the group wants to learn ✓ Decide together how to assess learning ✓ Revise together any or all of the above when group decides necessary
Responsibility of The Learners	✓ Complete assignments ✓ Learn what the teacher has decided should be learned ✓ Participate in assessment activities designed by teacher when scheduled by the teacher	✓ Discuss general topics with flexibility to move around topics ✓ Decide the direction that the concepts take as a group ✓ Report back to other students and teacher their discussion of the topic that the teacher assigned	✓ Responsibility is fluid, flowing from teacher to learner and learner to learner at different times in the learning experience.

students may require a more teacher-directed approach, Type I Teaching/Learning, in the early stages of learning a task or concept. Then as students become more comfortable with the basic concepts, I might move into a Type III approach where students, as members of the group, become co-constructors of what we learn.

In developing my practical theory, I anticipated that collaborative learning would provide for me the challenge I was seeking; I did not have a great deal of experience in the facilitation of collaborative learning in a technology-driven course. Could I, through putting my practical theory into practice, meet the challenge of weaving all the collaborative learning elements and relationships into meaningful and effective learning experiences in an information technology course? This challenge was exciting, even somewhat overwhelming, and would certainly broaden my skills as an instructor. I would learn more about creating a dialogical space, dialoguing about technical subjects, using cycles of action and reflection, creating new knowledge and meaning with a group of students, experiencing different ways of knowing, and embracing the unknown of where our collaborative learning would take us.

I also assumed that collaborative learning would meet my second reason for looking for ways to improve my practice. Collaborative learning would provide practice with the group skills that my students would need in their future workplaces as businesses place greater value on group skills, team participation and interpersonal skills, as well as technical skills. Through my study and experience of collaborative learning, I had learned that working together to construct knowledge provides students with the opportunity to practice dialogue (including respectful inquiry), cycles of action and reflection, shared responsibility for group understanding and outcomes, and respect for different ways of

knowing and learning—all valuable group skills that could benefit students in business work situations. So, to heighten the challenge of teaching for me and to introduce students to the group skills needed in today's businesses, I decided to introduce and facilitate collaborative learning experiences in my spring Excel course.

I continued to develop my practical theory. The inclusion of Type III Teaching/Learning would provide the opportunity to see what it would be like to experience collaborative learning with the students in this technology-driven course. I anticipated that it would also present me with the challenge I was seeking and permit students to practice group skills. However, one question remained in the development of my practical theory: How could I facilitate collaborative learning in an information technology course?

Earlier, I discussed Peters and Armstrong's and the UT Collaborative Learning program's definition of collaborative learning. Bruffee's (1993) definition of collaborative learning combines social construction of knowledge and interdependence: "Knowledge is a constructed sociolinguistic entity and learning is an interdependent social process" (p.202). Katz describes collaborative learning as "people acting as resources for each other in a particular context of interaction...a community of resourceful learners" (Katz, online communication, March 30, 2001). Collaborative learning involves coming together with a "relational, dialogical stance" (Shotter & Katz, 1996, p. 214). In collaborative learning, everyone in the group positions themselves (Davies & Harré, 1990) as co-constructors of knowledge. My definition of collaborative learning is this: people, acting from within their particular roles, position themselves as

co-constructors in the social construction of knowledge and, through intentionality and mindfulness, create new knowledge and/or meaning together.

My developing practical theory had **what**, *introduce Type III Teaching/Learning (collaborative learning) as well as Type I and Type II in a technology-driven course*, and **why**, *to provide a challenge for me as a teacher and to give my students a chance to practice needed group skills*, but needed a plan for facilitating collaborative learning. What would my approach be? The second model I mentioned above, Peters' (2002) four elements of collaborative learning—a dialogical space, cycles of action and reflection, focus on construction, and multiple ways of knowing—served as a conceptual framework for the Type III Teaching/Learning that I wanted to occur in the classroom. If collaborative learning could be understood in terms of these four interdependent elements, then I assumed that I, as facilitator, could act in ways that would recognize and acknowledge the contribution of each of these elements to the creation of a collaborative learning experience.

Collaborative Learning Elements

It is difficult to discuss one element of collaborative learning without mention of the other three; it falsely suggests that one element necessarily occurs before the other. I discuss each element in turn here solely for the purpose of organization.

A Dialogical Space. To facilitate collaborative learning, I would need to develop and maintain a dialogical space, a space where we, as co-constructors of knowledge, were welcomed and welcoming, respected and respectful, trusted and trusting, and encouraged and encouraging. This kind of dialogical space would nurture a new way of talking for the group, dialogue. My working definition of dialogue was drawn from Isaacs' (1999):

Dialogue, as I define it, is a conversation with a center, not sides. It is a way of taking the energy of our differences and channeling it toward something that has never been created before...to take it one step further, dialogue is a conversation in which people think together in relationship. Thinking together implies that you no longer take your own position as final. You relax your grip on certainty and listen to the possibilities that result simply from being in a relationship with others—possibilities that might not otherwise have occurred” (p. 19).

I would encourage a safe and trusting environment, where dialogue could occur, by practicing “unconditional positive regard” (Peters, 1997), respecting and valuing all thoughts and ideas. I would develop open and trusting relationships that encouraged everyone in the group to talk freely and openly, to feel comfortable asking about each other’s perspective and comfortable sharing our own perspectives, to feel safe examining and suspending our assumptions. I theorized that I could develop these relationships by showing interest in students as persons in and out of the classroom, by sharing personal anecdotes and assumptions, by listening and responding to their concerns and ideas, by thanking students for participating and pointing to how their participation uniquely contributed to the group.

When I could describe a dialogical space and enlist the help of the others in the group in creating the space where dialogue was valued and practiced, we could explore through dialogue how the other three elements intertwined with our dialogical space in collaborative learning experiences.

I would need to attend to and acknowledge another aspect of creating a dialogical space, practicing relational responsibility (McNamee & Gergen, 1999). Relational

responsibility is acting “in ways that might sustain and support the process of constructing meaning as opposed to terminating it” (p. xi). We would act in ways that sustained dialogue—being present to everyone in the group, listening, inquiring, working together to understand different perspectives, valuing “the ideas expressed, the inquiries made, and the feelings shared” (Peters & Armstrong, 1998, p. 83) by everyone in the group. Practicing relational responsibility would contribute to engaging in collaborative learning with my students. Also involved in creating and nurturing our dialogical space would be cycles of action and reflection, another element of collaborative learning.

Cycles of Action and Reflection. The second element that I would attend to and acknowledge is cycles of action and reflection. Collaborative learning involves group reflection on events and/or utterances that somehow stand out as they occur in the group. Katz and Shotter (1999) call these “striking moments” and describe them as “the moments that make a difference to and in our lives; they ‘move’ us; we are ‘struck’ by them; they ‘call out’ new responses from us” (p. 8). We would stop, or “stop the music,” and reflect on the “striking moments” and talk about why we thought that action had occurred just then and in just that way. By cycling through actions and reflection on those actions, we would learn more about the value of joint reflection and how it makes explicit our understanding of the process of collaborative learning. Through cycles of action and reflection, we would explore assumptions that affected our co-construction of knowledge and also make explicit our understanding of the action-reflection process.

I would introduce a related concept, reflective practice, described as “identifying one’s assumptions and feelings associated with practice, theorizing about how these assumptions and feelings are functionally or dysfunctionally associated with practice and

acting on the basis of the resulting theory or practice" (Peters, 1991, p. 89). I would occasionally "stop the music" to look more closely at our collective practice of engaging in collaborative learning and how each of the elements are part of the complex, intertwined elements of collaborative learning.

Focus on Construction. I would recognize and nurture the third element of collaborative learning, focus on construction, by calling attention to what we were co-constructing as a group. By focusing on what and then how the group was co-constructing knowledge I would make explicit the social construction involved in collaborative learning. We would focus each other's attention on what we were creating together. Peters and Armstrong refer to "the what" of co-construction as "X." The "X" exists between the collaborators and is:

What the group knows...by identifying and locating 'X' between speakers and ultimately in the center of the group, the emphasis on what is going on shifts from a focus on individuals to a focus on the relationship among members of a group... whatever the group's focus might be is not in the head of anyone in the group, it is not owned by anyone in the group, but is instead understood in terms of the relationship among members of the group and as the group's own creation. On achieving this focus, the group can build on its own meaning of what it has constructed (Peters & Armstrong, 1998, p. 77).

What the group knows, "X," is not summative, an accumulation of everyone's knowledge stacked together as collective knowledge; "X" is formative. "X" both shapes and is shaped by what occurs in the collaborative learning experience.

In collaborative learning experiences in my Excel course, I assume that our “X” would be new understanding of Excel concepts and new ways of applying the concepts. As we created these new applications, we would be mindful of not only what we created, “X,” but also how we created it together. Focusing on construction and acknowledging the integration of content and process, would contribute to our understanding of the complexity of collaborative learning.

Multiple Ways of Knowing. The fourth element of the complex, intertwined elements of collaborative learning is multiple ways of knowing. I would need to acknowledge and value the many ways of knowing that students bring to the learning experience and engage in during collaborative learning. Shotter (1993a) defines three ways of knowing—knowing that, knowing how, and knowing from within. Knowing that is essentially what Heron and Reason (2001) call propositional knowing—knowing concepts or facts “through ideas and theories” (p. 183). Knowing how is what Heron and Reason (2001) call practical knowing—practical knowing is knowing “how to do something and is expressed in a skill, knack, or competence” (p. 183). Shotter’s third way of knowing, knowing from within, is

a group’s background sets the stage for a group’s foreground: it is (i) from out of which all our activities emerge, (ii) toward aspects of which (however mistakenly) they are directed; (iii) as well as against which they are all judged as to their fittingness; and (iv) upon which they act back historically [for us] to modify [our understandings of ourselves and the goings-on of the group] (Shotter, 1993a, p. 34).

Shotter's *knowing from within* could serve as a guide for what he calls "feeling into" what is happening within the group and responding accordingly. The students and I create the culture of the group, and the culture we create in turn influences us in our development and refinement of our culture. I need to make explicit how we know from within this culture. We learn together how to create learning opportunities that honor our culture and our multiple ways of knowing. By sharing our ways of knowing with the group to foster group learning about knowing, we create ways to know our "way about" (Wittgenstein, 1953, no. 123) collaborative learning in our quest for understanding how we knew what we knew and how we came to know it.

Attending to the four elements of collaborative learning—a dialogical space, cycles of action and reflection, focus on construction, and multiple ways of knowing—and practicing the new teacher/student relationships of Type III Teaching/Learning would be the conceptual aspect of my practical theory. If collaborative learning could be understood in terms of these four interdependent elements, then I assumed that I, as facilitator, could act in ways that would recognize and acknowledge the contribution of each of these elements to the creation of a collaborative learning experience.

I theorized that my approach with students would be to completely disclose what I sought to do that semester: use action research to study myself as a teacher using the three Types of Teaching/Learning to see what collaborative learning would be like in a technology course. I would explain how they could participate in my research as co-researchers and seek their consent to participate.

My approach for introducing the three Types of Teaching/Learning would be to explain each of the three Types at the beginning of the semester and then block off a

period of time to explore each Type. I planned to start with Type I at the beginning of the semester, then move into Type II two weeks later, and then Type III two weeks after that. I would talk about each Type as we experienced it and how it differed from the previous Type.

During Type III/collaborative learning, I would explain to students that I would act as a facilitator at first, but expect them to assume some of the responsibility for facilitation as we grew comfortable with our new roles as co-constructors of knowledge. We would learn together how to facilitate collaborative learning. I theorized that we would use Type III to create new knowledge about Excel concepts and how to apply them in work settings.

I developed my practical theory with the assumption that collaborative learning would help me improve my practice by providing me a challenge—the opportunity to learn more about collaborative learning in an information technology course and to practice facilitating collaborative learning—and by providing my students an opportunity to practice the group skills that potential employers were seeking. My practical theory gave me the confidence to say, as Wittgenstein (1953) did, "Now I know how to go on" (no.154). Chapter Three is a further expression of my practical theory. I provide a detailed description of how I put my practical theory into practice and also provide a richer description of what collaborative learning “looked like” as we worked together to co-construct new knowledge and meaning in an information technology course.

DATA^A-DATA: Act

**“People know what they do; they frequently know why they do what they do;
but what they don’t know is what what they do does”**

—Foucault (Dreyfus and Rabinow, 1986, p.187)

A Decision to Conduct a Formal Study

The fourth phase of DATA-DATA, Act, called for me to make an informed decision as to whether to put the practical theory I devised in the Theorize phase of DATA-DATA into action. I decided to conduct an action research project in my spring 2002 Excel class based on this practical theory. By putting my practical theory into action and by conducting this action research project, I sought to find out:

***What features of collaborative learning would stand out in the
experience of engaging in collaborative learning in a community college
information technology course?***

I sought to understand my own experience and the students' experience (our experience) with and during the collaborative learning process. The answers to this question would provide for me and for other technology educators new or different ways of knowing how to “go on” (Wittgenstein, 1953, no. 154) with our students. I designed a research method and procedure for collecting data that would capture the experiences we had with the three Types of Teaching/Learning, and more particularly, Type III/collaborative learning. The design of this project is explored in Chapter Two, followed by, in Chapter Three, a look at my practical theory in action.

CHAPTER TWO

DESIGN OF THE STUDY

DATA-~~DATA~~: Design

In the fifth phase of DATA-DATA, Design, I developed a research plan for collecting data that promised to answer my research question.

Method

I used action research for this study because I believe that action and reflection are integral to understanding and knowledge. Action research helped me answer my research question by affording me the opportunity to conduct first person research limited to my course and class members. The integration of research into my practice was vital to research that had meaning for my students and for me:

"Action informed by inquiry and inquiry informed by action are mutually dependent on time, place, and people (as opposed to generalizable across time and space). The 'paradigm' [of action research]...is founded on the integration of action, inquiry, reflection, and then more action. It emphasizes integrating: being in the world, acting in the world, and inquiring into and reflecting on being and action. This contrasts with all forms of research that are founded on a separation of the researcher from action, putting the researcher 'outside' what is being studied. Action research immerses the researcher in the action setting and has action as an outcome (as opposed to just knowledge as an outcome)" (Patton, online communication, 1999).

Immersing myself in my practice and engaging in cycles of action-reflection-action held the most promise for gaining understanding and knowledge about my practice. As Reason & Bradbury (2001) suggest, “A primary purpose of action research is to produce practical knowledge that is useful to people in the everyday conduct of their lives” (p.2). I wanted to create practical knowledge that could inform and transform my practice.

Peters’ DATA-DATA model, discussed in Chapter One, served as the guiding framework for this action research. Table 2 contains a description of the eight phases of DATA-DATA and questions that may be answered during each of the eight phases.

Research Context

I set out to create a Type III learning experience for students enrolled in an upper level (sophomore) course. This course, OST 2621, designed for students to learn how to use spreadsheet software (Microsoft Excel), is required for a degree in Office Systems Technology and in Computer Accounting. During spring semester 2002, the class met on Tuesdays and Thursdays from 1:30-2:45 p.m. The enrollment for this class was originally fifteen students; three students dropped the course due to family situations (one moving, one serious illness of mother, one serious illness of daughter), so twelve students were enrolled during the time the research was conducted. The class was taught in a computer lab with a sophisticated multimedia projection device. The computer workstations were arranged in five rows of four facing the multimedia screen. The teacher’s workstation, from which the multimedia display was generated, was located to the students’ right. The students in the first two rows had to turn around in their seats to see me at the teacher workstation or to see other students in rows behind them.

Table 2: The Eight Phases of Peters' DATA-DATA Model for Action Research

DATA-DATA PHASE	GUIDANCE	QUESTIONS
DATA-DATA: Describe	Describe the area of practice that the practitioner wants to improve and the situation in which the practice occurs	What is occurring in my practice? What is the situation that I would like to explore?
DATA-DATA: Analyze	Identify the underlying assumptions that have contributed to the present area of concern or interest and the reason for the concern or interest	Why is my practice as I have described it?
DATA-DATA: Theorize	Formulate a practical theory for alternate ways to approach the area of interest or concern and the questions that will guide inquiry	How can I inquire into the situation?
DATA-DATA: Act	Act on the basis of this practical theory and/or identify research question	Do I want to inquire into my practice using my practical theory?
DATA-DATA: Design	Design or identify the method and procedures for collecting data	How can I find out the answers to my questions and/or meet my objectives?
DATA-DATA: Analyze	Analyze and reflect on the data collected	What did the data reveal about my practice?
DATA-DATA: Theorize	Refine the practical theory	What do the findings mean in terms of going on with my practice? Where do I go from here?
DATA-DATA: Act	Depending upon what is learned, modify one's practice	After modifying practice or rejecting findings, will I want/need to cycle through DATA-DATA again?

Participant Selection

Formal permission to conduct research was sought from Pellissippi State's Director of Institutional Effectiveness and Research in early December 2001. Permission was granted in early January 2002. Soon after, I discussed my research plans with the students in OST 2621 and asked if they would like to participate in the study. All the students enrolled in the class agreed to participate in the study and completed a Participant Consent form (see Appendix A).

Table 3 on the following page summarizes the demographics of the twelve students participating in this study.

Bracketing Interview

I examined my own assumptions about teaching and conducting research activities through participating in a bracketing interview with Dr. Sandra Thomas, a colleague skilled in phenomenological interviewing. Bracketing, or critical reflection, “consists of identifying the assumptions that underlie our thoughts and actions, scrutinizing the accuracy of these in comparison to our experiences with others in similar contexts, and reconstituting these assumptions to make them more inclusive and integrative (Cotter, 2001, p. 23). The purpose of the bracketing interview was to identify these underlying assumptions (Brookfield, 1990) about my practice, my reasons for wanting to conduct action research, and the research process. After the bracketing interview, I asked the University of Tennessee’s Phenomenological Group, a group of faculty and students who meet every week to discuss phenomenology or to analyze phenomenological interviews, to help analyze my bracketing interview transcript. I

Table 3: Summary of Student Participant Characteristics.

PROFILE OF STUDENT PARTICIPANTS**SEX**

Female 9
Male 3

NATIONALITY

India 1
Yemen 1
United States 10

EMPLOYMENT STATUS

Working full time 1
Working part time 6
Not working 5

AGE

18-20 3
12-25 3
26-30 3
31-35 1
36-40 1
41-50 1

FIELDS OF EMPLOYMENT

Dispatcher for overnight packaging company
Tutor
Hotel front desk manager
Family business computer systems manager
Childcare assistant teacher
Car insurance claims manager
Radio station office worker

SCHOOL ENROLLMENT STATUS

Full time 4
Half time 3
Part time 5

MARITAL STATUS

Married, with children 1
Divorced, with children 1
Divorced, no children 1
Single, without children 9

attended one of their meetings and listened as they identified assumptions in my responses to Dr. Thomas' questions.

The assumptions identified through the interview and subsequent phenomenological analysis revealed that I was excited about the research I was conducting, but troubled about the amount of time it was requiring. I was also concerned that collaborative learning might not work in an information technology course because of the technical subject matter; one of the members of the phenomenological group remarked that she was "glad to see that I was realistic about the scope and limitations of collaborative learning." Other assumptions that surfaced were that I assumed that student contributions to the research would be valuable and insightful, that I was afraid that I would not be a "good enough" facilitator, and that I was concerned about class time (one hour and fifteen minutes) being a limiting factor. I acknowledged and reflected on these assumptions as I began my action research project.

Data Collection

I used three qualitative data collection techniques: phenomenological/semi-structured interviews, field notes, and researcher journaling. The purpose for using three data gathering techniques was to ensure that I would have wide-ranging and sufficient data to provide a rich description of our experience of collaborative learning.

Phenomenological/Semi-Structured Interviews

Two phenomenological/semi-structured interviews with each student were planned; the first was to occur at midterm (week eight) of the semester and the second at the end of the semester (during weeks fifteen or sixteen). The first of the two interviews was conducted during the month of March 2002 with all of twelve enrolled students. The

second interview with eight of nine remaining students (Two students had dropped all classes after midterm and another was critically injured at the end of April 2002 before interviewing with me) occurred during the first week of May 2002. My office, which is located in the Educational Resources Center at PSTCC, was the site of all twenty interviews. With the permission of the participants, all interviews were audio taped. Participants were encouraged to talk openly about their experiences with the three Types of Teaching/Learning (lecture, group work, and collaborative learning) that they experienced in class. The initial phenomenological question was: "What stood out for you about your experiences in our class this semester?" Phenomenological interviewing was used because it is a mode of inquiry "sensitive enough to articulate the nuances of human experience and reflection" (Pollio, Thompson, & Henley, 1997, p. vii). The guided follow-up questions were probing and open-ended to encourage a rich description of what it was like to be a participant in a class in which collaborative learning/Type III Teaching/Learning was utilized (see Appendix B for interview questions).

To minimize the perceived power differential between us during each of the twenty interviews, I asked the students to help me learn to be a researcher. I asked them to be totally candid in voicing their experience of the course. I believe that the students honored this request; I captured this statement from one of the interviewees: "Don't worry. If I think it, I say it" and this statement from another, "I tell you exactly what I'm thinking." The twenty interviews were transcribed as protocols using Microsoft Word 2000 software; each line of the interview was numbered for easy reference. Field notes and journal entries were also typed as protocols in Word 2000 software using numbered lines.

Field Notes

Although I reserved 60 minutes immediately following each class to record field notes, I did not always succeed in recording them after each class; some field notes were recorded the next day. Field notes were more descriptive than analytical, listing excerpts of dialogue, observations of participants, and other information that seemed significant after class. I used the field notes to capture a rich description of both familiar and strange occurrences or utterances. Field notes were supplemented by listening to audiotapes of the class. Twenty-five sets of field notes, ranging from one to fourteen pages, were analyzed for this study.

Researcher Journal Entries

I kept a journal, from January until May 2002, of my thoughts, reactions, and reflections about what it was like to implement collaborative learning/Type III Teaching/Learning as the focus of my teaching approach. The journal entries included some analysis of what was happening with me and with the participants in the study. I moved beyond mere description to reflecting on the questions that arose from the description itself: Why did I think this occurred? What prompted this statement? How did we get from here to there? Could I have done something differently to nurture that feeling? What did I learn from the experience? How did I learn it? My journal became "a place for ideas, reflections, hunches, and notes about patterns that seemed to be emerging" (Glesne, 1999, p. 49). Journal entries were speculative and reflective and were a source of data concerning the process of implementing collaborative learning. Journal entries occurred at least once a week during the months of January, February, March, April, and May 2002, but were not limited to once a week. The journal entries were typed

in Microsoft Word 2000 using line numbering for easy reference. Thirty journal entries, ranging from one to six pages, were analyzed for this study.

Due to the frequency and number of my research activities, I kept a running research log (see Appendix C). I created an Excel spreadsheet and recorded the date and time of each field note and journal entry, interview, and transcription activity. The chronological nature of this research log helped in my later discussion of the events that occurred during the research period; the log provided a reminder of the steps involved in this research.

To assure confidentiality, the interviews, field notes, journal entries, research log, and an electronic copy of the data were kept in a locked cabinet in my office when not in use. To prevent unauthorized access, passwords were created for the research data files I stored on my office and home computers.

Post-Study Discussion of Findings with Student Participants

I have since discussed the findings with six of the nine students who participated throughout the semester and they agreed that the findings were indicative of what stood out for them about their collaborative learning experiences.

In the fall of 2002, I asked the five student participants who were still enrolled at PSTCC to talk with me about the findings. To encourage student reflection on the findings of the study, I e-mailed them a description of the four themes and asked if they would come by my office to discuss the themes. I talked with four students face-to-face and the fifth student via electronic mail. Each student concurred that the data analysis accurately revealed what stood out for us during our collaborative learning experiences. I have kept in touch with these participants through office visits and/or e-mail since the

study ended and have had many lively and interesting discussions with them about what we learned together in the spring of 2002. These students also talk with me about how they are “spoiled” now that they have learned about different types of learning and teaching; one student disparagingly described one of her other classes as “just so Type I.”

In March 2003, a sixth student participant who graduated in May 2002 came by my office to visit and talk about his experiences in this course. I took the opportunity to talk with him about the findings of the study and he agreed that the data analysis had *“brought to light what we felt.”* He added that he was using what he’d learned last spring in his work, *“not just the computer stuff, but the stuff about knowing different ways, and, uh, I feel better about how I work with the other guys when, when it’s a project and we’re all looking at each other like ‘what do we do now?’ and I say let’s dialogue ya’ll and we’ll figure it out ‘cause you know something and I know lots [laughs] and together we know more than we know we know.”*

DATA-DATA: Analyze

In the sixth phase and the second Analyze phase of DATA-DATA, I conducted an inductive qualitative analysis of the data I had collected.

Data Analysis

An inductive qualitative data analysis, as outlined by Spradley (1980) and later expanded by Hatch (2002), began when I completed the phenomenological/semi-structured interviews. The first step in analyzing the data was to read the data and determine the frames of analysis I would use. I used Spradley’s framework for analyzing the data; I looked for verbal exchanges/interactions in the interview protocols and field

notes and for reflections in the journal entries. These verbal interactions and reflections became my frames of analysis. I reread the data using these frames and created domains based on the semantic relationships I noted. Domains are categories of meaning; domains include three elements (Spadley, 1980): a cover term, included terms, and semantic relationship. "The cover term is the name for a cultural domain...The included terms are the names for all the smaller categories inside the domain... The third element in all cultural domains is a single semantic relationship, the linking together of two categories" (p. 89). I used Spradley's nine semantic relationships to identify how "included terms" and "cover terms" were related in the data (See Appendix D for a table listing these nine semantic relationships). Table 4 illustrates how one included term (of several) is related to a cover term; this domain is called "the teacher role in collaborative learning." I emerged from this reading with eighteen salient domains recorded on "domain sheets" {see Appendix E for a sample domain sheet). I assigned each domain a roman numeral and each included term a letter. Using this simple outline as a coding scheme, I reread the entire data set and marked the data (a line in either an interview, field notes, or journal

Table 4: An Example of One Included Term (of Many Possible) in a Domain

Domain		
Included Term	Semantic Relationship	Cover Term
"Learning as a group participant"	Is a characteristic of	The teacher role in collaborative learning

entry) with a code. For example, the tenth included term (lettered J) under the third (numbered III) domain "Preparing for the Facilitation of Collaborative Learning" was identified in the data set by writing in the right margin "III. J." As these included terms were identified in the data, their location was noted on the domain sheets (e.g., if the location in the data set was in the 5th interview in line 303, then the included term on the domain sheet would be marked with "I5-303"—"I" for interview, "5" for 5th interview, and "303" for the line number in the interview protocol. I similarly coded field note data with an "F" and journal data with a "J"). After I determined that the data supported the individual domains, I searched for instances in the data that "just didn't fit." I did not find data that did not support the salient domains.

To continue this inductive data analysis, I conducted an analysis *within* domains; I analyzed each domain for additional ways to organize its included terms. Several of the domains with the highest number of included terms offered up sub-domains. These were marked on the domain sheets with symbols, and a symbols legend was noted on the domain sheet. The eighteen domains remained salient.

Spradley's (1980) next step involved making connections *across* the domains.

Hatch (2002) describes this step:

Step back from individual domains and look for connections among them. This step might be characterized as a search for themes...Here we are looking across the data for broad elements that bring the pieces together. We are studying our domains to see what connections can be found among them. We are searching for patterns that repeat in the data and for patterns that show linkages among different

parts of data... The analytic questions for this step are: What does all this mean?

How does all this fit together? How are the pieces related to the whole? (p. 173).

I read the domain sheets and the data sets again. I found connections among the eighteen domains and could organize them under four broad themes (relationships, positioning, dialogue, and mindfulness). I used a colored dot to identify each of these themes on the domain sheets; I wound up with color-coded included terms that could be organized under the four major themes. (See Appendix F for a table with sample domains and sample included terms as they relate to a theme). Hatch (2002) suggests that once themes have been identified, "Now is the time to create a comprehensive representation of how the overall analysis fits together" (p. 176). He recommends using "an outline format to organize the expression of relationships within domains" (p. 176). I took his recommendation and created a master outline of themes. Under each of the major themes, I listed sub-themes (the domains that related to the major theme).

I will discuss the four themes from this inductive qualitative data analysis in Chapter Four of this paper. First I will provide, in Chapter Three, a look at how I put my practical theory into practice and engaged in collaborative learning with students during a spring semester course in 2002. This recounting of our experiences with collaborative learning is my best effort to capture the richness, the excitement, the frustration, and the newness of our collaborative learning experience. As I write of this experience, I hear the words of Harré, "Don't demand that there be JUST ONE STORY. Revel in multiplicity as an opportunity" (emphasis in original, online communication, Mar 8, 2001). This story is one that emerged from my analysis of hundreds of pages of collected data; I am sure

that on subsequent readings, I will delight in the other stories that escaped my notice here.

CHAPTER THREE

PUTTING PRACTICAL THEORY INTO PRACTICE

This chapter is the expression of my practical theory in practice during spring semester 2002. My intention here is to provide a deeper exploration of my practical theory and to set the stage for the findings, which are discussed in Chapter Four, by describing events and utterances that made up our experience of collaborative learning. I use different voices as I write about these experiences. When writing about my facilitation of collaborative learning, I use the pronoun “I”. The actions and reflections I describe while positioned as the facilitator of the group were mine; I use the pronouns “I”, “me”, and “my” when referring to my experience. However, when positioned as a participant of the collaborative learning group, a co-constructor of knowledge, I speak from and for the group using the pronouns “we”, “us”, and “our”. This use of the first person plural is supported by both the data and a review of the findings by student participants.

In December 2001, a month before spring semester began, I was nervous. I was preparing to embark on a semester-long action research project. As I watched the course to make sure it “made” (a term used to describe when a class reaches a minimum enrollment of students; classes that do not enroll that minimum number of students are cancelled), my mind was filled with questions about what to do when and how. Should I start the semester talking about collaborative learning, or should I just model it and call attention to the four collaborative learning elements as we practiced them? Should I tell the students about my plans or wait and let collaborative learning unfold as we had experiences with the three Types of Teaching/Learning and four collaborative learning

elements? How should I approach our first class together? How could I quickly get to know these students as individuals rather than just students in a classroom? I had written long ago that collaborative learning is born and nurtured in relationships; how could I best build relationships conducive to collaborative learning? How could I help students distinguish between the three Types of Teaching/Learning? If they were to help me describe our experiences with Type III, they would need to know the differences between the three, wouldn't they? These questions are but a few of the many I had as I planned for my research project.

First, I set out to build good relationships with the students; relationships and relational responsibility were integral parts of creating a dialogical space, one of the four elements of collaborative learning. I felt that the first day of class would be critical in establishing good relationships with the students. During our first hour together, I set the stage for how we were going to be together for the rest of semester by remaining informal, open, flexible, and friendly. Fourteen of fifteen students attended that first day. After "housekeeping duties" such as discussing the syllabus, I asked the students to make a list of fifteen things they were or do (roles or activities); this listing activity gave them time to think about how they define themselves—whether by relationships (e.g., mother, brother, friend) or by work (e.g., day care worker, trucking company dispatcher, bookkeeper) or by interests (e.g., violin player, soccer player, collector of inkwells). I asked them to share what they would like from their lists. We spent the rest of the class talking about our relationships, work, or interests. As students volunteered, I called each student by name (and all the names of the students who had previously volunteered, e.g., "James just spoke and before him Kelly spoke and before her Gail and before her

Susan”). The students seemed pleased that I took the time to learn their names and talk with them about their lists. I also encouraged students to ask questions of each other, and a couple of students did ask others about their hobbies or work. By encouraging students to talk openly this first day, I hoped to model the relaxed and open environment I wanted for our exploration of collaborative learning.

During the second class, I talked with the fourteen students present (my fifteenth student dropped from the course before attending) about my idea for researching my practice by conducting an action research project. I defined action research and asked if they would like to help me study myself as an instructor. They asked several questions about their responsibility in relation to the research. I explained that I would like to interview them twice, once at midterm and again at the end of the semester, about their experiences in class. I explained that if they would like to participate I needed their signature on a Participant Consent form and then gave each student a form. I gave them time to read and sign the form. As I took up the forms, I noticed that two students (both international students) had failed to sign. My feelings were hurt even as I told myself not to take it personally.

During that second class, I also talked about the three types of Teaching/Learning and my plans for introducing them to each type. We would start with Type I Teaching/Learning for the first two chapters in the textbook (the basics of spreadsheets—terminology, entering data, navigating around the spreadsheet, formulas, etc.) and move into Type II for the third chapter concepts (formatting). I explained that with chapter four (charts/graphs) we would try our hand with Type III Teaching/Learning. I talked about why my decisions about how to proceed with class activities were typical of Type I

Teaching/Learning; I was positioning myself as a traditional teacher who made all the decisions about learning activities and teaching approach.

As I looked over the participant consent forms after class that day, I noticed that I had not received a signed form back from a third student. I wrote in my journal about my disappointment and my confusion about how to proceed: *“What had I said or done to not develop the trust that signing the consent form would take. It WAS in a formal language, but I explained that it was an official UTK document and I’d had to follow the format. I thought I had given an impassioned plea for them to sign, but maybe I didn’t stress how important each voice was, their voice was. I said something like, ‘I really want to know what each of you are thinking about our experiences together in class and how I can improve as a teacher.’ But evidently, it didn’t convince these three to sign. I felt like a failure. I started doubting my ability to do this study correctly...I don’t want to exclude those three voices.”*

As I reflected on what to do about the three students who had not signed, I decided that I would ask each privately, in an informal setting (walking across campus or in the cafeteria), why they chose not to participate in the study. I thought that I could determine privately if they had additional questions or concerns about the research.

This proved to be a good idea. I ran into the third student on campus the next day. I recorded our encounter in my journal: *“I asked Kelly as I’d planned if she minded if I asked her why she didn’t want to participate in the study and she answered, ‘I don’t express myself very well.’ I said, ‘Kelly, please don’t let that keep you from participating. If I don’t talk with you about your experience in class, I’ll lose really valuable information. You bring so much to class and I want to hear your voice as I*

think about how I did teaching and how we learned together and how the semester went.' She grinned and said, 'OK, I'll try it.'" I thanked her and asked her if she would sign a form. She said that she had the form from Thursday, had signed it, but then decided that she wouldn't because she felt insecure about her ability to communicate her thoughts and feelings. She gave me the form she had signed last week. I told her that I felt like it was Christmas and thanked her again for helping me learn about my teaching and myself. She left smiling and so did I."

Even laying the groundwork for collaborative learning was a learning experience. I quickly learned the value of reflective practice. As I reflected on my emotions and actions associated with the consent forms, I was surprised to learn how self-centered I had been to think that Kelly was not participating because I had done something to make her withdraw or feel uncomfortable. Her reason for not wanting to participate was that she was insecure about her own ability to communicate effectively with me. I had taken full responsibility for her nonparticipation. Of course, there would be other reasons students did not sign the forms besides my "performance" in describing my research. How shortsighted I was! I wondered in my journal writings *"how many other situations I encounter where I project my interpretation of student actions onto the students without bothering to check with them. Why do I forget to check sometimes? I guess it's arrogance of a sort. I think that I have taught long enough to recognize boredom, withdrawal, and engagement in students. How arrogant to think that. It's amazing how assumptions can keep you from being truly responsive to students. Why would someone who has studied dialogue for four years not use dialogue to find out why an action occurred rather than assume scenarios to explain it? I don't know why talking it out*

isn't always my first reaction, instead of brooding or worrying or projecting." I learned from this reflection and was excited about seeking out the other two students who had not signed the form. I stopped playing out scenarios in my mind and decided that talking with them would help me understand their perspectives. Throughout the study, I learned many such things about my practice by reflecting and writing journal entries.

My encounter with the second student who had not signed a Participant Consent form took place the following Monday. I ran into Bob, an international student, as I was walking to class. He stopped to say hello and I asked him about participating in the study. He said that he was the manager of a hotel front desk and that his schedule varied each week. He said he could not commit to the interviews because he would not know his schedule at midterm and the end of the semester. I explained that he could choose a time at his convenience for the interviews and he agreed to participate in the study. Talking it out had been successful once again.

Mike, another international student, was the last of the three students who had not signed consent forms. I did not find myself in an informal setting with him until the second week of classes. When I asked him my question about why he did not want to participate, he said that he had not understood what was involved and was afraid to sign something he did not understand. I talked with Mike for several minutes about the study and why I wanted to hear what he had to say about his experiences with collaborative learning. He agreed to participate when he understood what I was asking him to do. I told him I was delighted that he decided to help me learn about my teaching. He seemed pleased that I had sought him out to talk more about the study.

By reflecting on the way I reacted to not getting back fourteen signed forms immediately, I examined my assumptions, tested their validity by dialoguing with the students involved, and then re-evaluated those assumptions. My assumption about the reasons students did not sign was inaccurate and I learned that talking it out should be the way I proceed when I encounter areas of concern during my study. This talking-it-out approach seemed to be in line with my practical theory concerning the first element of collaborative learning, a dialogical space. I needed to create and nurture a dialogical space where relating in ways which encourage dialogue, reflection, and suspending assumptions became the norm, not worrying and protecting unfounded assumptions.

As I had explained to the students the second day of class, I set aside the first two weeks of class to introduce students to Type I Teaching/Learning. I periodically, as I taught those two weeks, referred to the approach as Type I and explained why the approach was characteristic of that type: I decided what was to be learned and how it was to be learned. I lectured about Excel concepts and demonstrated them on the multimedia screen at the front of the class as I described the concepts. I encouraged the students to ask questions about the process of how we were learning, but most questions were content-related. The students grasped the concept of Type I and reported that they were comfortable with that type of Teaching/Learning because their experiences with school were very similar to what they were experiencing in our class (See Chapter Four for more on student reactions to Type I).

I continued to work on building good relationships with students by coming to class early and staying late to talk with students in the hallway (other classes were scheduled in our lab before and after our class). Hallway discussions centered on topics

such as work-related concerns, MP3 download sites, search engines, hobbies, and other student interests. I enjoyed learning more about the students and they appeared to enjoy getting to know me as a person as well as an instructor. This relationship building carried over into the classroom; I shared more personal stories and experiences with this class than with any I remember.

At the end of week two, two more students had dropped the course. Neelie Mae had to withdraw to attend to her daughter's serious illness. She thought it best to drop the course and try again next semester. The second student to withdraw was Lindsey. She was her mother's primary caregiver and had not anticipated, when she enrolled in this course, that her mother would take a turn for the worse and require additional care during spring semester. She visited me in my office to explain why she had to withdraw from school and that she would try to "get me for Excel" if she enrolled for fall semester.

As I wrote about losing these two students in my field notes, I thought about the "mix" of the remaining twelve students' characteristics. I was struck by the diversity of the students in this class. The multiplicity of voices that they brought to a collaborative learning experience had their origin in three continents, three generations, and seven careers. I was mindful of the difficulty of understanding the perspectives of students from such diverse backgrounds and histories. Inquiring and asking back to make sure that we understood each other was going to be critical in facilitating collaborative learning. On the other hand, I was excited about the learning opportunity that this diversity presented to us.

In preparation for Type II Teaching/Learning, I planned a group project. I struggled with how to assign groups, but finally grouped students alphabetically by last

name into groups of four or five. During the third week, I talked with students about Type II Teaching/Learning and how it might differ from Type I. I reminded students that, in Type II, I was still the “caretaker” of knowledge and that I decided what the learning tasks should be. We talked about their responsibility to learn from each other as they worked together in groups. Their group had flexibility in how they would approach the assigned task, but they were going to be assigned a group task by me.

My approach was to ask the three groups to take a section of the textbook, read about the Excel concepts there, decide as a group whether those concepts were the ones that we needed to know and, if not, add to the concepts with research or personal experience in business settings. Time was given in class for the group to meet with the expectation that group work would also occur outside the classroom.

The next class period the small groups presented their ideas for helping the rest of the class learn the concepts they had decided were valuable. Each group went to the teacher workstation and taught the class as I had using a Type I approach. During each presentation, I asked the group questions about how they had decided to teach us the concepts and the predominant answer was that they were following my lead—teaching as I had the previous two weeks. As a group, the students and I explored the group process and why it would fit into a Type II Teaching/Learning approach. We agreed it fit Type II because I, as the teacher, had decided the group compositions, the group topics, and the timeframe for the group presentations, yet the group was free to explore beyond the assigned topic however they chose. The distinction between Type I and Type II became clearer.

I wanted to know more about how students were feeling about what we were doing in class and what they were learning. During our Type I and Type II learning experiences, I spent most of the time in class explaining Excel concepts. I had little time to talk with students about their experiences. I decided to introduce the group to classroom assessment techniques (CAT's). Angelo and Cross (1994) introduced a series of short classroom action research techniques that provide immediate feedback to college teachers about student learning and attitudes. By discussing the feedback I received from the students with them the next time class met, I hoped to provide a way for students to voice their concerns and reflect on what they were learning through Type I and Type II Teaching/Learning.

In class the next week, as we discussed the differences between the first two Types of Teaching/Learning, we began to talk freely and openly; we began to feel comfortable asking about each other's perspective and sharing our own perspective. I encouraged this safe and trusting environment by practicing "unconditional positive regard" (Peters, 1997, p. 83) with hopes of developing and maintaining a dialogical space. An aspect of my practical theory was if I created a space where dialogue was valued and practiced, I could dialogue with students about course materials as well as the remaining elements of collaborative learning. With dialogue as a predominant method of learning together, we could explore how the other three elements combined with the dialogical space to create collaborative learning experiences.

In my journal entries, I struggled with how to introduce dialogue to the group. Should I give them articles to read about dialogue? Should I teach the students formal theory about dialogue? Should I "catch them" doing dialogue and "stop the music" (stop

to reflect on what just happened that was indicative of dialogue)? After musing about what to do with a colleague, she asked, “What does dialogue have to do with learning Excel?” My practical theory was not detailed enough; I theorized that a dialogical space was critical to collaborative learning, but I had not theorized about how to introduce dialogue to students who were trying to learn technical content, not dialogue theory.

I remembered from a dialogue about dialogue in the Reflective Practice course (a required course for the Ed.D. program in Collaborative Learning at the University of Tennessee) that dialogue was more likely to occur if “everyone had a dog in the fight”—if the topic for dialogue was one that everyone had some experience of or thoughts about. I needed a topic for dialogue to which all students could relate in some way. I decided to ask the students to write about a critical incident (Brookfield, 1990) involving learning; surely each of them had had some learning experience that stood out for them as positive or negative. I decided that I would model dialogue as the students and I talked about our critical incidents, “catch us” in dialogic actions, and “stop the music” to reflect on what we just did to create the space for dialogue. My practical theory postulated that a second element of collaborative learning, cycles of action and reflection would be a logical extension of our “stopping the music;” students could begin to understand the value of reflecting on our actions as we learned to dialogue.

At the beginning of the next class (day eleven), I talked about dialogue and how it differed from discussion. I decided to introduce dialogue with a few minutes of lecture and discussion and then to model dialogue as we talked about our critical incidents. My field notes reflect that I said the following:

Collaborative learning is people laboring together to construct knowledge.

People thinking together and talking together, trying to make new meaning, new understandings. Would you agree that talking together is becoming a lost art? Not too long ago, people would come home from work or school and, in the evenings, sit and talk together. How often do we do that today? Sure I talk over the TV or over the stereo or even in e-mail, but how often do I sit and talk with someone and really listen to what they have to say? Very rarely. Even more rarely do I listen in order to be influenced. I cling to my opinions and my assumptions about how the world works and defend what I think and defend what I believe. I am listening only to refute what another person is saying. But what if I listened to be influenced by what the other person says? If I deliberately tried to suspend my own assumptions about the way things are or the way things should be and really listened, thinking that I will be influenced by what this person says. Wonder what would happen? If the other person listened to me to be influenced by what I say and what I think? What would happen if we both actively listened to the other trying to be influenced by what each other said? We would begin to consider other ways of thinking, different from our own but just as valid, just as real, just as tried and true for the other person. We just might begin to reflect on why we believe what we believe, why we think as we do, why we assume that life is this way or love is that way or learning is this way and teaching is that way.

Dialogue is shared inquiry, a way of asking and reflecting together. Listen not to influence, but to be influenced. William Isaacs (2001), a well-known

dialogue theorist, says, "The most important parts of any conversation are those that neither party could have imagined before starting"(p. 9).

I wrote the root words of the word dialogue on the whiteboard and talked about what those root words mean: "dia" means through or flow and "logos" means word or meaning. Dialogue means "through words or meaning" or "a flow through meaning." I asked questions and encouraged students to question me about my questioning; in other words, I asked the students to "ask back" if they were interested in why I, or other students, had asked a certain question of them. I modeled dialogue with students as we explored as a group how we experienced learning in the past and what it meant to be a student in those learning experiences. I explained that my definition of dialogue was drawn from Issacs' definition. We talked about Isaacs' view of dialogue and "thought together" and "listened to the possibilities" through dialoguing about how we were talking in a different way together.

Practicing relational responsibility was also important in our creating a dialogical space. One method for practicing relational responsibility was to recognize and be mindful of the multiplicity of voices each learner brought to the learning experience; relational responsibility required that we be present to all learners. This relational responsibility translated into showing "the utmost respect for everyone in the group and for everything that is said by anyone in the group" (Peters & Armstrong, 1998, p. 83). By holding "the ideas expressed, the inquiries made, and the feelings shared" (p. 83) by everyone in the group in positive regard, we began to build the trust necessary to identify and explore our assumptions by reflecting on how we thought teacher and students related to each other.

One example of the value of reflection in identifying assumptions occurred during our fifth week together as we discussed our learning critical incidents, a learning incident that stood out for us in some way. I was hopeful that sharing our critical incidents would result in “deeper, richer, and more complex relationships” (Yalom, 1985, p. 129) and help us continue to build the trust necessary to identify and suspend assumptions. Assuming that having the group identify assumptions might be somewhat threatening to students—many assumptions are deeply ingrained and long-held, I shared my critical incident with the group first. I made the decision to do so anticipating that the group would feel more comfortable exploring my assumptions if they saw that I was comfortable with the process. As individual students shared their stories, I asked the group to identify assumptions in the student's or my recounting of the experience. One story focused on how ‘unfair’ a teacher had been. A student had attended every philosophy class, taken extensive notes, read the textbook, and studied for hours. When the first test was given, she was confronted with an essay test with one task: “Explain your use of the word ‘God’.” The student wrote during the entire testing period about everything she could remember that remotely related to God, religion, or spirituality. She made a “C” on the test and wasn’t happy; she was accustomed to making “A’s.” She was outraged to learn that another student in the class made an “A” on the test when she learned that this student’s “A” answer consisted of two words: “God damn.” As she talked, I was mindful of the many assumptions that she was making about the role of a student. I asked the group why the test was unfair. Another student answered that she’d *“done everything she was supposed to do”* and still made a “C” on the test. I asked if we could identify any

assumptions about what being a student meant to her. Students answered (and I was gratified to see that they addressed their comments to Joyce as well as to me):

Nancy: *That if you did your homework, you would make a good grade.*

Kristi: *If you wrote a lot on the test you'd get a better grade.*

Jodie: *That if you went to class and listened and did what he said, you'd be a good student.*

James: *You thought you knew what to do but it didn't work.*

Susan: *From high school. I learned how to do the student thing when I was a kid and it's hard to think about it any other way.*

Joyce: *So I learned it from school as a kid?*

Susan: *Well, from going to school and learning how to be a student before.*

Debra: *You thought that if you regurgitated what he told you that you'd make an A.*

Joyce: *If I regurgitated what I'd memorized?*

Debra: *Yeah, if you wrote what you memorized, you'd...*

Joyce: *Then I'd be a good student?*

Debra: *Don't you think?*

I smiled as I asked if I understood correctly by paraphrasing, "*So through the years, Joyce had come to class and tried to figure out what she needed to do in that class to make a good grade? She learned how to be a good student because that's way she was taught to be?*"

We talked about two other critical incidents that day and, as we inquired more about the assumptions behind our concept of “student,” we learned how concerned inquiry can function to gently prod us into examining our assumptions and then suspending them to consider different ways of thinking about concepts we had only assumed we understood. We learned that the concept of a “good student” had been socially constructed with our parents, friends, and teachers. We had the power and the freedom in our group to redefine what we thought a “good student” should be.

As we continued to inquire into our critical incidents, we stopped to reflect on the tacit assumptions behind them; through cycles of action and reflection, we suspended our assumptions about the role of a student and of a teacher. Openly reflecting on our assumptions gave us the opportunity to determine how we wanted to position ourselves in our interactions as collaborative learners. To “appreciate that which differs...from our taken-for-granted commonplaces is to generate the possibility of change and/or renewal” (Gergen, 1999, p. 101). We emerged with a very different take on what being a student or a teacher means in collaborative learning. By suspending our assumptions and co-constructing a new way of relating and speaking, we assumed new roles as collaborators.

The process we used to identify our assumptions about teacher and student roles was cycles of action and reflection, the second element of collaborative learning as defined by Peters (2002). We reflected together on how we might suspend our assumptions about how teachers and students should relate. As the dialogue unfolded, group reflection on this new way of positioning ourselves toward each other and toward the group helped identify ways of relating more genuinely and made explicit how we wanted to act as co-constructors. As we learned to reflect on our way of being together,

as we watched and called attention to the way that positioning and relationships and reflections shaped our learning, we learned more about how we learned (metalearning) and constructed together a new way of relating to each other and of learning together.

We had many “false starts” in learning to dialogue. Many times our discussions would be on the verge of dialogue, on the verge of that free-flowing stream of meaning, only to break down into many unrelated comments. We used the metaphor of firecrackers for these unrelated utterances. These “*firecracker comments*” did not build on the previous comments nor did they contribute to our joint understanding of what we were co-constructing. With practice, we became more adept at dialogue.

We spent the next class period discussing the other students’ critical incidents. We decided it was important for everyone to tell his or her learning story. Jodie described this group decision, “*We had to get input from everyone. Everybody benefits from everybody else’s comments.*” Kelly described the importance of participation, “*People may have contributed something that you wouldn’t have learned otherwise.*” Gail said, “*We needed to look at the different ways that everybody discovered their assumptions.*” We had some moments of dialogue and, during these dialogues, I positioned myself as a fellow learner (co-constructor of knowledge) rather than as “expert” or caretaker of knowledge. By creating a dialogical space, we questioned each other respectfully, in an open and trusting learning environment, about how students are “supposed to” act, how teachers are “supposed to” act, and why we held those assumptions. Using critical incidents as a dialogue catalyst worked for us. I reflected in a journal entry that I would continue to use learning critical incidents to introduce dialogue.

While establishing and maintaining a dialogical space and engaging in cycles of action and reflection, we turned our attention to a focus on construction, the third element of collaborative learning, by integrating process and content. As we focused our attention on the construction of what we were creating together, I was mindful that some students may be uneasy with a new epistemology. By focusing on how a collaborator's individual knowledge and actions contributed to and were informed by the group's knowledge, we experienced co-constructing. By calling attention to how "X" (what we co-constructed) grew and changed as individual collaborators interacted with others in the group and also with "X" itself, we took ownership of what we jointly constructed. We were mindful of the need to shift focus from what "I" did to what "we" did, from what "I" knew to what "we" knew. "X" became "intrinsically the common property of [the] group or else nothing at all" (Kuhn, 1970, p. 210). As the group's facilitator, I was mindful of how a new way of thinking about knowledge might affect the group.

As we focused on the process of co-constructing knowledge, *how* we were learning (the process) became as exciting as *what* we were learning (content). We integrated process with content by helping each other focus on what was happening between members of the group and between members and the group (Peters & Armstrong, 1998) by "stopping the music" to attend to the process of collaborative learning. We explored how, in a collaborative learning experience, "individuals bring their knowledge and their actions to the table, and as members of a group, individuals contribute their collective knowledge and actions to the experience. Thus, in a collaborative learning experience, individuals learn and the group learns" (Peters & Armstrong, 1998, p. 76). By being mindful and occasionally drawing attention to *how* we

learned, we made explicit our joint understanding of how we were learning collaboratively to create new knowledge about how to learn Excel.

I was pleased that the students seemed to be receptive to integrating process and content. I was mindful that some students might be wondering what assumptions and positioning and dialogue had to do with learning Excel. I watched for signs of impatience or confusion and did not see any during this class period. In my field notes, I joked that I suspected that they were delighted not to have to deal with the Excel pivot tables, a concept with which students traditionally have difficulty.

After we had explored dialogue, relational responsibility, cycles of action and reflection, and focusing on construction, we decided to try some co-construction of knowledge about Excel charts (graphs). We decided to come to class the next time we met to explore together the chart wizard (a feature that guides the user through creating a graph) without having a predetermined learning goal and without having read the textbook. We wanted to try our hand at collaboratively learning Excel content. We began by clicking on the Chart Wizard button and then we all looked at each other for guidance. After a few seconds, we laughed at our lack of a facilitator. When I asked, "What should we do now?" James answered that we needed some data before we could make a chart. We spent some time discussing where to get some data and Mike suggested that we compare the population figures for two countries, the United States and India. Debra suggested that we could get the data from the Internet, so we decided together which search engine would be best for our search, as recorded in day twelve of my field notes:

I went back to the teacher workstation and started IE [Internet Explorer—web browser]. I waited until someone asked me what we should do next. And I asked

the same question, 'What do we do next?' Debra said we should use a search engine and I asked, 'Who knows a good search engine?' and Joyce suggested said Ask Jeeves. I asked her what the URL was and she said 'www.askjeeves.com' and then Jodie said, "I like yahoo" and then I said, "Any others?" Gail said that she used yahoo and Debra said that she used both. So I asked, 'what should we do?' and Gail and Jodie said, 'Let's try Ask Jeeves first.' I looked around the classroom and saw three folks nodding their heads, so we went with Ask Jeeves as the first search engine. Once on the Internet, I lost track of who suggested what. There was a flurry of suggestions. [We built on each other's suggestions and explored all the tabs of the chart wizard, how to change a chart type and data series, etc. It was pretty interesting not knowing where we'd wind up.]

We did this kind of group exploration of charting for most of the class. I stopped asking them what we should do next about ten minutes into the group exploration and waited until someone else suggested what to do next.

We explored the software features and changed focus whenever anyone would say, 'What would happen if we...?' or 'Anyone know what that button does?' or 'Let's try this...' or 'Why did we do that? How do we go back?' Everyone in the class was engaged, watching and thinking about what to do next. Everyone contributed verbally to the exploration except Mike, Jeanette, and Kelly. They were looking and thinking and doing some exploring with the group, but they didn't say anything.

One striking moment was when I told them that I was not sure about why the value axis changed to Z instead of Y sometimes (letter names are assigned to the axes upon which a graph is plotted). James looked stunned that I was not sure about something and would admit it. I was excited that my admission gave Kelly the opportunity to speak (she seldom spoke in class). She ventured, 'Could it be because it's 3-D?' and I asked, 'What do we think?' and then Susan said, 'Yeah, maybe because it's dealing with three dimensions and Z is the third dimension!' I heard affirmations like 'yeah' and 'sure.' I thanked Kelly for sharing with us what she knew and pointed out how her sharing her knowledge had helped the rest of us explore deeper.

As we explored charting in Excel, we encountered new features as a group. Gail asked what a leader line was. I remained positioned in my co-constructor role when the class looked to me to answer—I shrugged. Kelly spoke again and explained what they were. This time Joyce said, 'Thanks, Kelly. You should talk more.'

Toward the end of class, in our talking about what we were doing together to learn Excel, I mentioned what we'd talked about on Tuesday—the idea that we negotiate how to be in a class and whether how we were being in class today was different. Joyce interrupted me and said, 'You used that word, we didn't. We don't have a base to negotiate from. We can't change things.' And I was conscious of thinking 'good T-III stuff' and then I asked 'But didn't we negotiate on Tuesday what we would be doing today? Have we just changed

things today, right now?' She answered, 'Well, yeah in here, but not in other classes.'

At 2:50 (class is supposed to end at 2:45), Kristi laughed and said, 'I need to go to work' and that prompted me to look at the clock. I apologized for not watching the time more closely and promised to let them go early one day to make up for keeping them late. Susan said, 'It's OK. We kept ourselves late.'

We continued to contribute to our learning adventure by asking questions of each other about chart features and asking back why we asked. I "stopped the music" three times to inquire about our experience and whether we thought we were constructing new knowledge about Excel. I was delighted when Joyce stopped the music to ask if we could use collaborative learning to construct knowledge about something that already exists, like Excel software. Kristi asked her why she asked that question and I smiled to acknowledge Kristi's use of asking back. When Joyce answered that she was not sure that collaborative learning would work when the course "subject" was something that was already constructed, I could not wait to hear what we would do with her concern.

Everyone in the room looked at me for an answer. I looked back inquisitively from student to student. After several seconds of silence (during which, I must admit, I felt a little panic), Joyce added to her question, "*Why try to build something that is already built?*" More silence followed. Finally, I said, "*Is that why we're here? To build Excel?*" Joyce said, "*Well, no, to learn how to use it.*" Susan replied, "*well, then that's what we're building, how to use the software.*" James said, "*We're building how we think we can use it to make spreadsheets that are easy to use, uh, and easy to understand.*" I added, "*And we're building how to learn Excel together, or are we?*"

Nancy said, "*What did you ask that for?*" I answered, "*Excellent! Nancy just asked me why I asked that question! She was digging a little deeper to understand why I was interested in what I asked about. Thanks, Nancy. I was wondering about all the different things that we are constructing together and I wondered if you thought that we were constructing how to learn Excel together as well as how to apply Excel concepts?*" We continued to talk about what we thought we were constructing together until I stopped the music again to ask what we had just constructed in the last few minutes of dialogue. After several comments from the group, Kristi said, "*we constructed the things we could construct together about Excel.*" We saw ourselves constructing as we constructed. I was excited that we were knee deep in three of Peters' four elements-- learning together how to create a dialogical space (the dialogical space element) by listening, inquiring, and asking back, how to reflect on what just happened in the group and in the dialogue by stopping the music and reflecting (the cycles of action and reflection element), and how to focus on what we were constructing together by talking about constructing new ways of applying and learning Excel (the focus on construction element).

We ran out of class time and I announced that I had created a WebCT (an online course delivery software) course for our group to continue our discussions online. I gave them a handout of how to log in to WebCT and use the bulletin board to post ideas and/or questions. My first bulletin board post to everyone reinforced the progress we were making in using collaborative learning:

Thanks for a great dialogue today about learning and construction. We learned that some of us learn better by doing and by hands-on experience. Putting

"action" into learning was key. Some of us learn by reflection—taking some kind of action and then thinking about what we are doing and how we might do it differently. Others of us learn by exploration—trying things as they "pop up" on the screen. Others learn by establishing a trusting relationship. Still others set the stage of learning to occur by being open and honest about what they're thinking and feeling, asking questions of each other, listening carefully to what is said. Others learn by being shown by someone who has had experience with a problem.

I am so excited about the learning possibilities that are presenting themselves to us. Those possibilities are due, in large part, to your willingness to explore different ways of learning and knowing. Thanks again for your part in helping me understand more about our learning together.

As I reflected on this class, I was pleased that collaborative learning was proving to be a viable learning strategy in this technology-laden course. The students seemed alert and gratified that we were exploring new ways of learning Excel and new ways of thinking about student/teacher positioning. What we were doing was different and interesting; they seemed to enjoy sharing responsibility for what and how we learned.

As I planned for the next class, I decided to ask the group how we wanted to assess our learning. I thought that that would be a good topic for dialogue. I went to class full of confidence that we could learn together how to assess our learning and "grade" ourselves. We talked in class about this question and about different ways of knowing. I introduced Shotter's (1994) three ways of knowing—knowing *that*, knowing *how*, and knowing *from within*. We talked about knowing from within in terms of all the things we

needed to attend to as we "*did this collaborative learning*" and also in terms of feeling into the culture of our group. Our definition of culture broadened into "*atmosphere*" as we talked about what made this new way of learning easier as we continued to explore it.

During the next class, I asked how we were doing with learning Excel and how we might assess what we were learning. I was in for a shock; this excerpt from my field notes (thirteen) tells the story:

I wanted to build on our CL experiences of last Thursday, so I started talking about how we'd learned together last week and how we'd talked about and done some dialoguing along the way to 'making our way' to a new way of learning Excel. I knew that I wanted to give them some feedback re their suggested learning tasks [we'd talked about the first question on the critical incident assignment sheet—the learning critical incident—but not the learning tasks for learning Excel] and this seemed like a good time. I asked them to print a copy of the learning tasks to see if what we'd done together on Thursday shared some of the characteristics of the learning tasks they'd suggested and to see how we were doing as we tried to learn how to learn Excel together. I said, 'What we were doing is trying to come up with new knowledge. That's what collaborative learning is. Collaborative is a big word, but all in the world it is is working together, collaborating, to make new meaning or construct something that didn't exist before.' I wrote on the whiteboard: 'Collaborative learning is people laboring together to create new knowledge...create something new.' So in an Excel class, I thought what in the world can we create that is new because other people have explored all these Excel concepts, written textbooks about them,

and created all these activities using these concepts. I went to the library web site and found all kinds of books, e-books, online. [I digressed here a bit much]. I said, 'I was wondering how this laboring together is going for us. We need a way to assess what it is we're learning, how to assess what we're learning as a group. So I wondered and obsessed about that this weekend and I thought 'well, let me ask you [the group] for suggestions about how we can know what we know.'

I talked about the CL we'd done on Thursday and how everyone seemed to be engaged and how everyone had good ideas about what to do next to learn and it seemed to work well for us. I asked them, 'How would we assess whether we know' about charts? [Lots of perplexed looks here]. 'Teachers carry on about assessments all the time and are liable to fall back to the old tests, graded exercises, graded homework [I wrote these on the whiteboard] and beyond that we're not sure. So how do we know what we know? How do we assess what we're learning?' This led me to ask the group to co-construct how to assess what we are learning in a CL environment. I explained that I wanted us to decide how to assess our learning. 'We're learning as a group. So what could we do? I really don't know, but I bet WE do. What else could we do to assess how we're learning?' Joyce suggested that we could do another presentation like the Type II one we did a few weeks ago. Kristi and James said 'No!' at the same time. We talked about why they didn't want to do another Type II learning activity. I asked how another group presentation would help us know if we know charts. Nancy said, 'I don't think it would.' Joyce asked, 'Why not?' [I'm

thinking 'yes, start of dialogue']. She talked about how some of the people in the small groups might do more than the others [this is ironic to me because Nancy missed the class where her group planned their presentation, called me to say have them email me what I need to do, and then came in the next class saying that she didn't read her email] and I wouldn't know that. Kristi said, 'I think in the group projects, you get what you put into it.' And Nancy said, 'What do you mean by that?' [asking back!] and then said, 'The group project might be good but everybody might not put into it as much as they should.' This continued for a few minutes and then I asked, 'So how do we assess group work?' Bob asked, 'Grade each other?' and I asked, 'What would you look for in a good group member?' Some discussion about what would make a good group member: somebody who contributes, who 'really knows what they're doing.' Then Kristi brought up that some group members might not be fair in their assessment of each other 'because in a group, in a class like this where everybody seems to be friends with each other, you have to take that friendship out and see if they really know what they're doing and be able to move out of that friendship.' Debra said, 'Yeah, but we can't do that.' And Susan said, 'It would be hard, but we could do it.' I said, 'Is that one of those assumptions that we were talking about? That because we like this person, we would give them better grades?' Nancy said, 'It's true.' So I said, 'What could we do to make it more fair?' Kristi said, 'You can't know how much they did or how much they know.' Susan said, 'Yeah, they may just be shy. They may have learned a whole lot but they don't speak up, maybe they're shy or something.' I asked, 'What

can I do to help those shy people to participate?' I talked about how quiet I am in UT settings and how we arrange ourselves in a circle and talk, and how I don't talk much. Kristi said, 'That is hard to believe.' [laughter]. I continued, 'I think, I listen, if someone says to me, 'Martha, what do you think about that?' then I talk, but it's almost like I don't know how to make that space for me to talk.' So then I told them about the online component of the course last spring and how that helped me to participate. Online I could write what I was thinking and I wasn't unsure of myself. I could think about what I'd learned in class or thought about since class and put it out there for others to respond to. I was very comfortable. 'Would you prefer to write, some of you quieter folks? Kelly?' [nodded yes] Mike?' Mike answered, 'Writing' and then nodded. So I talked about how there may be other ways of learning that could help the quieter students. That's why I created the WebCT course component. I told them that there was very little activity on WebCT. I asked, 'What would happen if threw out a question on WebCT and asked you to respond to it before Thursday to give our quieter folks a chance to participate in writing?' Kristi shook her head no and asked, 'Whatever happened to good old application problems?' I laughed and asked back, 'OK. Good question. Whatever happened to good old application problems?' Joyce responded by saying, 'In using something like Excel or other application software, I have to agree with Kristi. I don't see any other way to assess if we know the software than to work problems, if you can actually apply what it is you're learning.' After a minute or two, I asked, 'And I would create those application problems for you to work?' and she said, 'Well,

yeah, that's the traditional way to do it. You could probably come up with a little more complicated chart than we could in class. I asked, 'So application problems of this sort would be the way that you would recommend that we use to learn Excel? What are we doing here? Are we building a new meaning for how we can learn Excel? I hear you saying that people learn by actually doing it. Then that may be what we need to do. We're trying to learn how to learn Excel and it may be that the application problems are the...are a way to go.'

Joyce continued, 'I think it helped me a lot. And having been in these classes for seven weeks or so, I have decided that it helped me when the concepts were explained and then we applied it.' I said, 'So you are more comfortable with a more traditional...' Joyce said, 'And it pains me to say that I prefer the traditional way.' [class laughter]. So I asked, 'So by traditional, we mean having something we go over in class and then work on it in class...' Nancy said, 'I think I would prefer that. I need more applications.' I asked, 'In class?' Nancy said, 'Yeah, 'cause when I get home and try to do it and we didn't go over it that much in class, it's harder. I think I would learn better.' Gail said, 'It's good to have time in class because if you have a question, you can get it...you can ask you [me] or someone for help.' I said, 'You would have access to all these good minds in here?' and Gail answered, 'Yes. Someone would know the answer or we could figure it out together.' I said, 'So what I think I hear you saying is that there needs to be some sort of in-class working through...' Nancy agreed, 'I agree with Joyce. I have a job and I don't have time to dig out the material on my own. I have to read it three or four times

before I understand it unless someone explains it to me.' I nodded and then asked, 'Is it a function of our being used to this way of learning? Is it because we have been taught like this for so long? Are we just more comfortable with it?' Gail answered, 'Probably, we learned that way in high school and when I came back to college, it was the same.' Susan said, 'I think it has something to do with the kind of class you're in.' I asked, 'Say some more about that...the kind of class you're in...' Susan said, 'It's different where it's primarily where you have to go in and do it and you have to understand what you're doing before you go in and do it. It's just that the traditional teaching and learning style would probably be best applied here, whereas if you were in a creative class, a creative writing or poetry class or an independent study.' I asked, 'What about the Type II group work? Would that fit in in helping you apply it?' Joyce said, 'I know that in my group we had a lot of fun but I didn't really spend a lot of time learning what my group members were doing. I think that's where a lot of the comments are coming from. We didn't function that well as a group.' I asked, 'So what are we saying about learning Excel? Are we saying that we need some way of learning about the concepts, try it out in class and then give us an opportunity in class to work some problems where you have access to the other folks who are learning Excel with you?' 'Right.' 'Is that our understanding today of how best to learn Excel?' Gail said, 'It's like...you wouldn't give a fifteen year old the keys to a car and say teach yourself to drive.' [class laughter]. I said, 'So collaborative driving wouldn't be wise?' Jodie added, 'That's the way I've been with this Excel. I like to work the end of

the chapter problems. I like having a book in front of me. I know there's a lot about Excel that I don't know...like trying to find out about that pivot table' [class laughter]. I said, 'I wonder if anyone knows everything there is to know about Excel. OK. Good. This dialogue has been great. So if we've decided this needs to be our approach, do we want to go back to the traditional Type I where I decide what to do in class or did you like the learning tasks that we did in the lab. How should we proceed? Help me know what we need to do about lists (chapter 5).' Nancy said, *'I think we should have some application problems that we do daily.'* I said, *'OK. So...just come in and have application problems?'* Nancy answered, *'No, I mean I think we need to learn about stuff in class, too.'* I said, *'So a little Type I explaining of concepts and then work on them in class...'* I looked around the room from student to student to see if this seemed agreeable to the group. I asked, *'Then what about assessment?'* Kristi said, *'There needs to be some lecture time and then some working time.'* Nancy said, *'Yeah, and time where we actually work through problems together.'* I asked, *'So I should go through and outline everything that's in this chapter that somebody wrote for us and then assign problems?'* Joyce said, *'Yes, pretty much what you did at first where we open up files and then you show us on the screen. That kind of learning helps me put a label on things that I've used for years.'* A little more discussion about how the earlier T-1 [Type I] method worked best for them in this type of class. Then I said, *'Well, how do we assess what we're learning in our efforts to learn Excel? Do we go back to graded exercises and homework and tests? Do tests really assess what we know?'*

really surprised at how much I knew on that first test.' [class laughter]. I didn't know I knew as much and when I got the grade I did, it was like, wow, I didn't know I knew so much.' I asked, 'Was it the actual exam (theory) test or the application part of the test?' Susan answered, 'It was the application test that best assessed what I knew. If you can apply it, you really know it. I don't think that in this setting, the multiple choice is as good as the application because when we get a job using Excel, our supervisors aren't going to care if we know which the toolbars are. They just want to know that you can go in there and do the application.' A little more discussion about our assumptions about what the 'bosses' will expect in the job world. After a while I said, 'Well, thank you all so much for that dialogue about how to learn Excel. Now we know how to go on together learning this software. So, back to more of a lecture description of new concepts in Excel followed by application activities and an application type test...?' Joyce said, 'So now we're having a test on chapter 4? [class laughter] We talked ourselves right into it, didn't we?' [class laughter].

My journal entry that evening was about the group's decision that we wanted more structure in our approach and application tests to know if knew Excel. We talked about our efforts to create a new way of learning Excel together and how we could assess what we know about Excel. Collaborative learning led us to a new understanding of how we as a group needed to learn Excel concepts and collaborative learning in isolation from the other Types of Teaching/Learning was not necessarily how. We talked about application problems more than anything else and how, in a software application class,

application becomes an important way to know if you know. We learned that we need to use more demonstration and more in-class applications to best learn the course content.

During that class, I was so interested in how we had traveled to that place that I didn't show signs of disappointment even though I was disappointed. As I reflected about what had occurred in class, I wrote as a journal entry that I was disappointed because I had assumed that the group would want to continue to explore collaborative learning and that assumption had been explored and had proved not to be the case.

I talked to one of the colleagues who had been interested in my study and told her about the results of this class and how disappointed I was by it. She asked why I was disappointed and I told her, "Because they don't want to do collaborative learning anymore." She asked how I knew that and I said, "Because we made up the best ways for us to learn Excel and it may not include collaborative learning." As I said those words, it hit me that we HAD used collaborative learning to determine that the best way to learn Excel may not be exclusively through collaborative learning. We had co-constructed a new meaning for us as a group—how WE best learn Excel.

The first interview with students began the week after this class (mid March 2002). As I talked with each of the twelve students enrolled in the course, I began to understand more about their collaborative learning experiences and, specifically, more about the use of the three Types of Teaching/Learning. Several students recommended that I not "clump up" the three types in the future; in other words, they thought that my plan to spend three weeks using Type I, the next two weeks in Type II, and the rest of the semester in Type III was not as helpful as when we were flexible and used the type that the learning situation "called out for." Through dialogue and reflection during the

interviews, I learned that collaborative learning, in isolation from the other two types, was not as helpful as moving in and out of the three types as the circumstances warranted. Using all the Types recognized and honored the ways of learning and knowing represented in the group in different circumstances.

We continued to use CAT's (classroom assessment techniques) to add to our group dialogues. CAT's allowed for anonymous feedback on the process of how we were learning. The anonymous individual reflections that the CAT fostered were discussed with the group and often led to those anonymous students requesting feedback on their thoughts and suggestions. If we did not have time for a CAT at the end of the class, many of the students would write and reflect and bring the feedback to the next class. I looked forward to reading these reflections and then using them to encourage group reflection. CAT's were used on occasion throughout the rest of the semester.

We also continued to practice dialogue. Late in March, we spent some time in class talking about what makes a dialogical space, about what made our space together safe and open. One student suggested that a dialogical space was "*give and take*." As we asked her about what this meant to her, she explained that an individual gives thoughts to the group through dialogue and the group takes/receives the thoughts. As those thoughts are "*handed around the room*," the group (including the individual) examines them, questions them, finds assumptions in them, and adds new thoughts to them so the thoughts that are taken back are different and new. The individual does not take back the original thoughts at all; she takes back the group's thoughts. The next time an individual gives thoughts, she takes back new thoughts and the process continues. After she had shared her thoughts with us, the group considered and questioned them until we created a

new meaning for "*give and take*." We emerged with a slightly different version of her model. It seemed to us that there was too much time or too much space between the "give" and the "take"; her model did not seem to address the seamless flowing of the thoughts between all in the group or the reciprocity of the others in the group as they 'gave' their thoughts. In essence, we decided that, to recognize the reciprocity and fluidity of dialogue, we would change the model to 'giveandtake.' Through dialogue, we created a shared meaning of dialogue and *her* model transformed into *our* model. Through 'giveandtake,' we shared what each of us knew and emerged with more than just summative knowledge. For us, collaborative learning was formative; what I knew contributed, changed, or influenced our joint knowledge construction which, in turn, contributed to what I knew. Together we built from our learning experiences a new, shared knowledge.

My field notes and journal entries became longer and richer as I tried to capture in words what was happening with the group. They took more and more time to write. On several days I did not have the opportunity to record my field notes immediately after class and I worried that I would forget something important. I spent many hours listening to taped interviews and pondering what the students had to say about our collaborative learning experiences.

Building on my near constant reflection about this group, I decided to introduce another Type II learning activity to the group. I divided the students into groups of two, pairing the quieter students together (and the more vocal students together). I hoped to give the quieter students more opportunity to discuss the learning task. The assignment was to explore pivot tables, using a database I provided for them, and then describe to the

group what they had done as a small group to learn about pivot tables. Four of the five groups used Type I to describe their exploration (going to the teacher workstation and talking to the group), but the last group sat at their workstations and engaged the rest of the group in a dialogue about what they did, asking the group to decide whether what they did would help them learn the concepts or if another way would have helped more. I heard asking back, I heard assumptions challenged, I heard group reflection on what we were doing and learning. I was gratified, to say the least, that this group used Type III to further explore their Type II learning.

My elation at this experience was tempered by the busiest week of the semester. I wanted to bask in the excitement I felt during class, but committee meetings, advising, and department responsibilities soon overwhelmed me. My journal entry (Journal 21) reflected this dilemma:

Today was wonderful to say the least and my head is so full that I can't think straight. I'm looking at a quote from Thich Nhat Hanh on my wall that reads, "When we are capable of stopping, we begin to see." I think that's what I want from these journal entries, to stop and see, but I can't stop long enough to see, to understand all that's happening in this class and this research experience. That's such a shame because I WANT more time to reflect. How did things get so hectic? I wish I could describe the struggle I feel to capture what happened today in conflict with the pressure to do other things that have to be done today.

Although the research and the collaborative learning experiences were intriguing and rewarding, I was frustrated at the lack of time to reflect and learn more.

We had many opportunities to build on our co-constructed way of learning Excel and often discussed which type was more appropriate as we learned concepts, learned to apply the concepts, and attended to our process of learning. “Type I,” “Type II,” and “Type III” became part of our shared vocabulary as did “dialogue,” “mindfulness,” “reflective practice,” “relational responsibility,” “positioning,” and “co-constructing.”

As we drew closer to the end of the semester, we continued to use all three Types, continued to reflect on their appropriateness and effectiveness, and continued to consider why one Type was needed for this learning task and why another was needed for a different task. We continued to attend to the four elements of collaborative learning—a dialogical space, cycles of action and reflection, focus on construction, and multiple ways of knowing—and continued to talk about the difficulty of remembering everything we needed to keep in mind. We worked together to remind each other of the process of our learning together as well as the content of the course. We realized that learning about the process of learning Excel became as important as learning about the content of Excel. We recognized that after learning the basics of Excel content (the how-to’s of the software), we could create spreadsheets if we remembered the features and functions of Excel. But what would happen if we were called upon to create a spreadsheet using new features or functions? What if we were unclear about the uses and purposes of the Excel work assignment? How could we learn what we needed to know? We learned that we could use the process we used in class: dialogue with colleagues about the end product and inquire about features that would increase user-friendliness and utility. We could ask back when we were unclear and reflect on what was happening in the group. We could voice our concerns and assumptions and have them clarified by others in the group. From

collaborative learning, we could emerge with a crisper image of the end product and its use from the group knowledge we created with our collaborative colleagues. We could engage in collaborative learning to learn how to *apply* Excel concepts. Peters and Armstrong (1998) refer to this group knowledge as "X". As the facilitator, I was mindful to stop and ask, "What are we co-creating? How can we 'go on' together in ways that encourage our co-creation?" By attending to what was being constructed and how it was being constructed, we created an understanding of the merging of process with content. We made explicit our joint understanding of how we learned collaboratively to create new knowledge about the application of Excel concepts.

By attending to the four elements of collaborative learning and exploring the three Types of Teaching/Learning, we created an environment conducive to collaborative learning. We collaboratively learned how to apply Excel concepts and how to learn Excel.

As discussed in Chapter Two, I planned to interview the students a second time at the end of the semester. During the last two weeks, I met with each student in my office to talk again about his or her experience of the three Types of Teaching/Learning. This second set of interviews provided me with more insights into our group experiences from a student perspective.

Most striking about these interviews was the new vocabulary or language we shared as a result of our collaborative learning experiences throughout the semester. In the first set of interviews, I had had to remind students which Type was which and what "reflective practice" or "positioning" was. In these second interviews, we used words like "mindfulness" or "co-constructing" or "Type III" effortlessly.

Students returned time and again to the relaxed atmosphere of the class, the good relationships we had, the new ways we talked together, and how we all worked hard to remember all we needed to *“watch out for,” “be on the lookout for,” “constantly notice,”* or *“question.”* The semester was rapidly drawing to a close and I would have time during the summer to analyze the second interviews.

I got a surprise during the final exam period. The group had decided that we wanted a final exam to see how well we could apply Excel concepts and I had created a scenario that would test the students’ ability to critically think through a learning task and apply what they knew about Excel. As I was explaining where to find the files for the test, Susan asked, *“Is this a collaborative final?”* I laughed with the rest of the group, but asked if they thought it should be. Joyce said, *“I think so because we’ve talked about collaborative learning all semester and it’s one of the types, uh, the ways we learned to learn this stuff, so it would be a shame not to do it.”* James laughed and said, *“Yeah, we should collaborate on how to do it.”* Jeanette looked funny, so I asked her if that would be agreeable with her. She smiled and said that she’d never taken a test collaboratively before and wasn’t sure she’d be good at it. Gail said to Jeanette, *“We’ve been doing it all semester. We’ll figure it out.”* Debra spoke up, *“We have this group brain and we’ll need it for the test.”* We had a collaborative final.

As I prepared for our last class together the following Tuesday, my journal entry reflected my feelings about the end of this research:

In about thirty minutes, I’ll be meeting with this group for the last time this semester. I am a little surprised at how sad I feel—sad that this learning adventure is over and sad that this group won’t be together again to build on

what we started building together. The second interviews are almost over—one more to go when Kristi gets better [Kristi was involved in a near fatal vehicle accident two weeks earlier and was in the hospital]. All that is left is an hour together and goodbyes. It is sad. I feel good about what we did together this semester. There were rough times, especially when we were just getting started, but there were exciting, free flowing times, too. I learned a bunch from these folks. Things that will stick with me as I try to do this again sometime.

Our last class was a relaxing time to reflect on what we had learned together. The students brought a cake. THANKS FOR EVERYTHING was written in bright green icing. They insisted that we collaboratively eat the cake.

This collaborative learning experience was unique and unpredictable. Mark Twain once remarked that education was "the path from cocky ignorance to miserable uncertainty." As I experienced collaborative learning with these remarkable students, I felt I was traveling this path with one important difference—the path led me to *joyful* uncertainty. I was joyful to explore learning with these wonderful others *without* certainty. Entering into a learning experience that held the possibility of creating new knowledge or new ways of "going on" together, of creating a space where what was to be learned was not prescribed or limited, of sharing responsibility for what was to be learned and how it was to be learned, was, to me, a joyful event. The uncertainty of this collaborative learning experience was its beauty. This joyful uncertainty leads me to believe that I will have many more collaborative learning experiences with many more incredible students.

I hope that the story of putting my practical theory into action brings to life the excitement, uncertainty, joy, fear, freedom, frustration, satisfaction, value, and challenge of collaborative learning. In Chapter Four, I will discuss the findings of the study.

CHAPTER FOUR

FINDINGS

DATA-DATA: Analyze (continued)

In this chapter, I begin a discussion of the findings from my study and include data displays (student comments, field notes, and journal quotes) that speak to each of the four themes identified through the inductive data analysis procedure described in Chapter Two. These themes are: **relationships, positioning, dialogue, and mindfulness**. I identified two sub-themes within the theme of **relationships**: *getting to know each other* and *creating a comfortable environment for each other*. Under the **positioning** theme, I identified two sub-themes: *teacher positioning* and *student positioning*. The **dialogue** theme will be discussed in terms of two sub-themes: *listening to be influenced* and *working to understand perspectives*. I will discuss **mindfulness** as the fourth theme. An in-depth look at each of these themes will reveal the complexity and richness of the collaborative learning experiences we shared in Type III Teaching/Learning. I discuss each theme in turn, but do not mean to suggest that they occurred in any particular order or are listed in order of importance or significance.

Theme: Relationships

The data collected during this study bears out my earlier claim that “collaborative learning is born and nurtured in relationships.” Learning together collaboratively in our course had its roots in the students and I getting to know each other as co-constructors of knowledge. Getting comfortable with each other required building the relationships

necessary to create a safe and trusting environment in which to explore ideas. These two sub-themes speak to the importance of building relationships in collaborative learning.

Sub-Theme: Getting to Know Each Other

Most teachers would agree that the first day with new students is important in establishing good relationships. As previously mentioned, on the first day of class I asked the students to share what they had written about themselves in a listing activity (listing 15 things about themselves). Though awkward at first, the students became more relaxed after the first two students shared their lists and I was enthusiastic and interested in what they shared. I talked with each student about what he or she had said and encouraged the rest of the class to do likewise. Soon students were asking questions of each other, and we spent the entire class getting to know each other. Kristi, the first student I interviewed for this study, commented that, *"another thing that stands out is how close we are. And I think that was thanks to you because you took that first whole day and kind of...had us introduce ourselves and interact with each other."* Earlier in the interview, she had said, *"Like that first day, you made a point to try to learn everyone's name and, you know, most people don't even do that on the first day."* She pointed to these actions as a sign of my genuine interest in them as persons, not just students to be taught, and she was right. I continued to take every opportunity to get to know students better. This was reflected in one of my journal entries, *"I continue to arrive for class early so I can talk with students out in the hall. I am very conscious of the role of relationships in the good feeling I have about the way class has gone this semester. The students are responsive, open to new experiences, good-natured, and seem to be very comfortable in class."*

Negotiating how to act in the classroom was also important in getting to know each other. During a class discussion, the students revealed that they generally figure out how to act as a student in a classroom on the first day of class. Susan said that students generally take their cues from the teacher of the class, *"It depends on the teacher. If the teacher is open and relaxed, you relax and come to your natural state a lot quicker than if the teacher is rigid."* Our dialogue led us to the conclusion that *"if this person [the teacher] laughs at my jokes, it's OK to be funny as a student, and if this person gives me a dirty look when I say something when I wasn't asked, then I learn not to talk."* So, in general, a teacher's actions toward students as early as the first day helps students learn what being a student will mean in that class. This topic led to a dialogue about how learning more about each other makes everyone more comfortable asking questions, making suggestions, and exercising the freedom to decide together what being a student or a teacher means.

Closely related to taking a genuine interest in each other in the class was another way to get to know students—asking them early on what they thought about issues in the classroom. According to Kelly, asking for student thinking on issues was one way of *"showing you want our opinion and that makes us feel very important. It goes back to the whole caring thing and that's important that you want input from the class, not just getting input, but that we're giving input, too."* To learn together I had to take a genuine interest in what students had to say and get to know them as persons who were members of many communities, not just as a person playing the role of student in my class.

Sub-Theme: Creating a Comfortable Environment through Relationships

Building and maintaining relationships that value acceptance, respect, openness, and shared responsibility for each other were important in creating a comfortable "space" or environment conducive to collaborative learning. Acceptance came with showing "the utmost respect for everyone in the group and for everything that is said by anyone in the group" (Peters & Armstrong, 1998, p. 83). Holding "the ideas expressed, the inquiries made, and the feelings shared" by everyone in the group in positive regard (p. 83) helped build the acceptance and trust necessary to feel comfortable with each other. As we learned together how to relate in ways that fostered trust and acceptance, we learned how feeling safe and valued influenced our willingness to talk openly and freely in learning together as a group. We agreed that affirmation and positive regard were critical in communicating acceptance and building positive relationships.

We discussed how demonstrating the kind of environment we wanted from others played into how we related to each other. Kristi compared our relationship to a friendship. She shared the story of her learning for two years with a cohort and how close they became. *"For the whole two years, we had a kind of friendship. And I've gotten that from this class already, just from the few short weeks we've been in there."* Other students described the comfortable relationships as an *"atmosphere"* or *"very comfortable learning environment."* The positive regard or respect shown by the group toward each other provided the incentive to be open and accepting of the multiplicity of voices that we all brought to the table. Everyone in the group accepted the responsibility to foster that same show of respect and positive regard toward each other and toward the group. Nancy suggested that we could describe this responsibility as *"not passing*

judgment on each other." Kristi added, *"We were all supportive in what we had to say."* Student ages ranged from nineteen to forty-nine; they represented three nationalities; they worked part time or full time or were fulltime students; they were nine females and three males. Nancy shared that *"our class is very diverse, very diverse and I think that helps things out."* By recognizing and valuing the diversity, we were open to the possibility of learning new cultures, new ways of thinking and learning. Being open to new experiences freed us to ask questions of each other and explore new ways of "going on together" as co-constructors responsible for each other's learning. Kristi described the shared responsibility for helping each other learn; *"Most of the time, I'm watching everybody else to see how they do...I think we all try to help each other."* Jodie gave a good example of the level of acceptance, respect, openness, and shared responsibility that the group felt. *"As far as our dialogue in there, it's interesting that people are willing to give, I don't want to say a very personal side of themselves, but that they are willing to give such a, yeah, I guess it is a personal side. But, I mean, we felt very comfortable. You know it's one thing to tell about our hobbies in there or what you did on the weekend, but another thing to talk about, for me, I don't want to say a life-changing moment but it kind of made me realize that maybe I am starting to grow up...I was willing to tell that to a lot of people in class and I never even told any of my friends, my best friend, or my mom or dad. I kept it to myself. And I realized, it hit me, that I was willing to go into this class with people I've only known for nine weeks and that's how comfortable I felt with them."* If indeed collaborative learning is born and nurtured in relationships in a comfortable learning environment, our group was ready to explore that new way of learning together. We had created the relationships that

supported the exploration of our assumptions about the role of the teacher and the role of the student in collaborative learning.

Theme: Positioning

In Type III Teaching/Learning, I acted differently toward students than I did in Type I or Type II. Rather than the "gatekeeper" of knowledge, I positioned myself as a co-constructor of knowledge. Positioning means moving out of a fixed role such as teacher and acting into the culture and circumstances of the group. I could not change the *role* of teacher, which is "static and fixed over time" ((Harré, personal communication, Mar 8, 2001), but I could dynamically *position* myself as a co-constructor with students. We had to collaboratively decide how to "position" ourselves in relation to each other in order to co-construct new knowledge and meaning. This "positioning" was the second feature of collaborative learning that stood out.

Sub-Theme: Teacher Positioning

I found teacher positioning in collaborative learning to be challenging but exciting. Teacher positioning could be understood in terms of preparing to facilitate as a co-constructor of knowledge and sharing responsibility for learning.

Preparing To Facilitate as a Co-Constructor of Knowledge. Preparing to facilitate a Type III/collaborative learning environment required that I evaluate how positioning influenced my preparation for teaching a class. Preparing for class had many things in common with traditional preparation for teaching a class: reading textbook materials, researching course-related materials, creating handouts, thinking about what worked in the past, designing learning activities, and assessing student work. However, positioning myself as knowledge co-constructor rather than "knowledge giver" required adjustments

that I had not anticipated. I found myself filled with fears. My fears ranged from nervousness about being unable to explain or model collaborative learning concepts to wondering what the outcomes of collaborative learning might be. For example, *"I kept thinking that if I didn't have a great topic for dialogue and I couldn't explain it [dialogue] well enough that I would ruin their [the students'] experience of CL"* and *"How can I expect college sophomores to jump in and dialogue the first time we look at it and try to do it?"* I also had a fear of the unknown in the classroom. Several times in journal entries, I wrote about feeling unprepared, no matter how hard I worked to prepare. I struggled to overcome the fear of losing control and to embrace the unknown; this is evident in the following quote from my journal entries:

"One last thing that seems to be evident to me as I plan for CL experiences is that I have to be extremely prepared for class, more so than if I am in a Type I or Type II teaching environment. In Type I, I can control what we learn and how we learn it and, in Type II, I can control some of the direction of the learning by my group assignments. In Type III, it's wide-open spaces. We could have gone anywhere today. The thought crossed my mind early on in our exploration, 'What if I don't know the answer if we get stuck?' and then I thought, 'Well, what of it if I don't?' We are learning from each other and one of us will know the answer or how to find out the answer. So all the preparation was worth that feeling of freedom from being the 'keeper of the knowledge.' The knowledge is out there between us, not in my head. Why do I worry about needing to know everything 'there is to know' about Excel, like I could? Give it up, mjm. You have co-constructors out there."

In this data display, I shared conflicting feelings about facilitating collaborative learning.

I talk about fear of not knowing “the” answer if we ventured into Excel concepts that I was not prepared to discuss, but after reflection, I talk about the freedom of sharing responsibility for teaching and learning. I did not have to know everything; the group could figure it out together. As Jodie said, *“In a group environment, for it to really work, people in that group have got to be willing sometimes to leave their egos at the door, to come in and say, ‘I don’t know everything. Somebody else might have a good idea.’”* The fear diminished as I learned to give up control of where our learning took us; I experienced a newfound freedom in trusting the process of collaborative learning, in recognizing that teaching and learning were the group’s responsibility, not solely mine. Later in the study, I wrote of the uncertainty, the unknown; *“I am really enjoying, to borrow from John et al., ‘making the road by walking’ with this group.”* Fear gave way to enjoyment of the freedom.

The second factor in preparing to facilitate while positioned as a co-constructor of knowledge was the increased amount of reflection involved. Journal entries were by nature reflective, but for every hour spent journaling, I spent many more thinking about what to do next class, how to improve my facilitation skills, where we might wind up in our dialogue, and when to use Type I or Type II teaching to introduce new Excel concepts. At one point, I wrote, *“I feel like I’m thinking about this group all the time—in the shower, in other classes, in meetings, at night—I can’t get what we’re experiencing off my mind.”* Near constant reflection characterized my preparing to facilitate. Positioning myself as co-constructor brought challenges in preparing for class.

Sharing Responsibility for Teaching and Learning. Another aspect of the Teacher Positioning theme was sharing responsibility for teaching and learning. Teachers functioning in a traditional teaching role are primarily responsible for student learning. In our experience of collaborative learning, I joined the group as a co-structor of knowledge and shared responsibility. I acted as the primary facilitator, especially at first when the group was learning how to learn collaboratively, but less so as the group became more comfortable with how we positioned ourselves as co-constructors. I shared the responsibility for teaching and learning with the group. We all became responsible for each other and for the group's learning. The fear of "*not knowing the answer*" gradually disappeared; I wrote, "*Once when I didn't know the answer to one of the questions that came up today, I stared back blankly at the group when they looked to me for an answer*" and it was acceptable not to know. Kristi voiced another indication of shared responsibility in her interview, "*We all try to help each other learn.*" By watching other students to see if they understood and asking about the concepts others did not understand, she became my "*learning barometer*". She and others were co-facilitators of collaborative learning. Planning learning activities, assignments, due dates, and assessment strategies became the responsibility of everyone in the group as co-facilitators. We collaboratively learned together how to learn Excel and then implemented our plan.

Sub-Theme: Student Positioning.

The student positioning sub-theme will be considered in terms of preparing to learn and sharing responsibility for teaching and learning. Students gradually came to

position themselves as co-constructors of knowledge and learned to appreciate their newfound responsibility.

Preparing to learn for students involved examining their assumptions about being a student. I asked students to write about a critical incident, a learning experience that stood out for them, or as one student called it, a "wow" learning experience. As we dialogued, we talked about the assumptions behind our learning critical incidents, about how students were "supposed to act." Gail characterized the traditional student positioning in the learning critical incidents in her interview:

You sit back and you listen and then you do... And you don't really have that much, that much of an active role... You just come in, sit down, and listen to the lecture and you apply the application, the lecture to the problem and then you turn it in and you get a grade and then you're tested on, on the material that, you know, it's like you're a sponge so the teacher has you soak up all the knowledge and then she squeezes it back out of you for the test.

Joyce also used a metaphor to portray student positioning in Type I: *"In some classes, I feel like a pincushion. They [teachers] are just sticking stuff in."*

Gail's metaphor of student as sponge and Joyce's metaphor of student as pincushion illustrated the difference between student positioning in Type I and II and student positioning in Type III/collaborative learning. Nancy characterized collaborative learning as *"stepping away and thinking in a different direction together."* Bob suggested that collaborative learning required *"more talking and thinking than usual."* James commented, *"We all know more than just what the teacher is putting out there."*

We have a say in what is happening." Joyce summarized student positioning as *"We have some authority as collaborators."* As students learned to position themselves as co-constructors of knowledge, they shared responsibility for learning together and they had an interest in helping others learn. As Debra said, in positioning herself as co-creator of knowledge, *"I was the teacher and the student."*

Constructing knowledge through collaborative learning required for students a new way of thinking about knowledge. We talked about this new epistemology and came to understand that knowledge was not *"out there somewhere,"* but could be jointly constructed between us through our collaborative efforts. In class toward the end of the semester, Susan created a metaphor for the location of this newly created knowledge: *"In Type III...it [the primary knowledge base] would jump from person to person."* Gail also proposed a metaphor: *"It depends on what's going on with us all as to where the knowledge is. Most of the time it's midway between everybody. It's like we corral it and won't let it out 'til we're through."* These metaphors helped us visualize the social construction of knowledge and how each person contributed when it "jumped" from one co-creator to another; when collaboratively corralled, knowledge was the property of everyone in the group. Learning to position ourselves as co-constructors of knowledge required a change in epistemology.

When positioned as co-constructors of knowledge, students had the power to make decisions about how we learned together, about assignments, and about assessments. We embraced a less structured college course. The syllabus for the course served as a basic guide for the content, but we were not limited to that content, and we controlled how we learned what was most meaningful to us. Debra pointed to

“flexibility” as a characteristic of Type III. Nancy liked that *“We have some say in when to move from one function to the next. We aren’t anal about covering everything by a specified time, by a certain date.”* After a dialogue about how textbook authors and teachers traditionally determine what students should learn in a course, Kelly summed up the value of co-constructing what we wanted to learn and how we wanted to learn it: *“If you listen to just one person, the world would be a very, very, boring place. Maybe that one person is good and right, but maybe they’re not.”* We planned together how to learn Excel based on more than one person’s opinion of what we should learn and then put our plan into action as a group. Students began to feel, as Nancy reported, *“comfortable outside the [traditional] student role”* and to embrace less structure in our course. The static roles of teacher and of student were eclipsed by positioning ourselves as co-constructors of knowledge in a collaborative learning environment.

Theme: Dialogue

Building relationships, creating a comfortable learning environment for each other, collaboratively positioning ourselves as co-constructors of knowledge, and sharing responsibility for teaching and learning were intertwined with dialogue, another feature of collaborative learning that stood out for the group. Two sub-themes of dialogue emerged from the data: (1) listening to be influenced and (2) working to understand each other's perspective. In discussing these findings, my working definition of dialogue is drawn from Isaacs' (1999): “dialogue is a conversation in which people think together in relationship” (p. 19).

Sub-Theme: Listening To Be Influenced

In preparing to practice dialogue, I talked about the importance of actively listening to each other. Joyce noticed that, in positioning herself to share responsibility for teaching and learning, *"when you're teaching, you can't do all the talking, you have to do the listening."* Together we talked about listening to be influenced (Brickey, personal communication, 2000), not to influence the other person, but to be influenced by what the other person said. Through dialogue about the importance of listening, we began to explore how to better understand another person's perspectives by asking questions. An excerpt of the dialogue we had in class follows:

M: *"What is listening to be influenced?"*

Joyce: *"I don't know."*

M: *"What is listening?"*

Jodie: *"Paying attention to what someone is saying to you."*

M: *"Just paying attention?"*

Jodie: *"No, letting the other person know that you are hearing them."*

M: *"How do we do that?"*

James: *"Asking questions about what the person just said."*

M: *"Like we are right now?"*

We explored together what might happen if we listened to be influenced every time someone spoke in class. We might, as I had written in a field note, *"begin to consider other ways of thinking, different from our own, but just as valid, just as real, just as tried and true for the other person."* By listening to be influenced, we used dialogue to learn more about and to understand each other's perspective.

Sub-Theme: Working to Understand Each Other's Perspective.

Dialogue was a way to “*dig deeper*” into another person's perspective, to understand the meaning in what they said. Two aspects of working to understand each other's perspective that stood out for us were: (1) asking back or paraphrasing and seeking confirmation, and (2) holding out our assumptions to look at them. Asking questions to clarify what the speaker meant became important. Susan put it this way, *“If we don't understand something we say, hey, let's back up and ask that again.”* When one of us asked why another of us had asked a certain question, we learned that we could understand each other's perspective if we asked *why* someone had asked what they asked. I wrote in a journal entry, *“When Kristi asked me why I had asked that question, I thought ‘yes!’ and quickly focused our attention on what asking back meant to dialogue. We considered ‘why did that person want to know the answer to that question enough to ask the question? Why was the answer important to that person?’”* Closely related to asking back was paraphrasing what someone said and seeking confirmation from that person that what you heard them say was indeed what they meant to say. Asking back and paraphrasing served the same purpose for us—to more completely understand each other's perspective.

Earlier in this chapter, I mentioned our dialogue about identifying assumptions in what we believed the student role to be. The students and I continued to look for assumptions as we dialogued. Suspending, or holding out, our assumptions about learning in order to look at them more closely—about group work, about knowing, about roles and positioning, about how to act in a classroom, about how to learn application software—helped us work through differences in perspective. By holding out our assumptions, we

meant holding them out in front of us to examine them more closely. We reflected on where those assumptions originated and how we came, as Gail said, *"to accept them as our reality, the way we make sense of the world."* By working to understand how others arrived at their beliefs and by listening to be influenced by others, we were able to co-construct new meanings. As Susan put it, *"If you ask questions and you dig and you have a dialogue, you kind of get more of an understanding"* of how we came to assume what we assume. Dialogue and its two sub-themes—listening to be influenced and working to understand each other's perspective—were integral to exploring new ways of learning together.

Theme: Mindfulness

As we, as a group, built relationships, created a comfortable learning environment for each other and positioned ourselves as co-constructors who shared responsibility for teaching and learning, we cultivated a new awareness of how many things we needed to look for, to pay attention to, to be mindful of *in the moment* as we learned together. Mindfulness, as we used it, means awareness of, acknowledgment of, and respect for the culture and circumstances in which a group finds itself. It means attending to the events, "utterances" (Bakhtin, 1986, p. 67), and processes that occur in a collaborative learning environment as well as attending to the relationships which nurture collaborative learning. It can also mean holding in mind an attribute or event or person--the acknowledgement of and/or reflection about a situation, condition, way of being, way of knowing, or way of relating.

As facilitator, I was particularly aware of the many things of which I should be mindful. This is evidenced in the following quote from my journal. *"I always think of*

things I could have said differently or ways I could have acted differently that might have made the experience better somehow, maybe. I need to get better at reflection in action. Reflecting on things as they happen or are said and then reacting in ways that keep the dialogue going even when it is a new and scary concept to some students, honor the students' thoughts and contributions to 'X,' help me keep up with how we got from there to here, respect what each student brings to the learning experience, make sure that everyone is comfortable and engaged or connecting in the experience, keep myself in check re: being a co-constructor and sharing responsibility for all that's going on, and keep myself alert for/listening for striking moments and assumptions. It's hard to keep all that in mind while I'm in the experience, in the moment. There's so much to be mindful of."

Several things I mentioned in this journal entry beg for explanation. My statement, "*respect what each student brings to the learning experience*" refers to my need to be mindful of the different speech genres from which students were speaking. According to Bakhtin (1986), speech genres are the relatively stable types of speaking used within a sphere of interaction. Each speech genre, whether born of nationality, occupational group (teacher, lawyer, businessperson), or of other groups with which one is associated (neighborhood, student, family, civic organization, sports team, etc.) influences how words are used. For example: as a teacher in a faculty meeting, I speak from the speech genre which teachers in my department share; as a teacher in a classroom, I generally speak from the speech genre which teachers of information technology share. In other words, I speak from many different genres in the course of my daily activities.

Another item begging for explanation is evident in this journal entry, my use of the words, "*striking moment*." Mindfulness came into play for us as we attended to moments that somehow stood out in the course of group interactions, to moments that "strike us...they compel our attention, 'call out' from us various responses" (Shotter & Katz, 1996, p. 213). These striking moments commanded reflection as well as our attention. By reflecting together on striking moments, we created the opportunity to look back together with an open mind on what was just said or what had just happened, to examine why it was striking or significant, to suspend our assumptions about it, and to consider other points of view.

My journal entry also included a reference to "X" in "*honoring each student's... contribution to 'X'*". As I reflected on the things that required mindfulness of me, I wanted to be sure that I called attention to what we were co-constructing during our collaborative learning experiences.

One last statement in my journal entry that requires explanation is "*keep the dialogue going even when it is a new and scary concept to some students*." The "*new and scary concept*" to which I refer here is looking at a new epistemology. I needed to be mindful that everyone in the group did not share the same epistemology. Focusing on construction involved exploring how knowledge is created and working toward a shared meaning of how knowledge is being constructed within the group. This involved a paradigm shift for some of us. I was mindful that, in the beginning, some students might be uneasy about their newfound power and responsibility to contribute to the construction of group knowledge.

Students were also aware of the role of mindfulness in collaborative learning. During our reflections on what happened in the group, one of us would miss an event or utterance that held significance for another. As we noticed these oversights, we began to dialogue again with heightened awareness of what we had previously overlooked. By noticing the many aspects of the four elements that we "*needed to keep in mind*", we learned the difficulty of attending to multiple aspects in Type III Teaching/Learning.

Various students reported that it was important to "*hold in mind*" activities such as "*listening hard*," "*reflecting on what is happening here*," "*making sure everyone gets to hear everyone's voice*," "*looking for perspectives*," "*noticing different ways to learn*," "*correcting misconceptions as you go*," "*paying attention to what is going on and reacting to it*," and "*making sure we understood by asking why we assumed stuff like that*." Many students reported that they were mindful of our positioning ourselves as co-constructors and our new ways of relating in class. Debra's words again apply here, "*I was the teacher and the student*." James reported that, during collaborative learning experiences, I positioned myself as more of a "*mediator*." Joyce characterized the position I took as "*more of a guide, not a leader*." Bob described our positioning ourselves as co-learners as "*putting everybody on the same level*."

Students were mindful of the shared responsibility for helping others learn. As Kristi said, "*when I saw that [student name] wasn't getting it, I knew we had to talk more so she would. That's when I suggested we back up and try it again*." For their responsibility in deciding the direction that our learning activities took, Debra reported, "*We all decided to experiment with things and actually go out and explore things without pressure*." Students were also mindful that collaborative learning worked best

when everyone contributed: “*So far, everybody has contributed,*” and “*Everybody benefits from everybody else’s comments.*” Mindfulness stood out for us in our collaborative learning experiences as the fourth theme.

Four themes emerged from the data: relationships, positioning, dialogue, and mindfulness. In summary, three of these themes, relationships, positioning, and dialogue, speak to the importance of social interactions in the co-construction of knowledge. The fourth theme, mindfulness, points to the importance of attending to and reflecting on the process of collaborative learning. In Chapter Five, I will discuss these findings in terms of related theory and research.

CHAPTER FIVE

DISCUSSION OF FINDINGS: RELATED THEORY AND RESEARCH

DATA-DATA: Analyze (continued)

In Chapter Four, I began a discussion of the findings of my study. To complete the sixth phase of DATA-DATA, Analyze, I explore the themes of relationships, positioning, dialogue, and mindfulness as they relate to formal theory, research, and concepts found in the literature of collaborative learning, social construction of knowledge, organizational dynamics, and the psychology of discourse.

For purposes of organization, I will discuss each of the four themes individually in terms of related theory and research. Using an exploration of literature related to each theme as a framework may falsely suggest that these themes are precisely defined and function independently of each other. Rather, the themes should be understood as features of collaborative learning that stood out for us--they occurred in no particular order and are not discussed in order of importance or significance. This framework, patterned after Spradley's (1980) "master outline" of themes, simply lends structure to this investigation of what others have to say about what stood out in our collaborative learning experiences.

Relationships

The findings of this action research speak to the importance of relationships in collaborative learning. When asked what stood out for them in our learning experiences together, students were quick to point to characteristics of relationship such as "*close*," "*friendship*," "*caring*," "*trusting*," "*open*," "*flexible*," "*non-threatening*," or "*fun*." Collaborative learning occurred within relationships where the free and flowing exchange

of ideas occurred. Our relationships developed into what Katz (2001, personal communication) characterized as “a community of resourceful learners” and Shotter (2000, personal communication) described as, “resourceful or mutually enabling communities.” Through interdependence, we felt we could say, as Wittgenstein (1953) did, “Now I know how to go on” (no.154). I better understood what Shotter meant when he wrote, “once able to ‘get on’ with each other like this—such that we can both touch and be touched, see and be seen by each other...it is possible for us to explore each other’s uniquely different inner worlds further” (Shotter, 1999, p. 1).

Social construction theory speaks to the importance of relationships; it holds that we construct our selves, social structures, and knowledge through relationships within our social spheres or culture (Gergen, 1994, 1999, 2001; Berger & Luckmann, 1966). Gergen, a leading scholar on social construction, writes:

What we take to be true about the world or self is not a product of the individual mind. The individual mind (thought, experience) does not originate meaning...meanings are born of coordinations among persons—agreements, negotiations, affirmations...nothing exists for us—as an intelligible world of objects and person—until there are relationships (1999, p. 48).

Relationships are constantly changing and require constant negotiation with an “Other” to construct new meaning and understanding of who we are and what we know. Bakhtin posits the self as existing only in relation to an “other”: “the self [is not] a unitary thing; rather it consists in a relation, the relation between self and other” (Holquist, 1990, p. 36). It is within this relation that we come to know; as Bakhtin (1984) wrote, “Truth is

not born nor is it to be found inside the head of an individual person, it is born between people collectively searching for truth, in the process of their dialogic interaction" (p. 110). The relationship becomes a focal point for social construction. Krishnamurti (1997) asserts that, "The mind is to be understood only through relationship...In fact, life is nothing but relationship" (p. 143). Meaning finds its origins within relationships. In Buber's words, "In the beginning is the relation" (1970, p. 69).

Looking through a social constructionist lens at the findings from our action research, I see that relationships were, as Peters and Armstrong (1998) suggest, "vital to the process of collaborative learning" (p. 83), the essence of which is the co-construction of shared meaning or knowledge. Their theory of the three Types delineates the differences between the relationships inherent in each type. Type III Teaching/Learning, or collaborative learning, involves a change in the relationships between members of the group (including the teacher) and between individual group members and the group. Armstrong (1999), in his subsequent study of the relationships in Type III Teaching/Learning, found that individuals developed a relationship with each other and, as time went by, they developed a relationship with the group as a whole.

Relating responsibly is relating in ways that "sustain and support the process of constructing meaning as opposed to terminating it" (McNamee & Gergen, 1999, p. xi). Practicing relational responsibility means being present to each other and to the group and realizing that our actions and dialogue influence others in the group. Relational responsibility lies "within the shared attempt to sustain the conditions in which we can join in the construction of meaning" (Gergen, 2001, p. xi). Being present means to be aware, to fully experience, to become engaged in the construction of meaning and

knowledge that is occurring within the relationships forged in the group. Through relational responsibility, the students and I, as members of the group, showed the respect that Peters and Armstrong (1998) report are important in affirmation. Gergen (2002) also speaks to the value of positive regard as affirming:

To affirm is essentially to ratify the significance of another's utterance as a meaningful act. It is to locate something within an expression that is valuable, to which one can agree, or render support. To affirm another's utterances is also to grant worth, honor and validity to the other's subjectivity; failure to affirm places the identity of the utterer in question. Finally, in affirming an utterance one also generates the primitive bond from which further coordination may ensue (p. 9).

Relationships were integral to making a space for each other to openly and freely explore others' perspectives through dialogue. This finding is consistent with the findings of other researchers in the field of collaborative learning (Armstrong, 1999; Tisue, 1999; Alderton, 2000; Cross, 2000; Brickey, 2001; Cotter, 2001; Naujock, 2002). The studies of Armstrong, Alderton, and Cross are more closely related due to the research setting—higher education classes. Tisue, Brickey, Cotter, and Naujock studied collaborative learning in very diverse settings—a family business, an internal utility company university, a major university's TRIO program, and a start-up business, respectively. Each researcher found that relationships were integral to collaborative learning experiences.

Brickey (2001) found that sharing personal stories “enhances the listeners’ positive perception” (p. 54) of the teacher and “draws listeners into the discovery process as teachers describe their own journey in their relation with the subject...as the students

identify with the triumphs and the mistakes of the teacher, a common ground of personal rapport and relationship is established” (p. 54). The findings of my study concur with Brickey’s findings. In Chapter Three, I discussed how I was sharing more personal stories with this group than with any group before this study. My personal stories led to a good rapport with students and contributed to the positive relationships that were critical in developing the trust and openness necessary for collaborative learning.

The relationships theme also resonates with what Gergen (1994) says, drawing on the works of Bakhtin (1981), Wittgenstein (1986), and Shotter (1993b, 1994),

Discourse is not the possession of a single individual. Meaningful language is the product of social interdependence. It requires the coordinated actions of at least two persons, and until there is mutual agreement on the meaningful character of words, they fail to constitute language...it is not the mind of the single individual that provides whatever certitude we possess, but relationships of interdependency. If there were no interdependence - the joint creation of meaningful discourse - there would be no "objects" or "actions" or means of rendering them doubtful (p. viii).

He also suggests that Descartes’ dictum “cogito ergo sum” should more rightly be “communicamus ergo sum” (p. viii). These relationships of interdependency or what Shotter (2001b) calls the “dialogical, joint nature of human activity” (p. 1) are necessary for creating meaning or knowledge, hence necessary for collaborative learning.

Because “meaningful language is generated within processes of relationship” (Gergen, 2001, p. xi), relating in ways that sustained meaningful language is crucial. Those ways of relating that sustained the “meaning making process” (Gergen, 2002, p. 8)

were respectfully acknowledging the thinking, feeling, or actions of others—letting others know that they were heard and accepted—through verbal response or, perhaps, just listening. The relationships we developed in and through collaborative learning led to what Shotter (2002c) called relationally-responsive knowing or participatory knowledge. Instead of our responding to course content as dead material (Shotter, 2000c), we gave it life through “participating intimately with the others...around us, as we dialogically unfold between us, intricately intertwined relationships of many, uniquely different kinds” (Shotter, 2002c, p. 4). Course content became more than how software functions work; it became how to creatively apply the software idiosyncrasies to real practices, our practices. We decided that knowing how to operate the software was “empty learning” if we didn’t also know how to relate to each other in ways that enabled us to create new and unique applications. The image of a computer programmer working alone did not fit our experiences of current business practices; computer programmers are also involved in workgroups, customer service, and training—all of which require relationships conducive to learning and creating with others.

Positioning

I found the positioning theme from our findings particularly interesting from a theoretical standpoint. Davies & Harré’s (1990) positioning theory gave new meaning to the pivotal moves required to act into the culture and circumstances of the group. I had been concerned with how a facilitator of collaborative learning could “leave behind” the role of teacher; it seemed impossible to step out of that role. Moving from a “static fixed-over-time role” (Harré, personal communication, Mar 8, 2001) into dynamic, interactive positioning proved to be the answer to my concern. Position is ephemeral. Harré suggests

that “thinking in terms of positioning enables one to move from the interactive, even the culturally dependent situation, when some youngster [sic] is telling about something he or she knows better than you, to the authoritative (having your right to instruct or inform), but ready to abandon that position when it becomes unsuitable” (Harré, personal communication, Mar 8, 2001). Positioning theory helped me understand that I could not change the *role* of teacher, I was in the role of the teacher of the course and could not change the responsibilities intrinsic to that role, but I could *position* myself as a co-creator of knowledge and regard students as colleagues engaged in collaborative learning.

Even as we worked to position ourselves so that, as James said, “*everyone was on the same level*”, students would look to me for the next step or the next question. They considered me to be a “little more equal” in co-creator position. Current research on collaborative learning shows that this is a common phenomenon (Brickey, 2001; Alderton, 2000). As we practiced how to position ourselves, students began to function as co-facilitators, “*learning barometers*.” Gradually, they, like the participants in Tisue’s (1999) study, learned to apply the skills they learned from watching the facilitator of their group.

This positioning ourselves as co-creators influenced our way of relating and speaking in the group. One of Bohm’s three conditions necessary for dialogue is that “all participants must regard one another as colleagues” (Bohm as cited by Senge, 1990, p. 243). Positioning theory explained how we could regard each other as colleagues and still remain in our fixed roles as teacher and students. As a co-creator of knowledge, I freed myself to learn with the group. According to Davies and Harré (1990), “once

having taken up a particular position as one's own, a person inevitably sees the world from the vantage point of that position and in terms of the particular images, metaphors, story lines and concepts which are made relevant within the particular discursive practice in which they are positioned" (p.3). Because we positioned each other and ourselves by what we said and how we acted, we spoke and acted into the position of co-creator, rather than caretaker of knowledge or passive recipient of knowledge, in the creation of new ways of speaking, relating, and acting in our fixed roles of teacher and student but positioned as co-creators of knowledge.

A large part of our learning to position ourselves in new ways was due to our identifying our assumptions about teacher and student roles. Identifying and then suspending those assumptions contributed to our understanding of how our current positioning differed from positioning typical in a traditional classroom environment.

We talked about how assumptions are blended into the "background" of our lives, what Wittgenstein (1980) calls the "hurly-burly" of everyday social life. To help us identify assumptions as we engaged each other in dialogue, we asked probing questions that led to reflection on where the assumption might have originated, how it worked for or against us individually and as a group, and how it might be modified to benefit our future interactions. Bohm (1996) suggests, "a very considerable degree of attention is required to keep track of the subtle implications of one's own assumptive/reactive tendencies, while also sensing similar patterns in the group as a whole" (p. ix). By openly and respectfully identifying assumptions as a group, we set the stage to reflect as a group on assumptions; joint reflection became a valuable tool for creating shared meaning.

As interactions occurred within the group, group reflection on those actions helped identify ways of relating more genuinely, and made more explicit how positioning influenced our learning. As Shotter (2002e) suggests, we need to “just connect” (personal communication)—see and make connections between our assumptions, our ways of relating, positioning, and the everyday occurrences that shape our practices.

Park (2001) suggests that connecting is an important part of relational knowledge:

If we get to know our conversation partners in the process of talking that impels us to connect, this knowing is inherently not just an intellectual exercise, but also an affect-laden action... In relationship, we know with feeling, and the knowing is in the feeling... [Relational knowledge] comes from connecting and leads to further connecting and ...it is relational knowledge that makes it possible to create and sustain a community (pp. 85-86).

As we reflected on how we positioned ourselves as co-constructors of knowledge (our practices in this class), we called attention to the ways in which positioning shaped our approach to learning together.

Dialogue

Dialogue, the third theme (feature that stood out for our group), was the catalyst for our collaborative learning experience. The two sub-themes of dialogue—listening to be influenced and working to understand each other's perspective—were integral to exploring new ways of learning together. Dialogue, to us, was a new way of talking together in the classroom.

Many theorists have much to say about dialogue and its facilitation. To lend some structure to my discussion of this related literature, I will discuss four aspects of dialogue that relate to collaborative learning: time, giveandtake/talking into and out of the group, speech genres, and polyvolcality.

Time

Our learning to dialogue was a gradual process. We found that creating the relationships that nurture dialogue took time at the beginning of the semester. Those relationships contributed to what Isaacs (1993, 1999) calls a “container,” the “more elusive notion of the ‘field of conversation’” (p. 257). He describes four stages of dialogue:

- ❑ Field I: Instability of the Field/Politeness in the Container—Polite interaction, ‘rule following,’ use of language consistent with social norms.
- ❑ Field II: Instability in the Field/Breakdown in the Container—People start saying what they think, battle over whose meaning will be the accepted one, have heated disagreements, tend to cling to assumptions.
- ❑ Field III: Inquiry in the Field and the Flowering of Reflective Dialogue—People are reflective, inquire into others’ positions, do not have to have all the answers, are curious, begin to explore assumptions.
- ❑ Field IV: Creativity in the Field: Generative Dialogue—Collective awareness of flow of meaning, new possibilities or options are seen, people speak their thoughts and notice and value their insights.

Although I did not introduce Isaacs’ (1999) theory to the group, our experience of dialogue was similar to the four stages he describes. Building an atmosphere of trust and

openness required time—time spent in identifying and suspending assumptions and in learning how to respectfully ask and ask back of each other. We took our first tentative steps toward dialogue as we discussed our learning critical incidents and traditional student and teacher roles. We experienced some frustration as we struggled to engage in dialogue; “*firecracker comments*” (comments which were not related to the dialogue topic) frequently got in the way of productive dialogue. We caught ourselves dialoguing and stopped to talk about how the way we were talking was different and new to us. I will not claim that generative dialogue was a part of each class, but toward the end of the semester, the frequency increased as we moved into Isaacs’ fourth stage, Creativity in the Field.

We worked to give others a chance to speak or to give others a voice; “if social realities are socially constructed, then it is important that we can all have a voice in the process of their construction, and have our voice taken seriously” (Shotter, 1997, p. 6). By respectfully seeking out those who did not regularly voice their thoughts and creating a space for them to speak (e.g., more verbal students would wait for the less verbal ones to speak, or ask questions of the less verbal students to draw them into the dialogue), we tried to ensure that all voices were brought before the group.

Giveandtake/Talking Into and Out of the Group

Peters and Armstrong (1998) suggest that collaborators “don’t just talk with one another. They also talk into the group and from the group. That is, as individuals talk to one another, they construct meaning from what is said and how it is said, and the result is meaning that the several people have constructed in the process of talking and interpreting” (p. 76). As a group, we created the metaphor of “giveandtake” to explain

the seamless sharing of meaning that we experienced in dialogue. Bohm (1996) also uses a metaphor, "a stream of meaning flowing among and through us and between us" (p. 6) to capture what we were creating in dialogue with others. As we "talked into the group," we were talking into the "stream of meaning" between us; as we "talked from the group," we were talking from the new meaning that was flowing between us to create even deeper meaning. The shared stream of meaning changed as individual contributions flowed in, connected and transformed the stream; the newly created shared meaning flowed out to the individual and group. Our metaphor of giveandtake was how we could, as Isaacs (1999) said, "think together in relationship" (p. 19). We concurred with Isaacs' (1999) statement that "Dialogue seeks to harness the 'collective intelligence'...of the people around you; together we are more aware and smarter than we are on our own." (p. 11). Through giveandtake, we became resources for each other and for the group; we created new meaning and knowledge together.

Speech Genres

As the findings of this study indicated, the students and I came to collaborative learning with myriad experiences and from different backgrounds and cultures. Because of the diversity of our group, we tried to attend to how our "utterances" differed in meaning. Bakhtin (1981, 1984, 1986) uses the word "utterance" to refer to the basic unit of speech communication. The utterance:

is created by participants in the various areas of human activity [and they] reflect the specific conditions and goals of each such area not only through their content and linguistic style...but through their compositional structure...These are determined by the specific nature of the particular sphere of communication. Each

separate utterance is individual, of course, but each sphere in which language is used develops its own *relatively stable types* of these utterances. These we may call *speech genres* (Bakhtin, 1986, p. 61).

In my reflections about my responsibility as facilitator of dialogue, I wrote about my attempts to be mindful of the speech genres from which others speak and to call attention to how those speech genres influenced the words and actions of others and how we made sense of them. Bakhtin (1986) suggests that "The utterance is filled with dialogic overtones" (p. 102) through which we make sense of our utterances from different speech genres. Voloshinov (1973) suggests:

To understand another person's utterance means to orient oneself with respect to it, to find the proper place for it in the corresponding context. For each word of the utterance that we are in process of understanding, we, as it were, lay down a set of our own answering words...any true understanding is dialogic in nature (p. 102).

As our group facilitator, I was concerned with "making it possible for people inhabiting different worlds to have a genuine, and reciprocal, impact upon one another" (Bruffee, 1993, p. 190) by creating an open, inviting space where speech genres were recognized and explored as part of the process of dialogue.

Polyvocality

I was humbled and awed at the "other voices" that we brought to the collaborative learning experience. As we participate in the social construction of our worlds, we carry with us the voices of those with whom we have interacted in the past. Those voices have shaped who we are and what we think; they speak through us in the form of speech

genres, attitudes, beliefs, and values. Gergen (2001) refers to this phenomenon as polyvocality: "we enter each relationship as polyvocal—carrying with us numerous voices appropriated from the past" (p. 120). We import these voices—complete with a vocabulary of words and actions—into a collaborative learning experience and rely on, as Gergen suggests, "preceding practices of making sense" (p. 120). Through dialogue and reflection, we explored our ways of making sense of these other voices and our ways of perceiving and acting/reacting to them, and found that some of those ways were ineffective in collaborative learning (e.g., not asking questions because of prior incident in which the student was made to feel stupid). As a group, we created new ways of perceiving and acting that helped us to "go on" together in celebration or in spite of those voices.

Mindfulness

"A change in the way of thinking is required to engage in collaborative learning" (Bruffee, 1993, p. x). Bruffee was referring to a change in epistemology; he contends that collaborative learning requires an acknowledgment that knowledge is socially constructed. I would certainly agree with Bruffee, but after conducting this action research, I would offer an addendum; collaborative learning does indeed require a change of thinking, but I would suggest that mindfulness is also required. Mindfulness, as I use it here, means awareness of, acknowledgment of, and respect for the culture and circumstances in which a group finds itself. It means attending to the events, "utterances" (Bakhtin, 1986, p. 67), and processes that occur in a collaborative learning environment as well as attending to the relationships which nurture collaborative learning. It can also

mean holding in mind an attribute or event or person--the acknowledgement of a situation, condition, way of being, way of knowing, or way of relating.

A facet of mindfulness could be characterized as Shotter's (1993a) "knowing of the third kind." Shotter defines three ways of knowing—knowing *that*, knowing *how*, and knowing *from within*. Knowing *that* is essentially what Heron and Reason (2001) call *propositional knowing*—knowing concepts or facts, "through ideas and theories" (p. 183). Knowing *how* is what Heron and Reason (2001) call *practical knowing*—practical knowing is knowing "how to do something and is expressed in a skill, knack, or competence" (p. 183). Shotter's third way of knowing, knowing *from within*, has an element of mindfulness in it—the awareness of, the acknowledgement of, and the respect for the culture, circumstances, and the relationships in which new meaning is being made. Shotter (1994) describes his knowing of the third kind:

i) It is not theoretical knowledge (a 'knowing that' in Ryle's 1949, terminology)--for it is knowledge that is only present to us in our everyday social practices; however, ii) it is not simply a technical knowledge of a skill or craft (a 'knowing-how') either—for it is a joint kind of knowledge, a knowledge-held-in-common with others, and judged by them in the process of its use. iii) It is its own kind of knowledge, *sui generis*, that cannot be reduced to either of the other two. Rather than to do with us relating ourselves to our physical surrounding, it is primarily to do with us—even when all alone—relating ourselves to each other, with us coordinating our actions together as members of a community. Thus, it is a kind of knowledge one has only from within relationships with others, whether the relationship is actual or imagined (p. 1).

This coordination of our actions together as members of a community requires being mindful of the circumstances and culture present in that community and adjusting our actions together to respond to those circumstances and to the culture.

Why did mindfulness stand out for us as a fourth theme? As we facilitated our collaborative learning experiences, we talked about all the things of which we should be mindful as we created a new way to learn how to learn software applications. Many of these things I listed in my journal entry quoted in Chapter Three.

We reflected on our new practices as co-constructors of knowledge and identified many things that required awareness or mindfulness. We became mindful of trying to remember processes, acting and reacting in relationally responsive ways, taking an “intentional, dialogical stance” (Shotter & Katz, 1996, p. 214) toward each other, exploring assumptions and others’ perspectives, seeing connections between course content and different ways of learning and knowing, working to create new knowledge—things we generally did not attend to in a classroom setting. Trying to keep so many things in mind as we acted from and into the group became important in creating a collaborative learning environment.

Mindfulness was an important tool for us in discovering how to “go on” with each other in our new ways of relating and acting. Shotter (2002e) explains that,

We must acquire certain sensibilities and attunements, one must come to know one’s “way about” (Wittgenstein, 1953, no. 123) *inside* the requisite, conversationally sustained “reality” or “inner world.” To do this, we must learn how to see what is around us “in depth,” as offering us a “space of possibilities” for our actions. Such a sense only emerges for us from

within our dialogically or chiasmically-structured *meetings* with the others around us. (p. 7).

Through mindfulness, we came to know our “way about” the relationships, the positioning, the dialogue that collaborative learning called out from us. Or as Garfinkel (1967) explains, “by paying to the most commonplace activities of daily life the attention usually accorded extraordinary events, [we sought]...to learn about them as phenomena in their own right.” (p. 1).

The related literature and research on relationships, positioning, dialogue, and mindfulness contributed to my understanding of the four themes of this study and informed my practical theory. In Chapter Six, I revisit my practical theory and discuss revisions I would make based on the findings of the study and the related literature and research

The related literature and research discussed here is by no means comprehensive, nor could it be. As I continue my study of collaborative learning, I expect to find many more theories and studies that speak to the findings of this study.

CHAPTER SIX

REVISITING MY PRACTICAL THEORY: REFLECTIONS AND RECYCLING

DATA-DATA: Theorize

In this chapter, I summarize my reflections on the findings as they relate to my practice and revisit and revise my practical theory for facilitating collaborative learning in an information technology course

My purpose in conducting this action research project was to engage in collaborative learning with students who enrolled in an information technology course to increase the challenge of teaching for me and to introduce students to the group skills needed in today's businesses. I wondered what features of collaborative learning would stand out for us during the semester. My initial musings about my lack of a challenge with Type I and Type II Teaching/Learning (Peters & Armstrong, 1998) and my desire for students to practice group skills, led me to devise a practical theory for engaging in Type III/collaborative learning. My theory grew from personal experience with collaborative learning and from literature in this area of study as well as social construction of knowledge, organizational dynamics, and the psychology of discourse.

Reflections on the Four Themes of this Study

Peters' DATA-DATA action research model lent structure to my inquiry. The first six phases of DATA-DATA, coupled with the analysis techniques of Spradley (1980) and Hatch (2002), revealed four themes. These themes were the features of collaborative learning that stood out for us during our collaborative learning experiences and provided the answer to my research question:

What features of collaborative learning would stand out in the experience of engaging in collaborative learning in a community college information technology course?

These themes (features of collaborative learning) were: relationships, positioning, dialogue, and mindfulness.

Relationships

Students pointed to taking the time to get to know each other as evidence of our valuing each other as persons rather than just teacher or student. Students were initially wary of the time spent in these relational activities (e.g., “*What does this have to do with Excel?*”), but gradually came to recognize the value of time spent getting to know each other and learning about each other’s perspectives. Our comfort with each other paid off in increased student participation in class; talking and participating became the focus of our learning together. Relationships were invaluable in creating the comfortable learning space where our dialogues resulted in collaborative learning.

Relationships gave rise to students' trust in the possibility that we could learn to learn in this new way; they trusted me as their facilitator and trusted each other. Students came to believe that I would help us, as a group, create learning opportunities that would be productive and useful to them in their practices. The unknown of collaborative learning - the students' lack of experience with Type III Teaching/Learning, their concern about where we would wind up in our learning together - was unsettling in the beginning; trust was vital to our tolerance of and then our embracing of the unknown.

Positioning

Our positioning theme grew out of our learning to move in and out of teacher, student, and facilitator roles as the situation required. By changing my position in relation to the others in the group, I could move between Type III (collaborative learning) and Type I and II Teaching/Learning. Positioning was important in my discovering with students that the three Types of Teaching/Learning need not occur in isolation from each other.

Positioning ourselves as co-constructors rather than passive recipients of information helped us relate to each other in ways that fostered dialogue, reflection, and co-construction. As one student said, *“Everyone was on the same level”* and nearly everything that everyone said was treated with respect.

Dialogue

Dialogue was essential for creating the community, the “we” of collaborative learning. According to Shotter, “Only if ‘you’ respond to ‘me’ in a way sensitive to the relations between your actions and mine can ‘we’ act together as a ‘collective-we’” (Shotter, 2002, September). Dialogue created the space, or “container” as Isaacs (1993) called it, wherein we could attend to the circumstances and culture of our group and create a shared experience of “we.”

Dialogue was not easy to come by. Learning to identify and suspend our assumptions required courage and trust. Long-held assumptions about what teachers and students are supposed to do were not effortlessly released. Freeing each other from the traditional role of teacher and student took time and frequent “stopping the music”—stopping to reflect on how we were positioning each other. Inquiry and listening skills

took practice and patience. However, toward the end of the semester, I felt that we had reached a shared understanding of dialogue and some skill at doing it and that future dialogues would have greatly increased our opportunities to learn and explore Excel applications together.

Mindfulness

The complexity of collaborative learning was reinforced by the mindfulness theme. As the facilitator of our collaborative learning experiences, I was surprised at how many features of relating, dialogue, reflection, co-construction of knowledge, positioning and relational responsibility I needed to keep in mind. Being attentive to each individual in the group, the group as a whole, and the group processes (including the construction of knowledge) was a challenge. I learned the value of watching for striking moments and acting into what the circumstances called out for.

Mindfulness of all that happens in a collaborative learning experience could be considered as “chiasmically organized: precise, dynamic intertwining (‘orchestration’)” (Shotter d, 2002). Collaborative learning required attending to each element and the ways in which they dynamically intertwined.

These four themes—relationships, positioning, dialogue, and mindfulness—stood out for us in our collaborative learning experiences. In the next section of this chapter, I reflect on the relationship between the themes and the four elements of collaborative learning, which were significant aspects of my practical theory.

Reflections on the Four Elements of Collaborative Learning

My practical theory called for blending the four elements of collaborative learning (Peters, 2002) into a seamless collaborative learning experience. The elements—a

dialogical space, cycles of action and reflection, focus on construction, and multiple ways of knowing—served as a guide for the implementation of collaborative learning. Each of the four themes that stood out for us in our experience of collaborative learning—relationships, positioning, dialogue, and mindfulness—relate to the four elements of collaborative learning, some more clearly than others.

The themes of relationships and dialogue clearly resonate with the dialogical space element. Related theory and research (as discussed in Chapter Five) point to the importance of relationships to dialogue. Taking a relational, dialogical stance toward other members of the group is key to creating a space where every member of the group participates in the dialogue necessary for the co-construction of knowledge or meaning. Learning to relate in ways that sustain dialogue takes time. The time required for us to learn how to dialogue indicated to me that, in order to reap the benefits of dialogue sooner, we should start to examine the characteristics of dialogue and begin to practice it much earlier in the semester.

The positioning theme relates more closely to the element, focus on construction. As the teacher and students position themselves as co-constructors of knowledge, their focus is drawn to what is being co-constructed as well as to the process of construction.

Mindfulness is instrumental in each of the four elements. Being mindful of what creates a dialogical space, of how to facilitate cycles of action and reflection, of ways to draw attention to what is being constructed, and of the multiple ways of knowing in which collaborators engage is critical to the facilitation of collaborative learning.

Although Peters' four elements of collaborative learning played a key role as I devised my practical theory, the element of multiple ways of knowing was not

immediately evident in the four themes that emerged from this study. As I reflected on why this element did not stand out for us in our collaborative learning experiences, I wondered if I, as the facilitator, influenced this finding by emphasizing the other three elements more than this one. If we had talked more about ways of knowing, would the findings have included this element? My revised practical theory will call for me to be mindful of and make more explicit the multiple ways of knowing in which we engage as co-constructors of knowledge.

Attending to the four elements did create the space and the processes necessary for collaborative learning, but when I consider the importance of mindfulness to collaborative learning and to this study, I wonder if mindfulness should be more readily identified in the four elements. I could argue that mindfulness is an assumed, silent element of collaborative learning weaving in and out of each element, but could also argue that mindfulness could be considered as the fifth element of collaborative learning. Mindfulness is important enough in facilitating and engaging in collaborative learning to deserve special mention, and including mindfulness as a fifth element of collaborative learning would ensure that collaborators pay it due attention. Whether mindfulness should be considered a fifth element of collaborative learning or whether the role of mindfulness should be emphasized in the four existing elements needs further exploration.

Reflections on the Three Types of Teaching/Learning

Collaborative learning proved to be a viable learning strategy for my information technology course when combined with Type I and II Teaching/Learning. Learning terminology and basic concepts of software lends itself to Type I Teaching/Learning;

lecture and the “describe, demonstrate, and do” method give students hands-on practice with software features and functions. Type II can be instrumental in providing students group work practice. In Type III, the group decides how best to apply software concepts and how to “go on” together in our efforts to utilize all the Types as appropriate. In this study, I found that these students were open to new learning experiences. Collaborative learning offered them something new, exciting, unpredictable (“*out of hand*”), and flexible, something that kept them on the edge, something they co-constructed. The excitement of collaboratively learning both how to apply Excel concepts and how to learn the software captured their attention and invited their creativity.

Facilitating collaborative learning was a difficult but rewarding experience. The time spent in preparation, thinking, planning, reflection, and wondering was problematic, but the results were well worth the time. The students and I practiced group skills and learned about new Types of Teaching/Learning, the process of learning software, and how to share responsibility for teaching and learning. I got the challenge I was seeking and also learned more about collaborative learning and its possibilities for a technology-based course. Experiencing a fresh way to teach/learn with students gave me cause to reflect on my “old ways” of teaching and learning. To “appreciate that which differs... from our taken-for-granted commonplaces is to generate the possibility of change and/or renewal” (Gergen, 1999, p. 101). I carry the possibility of change and/or renewal with me as I begin a teaching and learning adventure with new students each semester.

I put my practical theory into action in my Excel course during the spring of 2002. I disclosed my plan for conducting action research on the second day of class. I

introduced the three Types of Teaching/Learning at the beginning of the semester and used each Type exclusively for a period of time. I positioned myself according to the relationships inherent in each Type. During Type III, I acted as facilitator of collaborative learning until students positioned themselves as co-facilitators and co-constructors of knowledge.

I learned a valuable lesson about the use of Three Types of Teaching/Learning. In my zeal to clearly delineate the differences between the Types, I planned to spend three weeks using Type I, the next two weeks using Type II, and the rest of the semester using Type III. However, I learned through dialogue with students that I need not “*clump up*” the three types in the future; in other words, they thought that using one Type of Teaching/Learning in isolation from the other two Types was not as helpful as when we used the Type that the teaching/learning moment called out for. I learned not to use one Type to the exclusion of the other two.

Reflections on Related Studies

The findings of this study are reinforced by the findings of many recent studies on collaborative learning. Of particular interest to me were the studies of colleagues from the Collaborative Learning Program at the University of Tennessee. As mentioned in Chapter Five, seven colleagues have completed studies related to collaborative learning (Armstrong, 1999; Tisue, 1999; Alderton, 2000; Cross, 2000; Brickey, 2001; Cotter, 2001; Naujock, 2002). I would like to further explore these collaborative learning studies, as well as my own, to identify commonalities and differences in the studies' findings.

Reflections on the Method

Action research, using Peters' DATA-DATA action research model, provided a means for me to inquire into my practice with "a community of resourceful learners." Twelve remarkable students participated with me in creating collaborative learning opportunities and in researching myself as a teacher and facilitator. I learned many things from these students and from this research. Through dialogue and reflection, relationships and positioning, mindfulness and a new way of thinking, we explored our assumptions, our new practices as co-constructors, and different ways of teaching, learning, and knowing.

Inductive data analysis was time-consuming and frustrating, but provided a deeper understanding of the complex data set that this study generated. Using Spradley's (1980) semantic relationships was a positive experience, although I often thought that there must be a shorter way to analyze data. The months of complex data analysis seemed arduous and protracted, but I was gratified that this method resulted in themes that the student participants confirmed as salient.

I found that Hatch's (2002) suggestion that researchers can benefit from keeping a systematic research log was a valuable one. Keeping track of when interviews were conducted, transcribed, and analyzed and when field notes and journal entries were recorded was an excellent source for reporting the research process. I would recommend the use of some sort of research log in the conduct of an action research project such as this one.

Collecting three data sets was also instrumental in providing data for a rich description of our experiences. I forgot events or utterances that I had been sure I would

never forget; having detailed documentation helped my recall. On the other hand, comments or events that escaped my notice when they first occurred became “striking moments” in my reading and recollecting the data. These “striking moments” of recollection were worth the fervor of my data collection.

Peters’ DATA-DATA model guided me through the process of this action research project, so when I began to write this dissertation, it seemed natural to write using the same format that I had used to move through the phases of DATA-DATA. I encountered some difficulty in writing the dissertation in this format, but I emerged with a greater understanding of the process of both researching and writing up research findings using this model. I would like to explore further how to adapt the DATA-DATA model to the writing stage of research.

DATA-DATA: Act

In this final phase of DATA-DATA, I decided whether I would cycle through DATA-DATA again. The use of the three Types of Teaching/Learning proved a valuable strategy in making explicit the differences in teaching and learning approaches. We, as a group, experienced each Type and dialogued about the differences. The differences in Type III were more readily comprehensible when held against the backdrop of the other two Types. I will continue to introduce and practice the three Types of Teaching/Learning as a way to make explicit the characteristics of collaborative learning.

On the basis of my findings, I made adjustments in my teaching practice while continuing to use the three Types of Teaching/Learning. I will introduce Type III/collaborative learning to students soon after the beginning of the semester and engage

in dialogue to get to know them better, to explore our perspectives, to question our assumptions about what and how we should learn Excel, and to discover how we should position ourselves as co-constructors of knowledge. We will decide as a group how to “go on” with each other as we learn together how to learn Excel. I will position myself in the differing relationships of the three Types and reflect on the differences between the Types as we were experiencing them (e.g., How was our process of learning in Type I at the beginning of class different from what we are doing now in Type III?). My practical theory now heeds the mandate of the students in this study, *“Don’t clump up the Types.”*

We will move in and out of the three Types as we deem appropriate to best learn Excel. My assumption is that we will continue to learn the basic terminology and concepts of the software using Type I, but move in and out of Type II and III as students become more comfortable with Excel concepts. The application of software concepts lends itself to the joint action and reflection of collaborative learning. Deciding what the end users need from a software application is not a solitary activity; more often it is a group decision made after inquiry and dialogue.

Implications for Research and Practice

I offer several recommendations to college instructors who may be interested in implementing collaborative learning in their courses. First, I recommend that they familiarize themselves with Peters & Armstrong’s (1998) Types of Teaching/Learning, Peters’ (2002) four elements of collaborative learning, and Isaacs’ (1993, 1999) works on dialogue. These theories will provide a good conceptual base from which to facilitate collaborative learning.

Second, I recommend that instructors use each of the three Types as they feel is warranted by the topic or content of the course. I would make sure that the content lends itself to co-construction of new knowledge before introducing Type III. Use Type I or II when new concepts are introduced. Instructors may want to read this study to learn the value of not “*clumping up*” the Types.

Third, instructors should work to build open and trusting relationships with students. McNamee and Gergen’s (1999) work on relational responsibility is a good resource as well as the relationships findings of my collaborative learning colleagues’ studies (Armstrong, 1999; Tisue, 1999; Alderton, 2000; Cross, 2000; Brickey, 2001; Cotter, 2001; Naujock, 2002).

Fourth, instructors should be patient in waiting for students to share responsibility for the facilitation of collaborative learning. Even as we worked to position ourselves as co-constructors and co-facilitators, students would look to me for the next step or the next question. They considered me to be “a little more equal” in the co-constructor position. With time, as we continued to explore how to position ourselves, students took tentative steps to function as co-facilitators or “*learning barometers*.” Gradually, they learned to apply the facilitation skills they learned from watching my facilitation.

Fifth, instructors may want to consider using Type III Teaching/Learning as a good way to help students *learn to learn* the course content. I found Type III to be a valuable resource for sharing the responsibility with students for determining how to learn software, how and when to use each of the three Types of Teaching/Learning, and how to assess what we collaboratively learned.

Sixth, instructors and students may also want to engage in collaborative learning to learn *how to apply* software concepts. Collaborative learning did not lend itself to learning the basic structure and workings of a software program; there was little to be co-constructed about which keys control software commands or how a software function works. My bracketing interview revealed my assumption that collaborative learning might not work in an information technology course because of the technical subject matter. I was shortsighted. The value of collaborative learning in information technology lies not in learning software content, but in learning together how to apply the software concepts. We could not change the way the software worked, but we could co-construct new applications of the software.

One major contribution of this study for instructors of information technology courses is the expression of what collaborative learning “looked like” in Chapter Three. To illustrate my practical theory in action, I described “what we did” as we co-constructed how to apply software concepts and how best to learn Excel. I hope that the foibles of our collaborative learning experiences will serve as caveats and our successes will serve as a source of guidance.

Closing Reflection

Collaborative learning is a valuable resource in teaching and learning *the application* of technology-related content and *determining*, with students, *how to best learn software*. The *content* of an information technology course—the terminology, features, and commands of the software—has already been constructed; I found collaborative learning to be most valuable in learning together how to *apply* that content. Collaborative learning was also valuable in learning together *how to learn* the software. I

will continue to engage in collaborative learning with students who enroll in this course (Excel) and will introduce collaborative learning into other courses as well.

My bracketing interview revealed that I assumed that student contributions to the study would be valuable and insightful and I was not disappointed. As the findings of this study attest, the twelve students who participated with me in this study were nothing short of wise and wonderful.

Our collaborative learning experiences afforded students the opportunity to practice the group skills sought by today's employers. I trust that the experiences these students take with them from this study will translate well into the group communication, group decision-making, and group facilitation skills they will need to succeed in business settings and life in general.

Conducting this action research study increased my satisfaction with teaching, by creating teaching challenges, and deepened my understanding of collaborative learning by providing me practice in facilitation and participation. Despite my bracketing interview assumption that I would not be a "good enough" facilitator, this study gave me a shaky yet hopeful confidence in my ability to facilitate collaborative learning in an information technology course. I look forward to the next cycle of action research.

"Teacher, teach thyself."

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APPENDICES

Appendix A: Participant Consent Form

Collaborative Learning in a College Information Technology Classroom

I understand that I have been invited to participate in a dissertation research project. The purpose of this study is to describe and explore the experience of participants in a collaborative learning environment. I also understand that by signing this consent form I give the principal investigator permission to utilize course related documents. I also give the Principal Investigator permission to use field notes and journal entries that she created during the collaborative learning experience and to use written feedback from participants regarding their learning experiences. I also agree to be interviewed twice by the Principal Investigator regarding my experience in this course. I understand that the interviews will be audio taped, will be conducted in the Principal Investigator's office, and will last approximately one hour.

I understand the information I provide to the Principal Investigator will be held in the strictest confidence and that my identity as a participant will be known only to the Principal Investigator. I have also been informed that all audio tapes and data collected in this study will be kept in the Principal Investigator's office in a locked filing cabinet and, on completion of the study, all transcripts and notes will be destroyed. Additionally, I understand that electronic data will be stored in a password-protected area on the Principal Investigator's computer and, on completion of the study the data will be deleted. I also understand that anonymity and confidentiality of data will be maintained. I understand that this participant consent form will be stored in the Co-Principal

Investigator's office at the University of Tennessee for three years beyond the completion of the study.

I understand that participation in this study is completely voluntary and is not a requirement of Pellissippi State Technical Community College. I also understand that my course grade will not be affected by participation in this study. I may terminate my participation at any time without penalty. I know that I will incur no risks by participating in this study and I may benefit by reviewing the findings of this study.

I have also been informed that I may contact the Principal Investigator at any time if I have further questions or concern about the study or my participation, and that I may receive a copy of this consent form.

My signature below indicates that I have read the information outlined above and agree to participate in this study.

Signature: _____

Date: _____

Name (print): _____

Principal Investigator
Martha Merrill
Educational Psychology
University of Tennessee
865-539-7143 (work)

Appendix B: Interview Questions

First Interview

Phenomenological Question:

What stood out for you in your experience of this course so far this semester?

Semi-Structured Questions (or Guiding Questions):

What, if anything, was different about the ways we talked with each other in this course?

What was the student role like for you during the three types of teaching and learning?

What stood out for you about the role I took in the three types of teaching and learning?

When we talked in class about suspending assumptions, what did that mean to you?

Are you different after participating in this class so far?

We've used dialogue in class to try to understand each other's perspective. What, in your opinion, was the most interesting thing about this new way of talking together?

What was learning like in Type I? in Type II? in Type III?

Someone said that collaborative learning requires group members to take some risks in learning. Do you think that is true and, if so, what could those risks be?

What did you learn about learning this semester?

What do you like most about the class so far?

What do you dislike most?

What have we not talked about that you would like me to know about our learning experiences this semester?

Interview Questions

Second Interview

Revised 4-30-02

Phenomenological Question:

What stands out for you in your experience of our class this semester?

Semi-Structured Questions (or Guiding Questions):

Tell me about the student role during type I, type II, and type III learning experiences?

Describe for me the teacher role in type I, type II, and type III learning?

What did you like about filling out the reflections on collaborative learning sheets? What did you dislike about them?

What is the role of relationships in type III/collaborative learning?

What does reflecting on our learning experiences mean to you?

What kinds of activities are involved in type III/collaborative learning?

Describe the characteristics of dialogue as we've used it in our class?

We've talked about seeing ourselves learning. How would you explain this experience to someone who is not in our class?

How would you describe the three Types of Teaching/Learning to a friend?

What was a "peak" learning experience for you in our class this semester?

Tell me about what you didn't like about our experiences this semester.

How could you break down collaborative learning into how-to steps so future learners can understand the process?

What did you learn about learning this semester?

What is the difference between shared responsibility for learning and teacher-directed learning?

What have we not talked about that you would like me to know about our learning experiences this semester?

Appendix C: Sample Research Log

Research Log:						
Collaborative Learning with Information Technology Students						
Date	Field Notes	Journal Entries	Interview	Other	Participant(s)	Comments
02/21/2002		✓				Journal 8 insecurity--regroup Type III
02/21/2002	✓					Field Note 10
02/22/2002		✓				Journal 9 taped as driving
02/26/2002	✓					Type III
02/26/2002		✓				Journal 10
02/28/2002	✓					Type III
02/28/2002		✓				Journal 11
03/05/2003	✓					Field Note 11
03/05/2002		✓				Journal 12
03/07/2002	✓					Field Note 12
03/09/2002		✓				Journal 13
03/11/2002			✓		"James"	8:50 - 9:40 2 tape recorders (regular cassette and mini-cassette), both tapes labeled I1
03/11/2002			✓		"Joyce"	4:30 - 5:40 " I2
03/11/2002				✓		CAT (classroom assessment technique) analysis
03/12/2002				✓		CAT feedback to class
03/12/2002			✓		"Susan"	3:00 - 4:20 both tapes labeled I3
03/14/2002		✓				Journal 14
03/14/2002			✓		"Kristi"	10:20-11:20 tapes labeled I4
03/14/2002			✓		"Jodie"	11:25 - 12:10 tapes labeled I5
03/14/2002			✓		"Mike"	12:35- 1:05 tapes labeled I6
03/14/2002			✓		"Kelly"	3:15 - 4:05 tapes labeled I7
03/15/2002			✓		"Debra"	2:30 - 4:10 tapes labeled I8
03/15/2002		✓				Journal 15 - taped
03/16/2002		✓				Journal 16
03/16/2002				✓		Transcribed taped journal 8 and 15 entries

Appendix D: Spradley's Semantic Relationships

Spradley (1980, p. 93) identifies nine semantic relationships that are useful for identifying relationships identified in the data that will become domains. I have organized these semantic relationships and the generic expression of the relationships (Spradley's concepts) in the first two columns in the following table. In the "Example from My Data Analysis" column, I have listed some examples from my own data analysis:

Semantic Relationship	Expressed as	Example from My Data Analysis
Strict Inclusion	X is a kind of Y	Sharing responsibility for planning learning activities is a kind of positioning myself as a fellow learner, not "teacher."
Spatial	X is a place in Y	My office is a place at Pellissippi State where students are welcomed and interviews are conducted.
Cause-effect	X is a result of Y	Student frustration or confusion is a result of the unknown nature of first collaborative learning experiences.
Rationale	X is a reason for doing Y	Building relationships is a reason for talking with students in and out of class.
Location for action	X is a place for doing Y	The hall outside the classroom is a place for getting to know students by engaging them in conversation before class.
Function	X is used for Y	Group evaluations of each other are used to help assess student participation.
Means-end	X is a way to do Y	Asking back questions is a way to engage in dialogue.
Sequence	X is a step in Y	Exploring Excel concepts together is a step in learning business applications of the software.
Attribution	X is a characteristic of Y	Moving away from a traditional student/teacher relationship is characteristic of collaborative learning.

Appendix E: Domain Sheet

DOMAIN VII.

Included Terms**Semantic Relationship****Cover Term**

A. _____

B. _____

C. _____

D. _____

E. _____

F. _____

G. _____

H. _____

I. _____

J. _____

K. _____

L. _____

M. _____

N. _____

O. _____

P. _____

Appendix F: Theme and Sample Related Domains

Theme	Sample of Related Domains	Sample of Included Terms and Location in Data
Relationships	Is characteristic of a caring instructor	Taking genuine interest in students (I4-22)(F13-252)(I5-143)(I4-225)(F14-250)
		Wants students to know, not just make good grades (I4-13)(J11-83)
	Are ways to build relationships with students	Take time during first class to talk with students about their interests (I4-23)(I18-45)(J1-56)(F1-127)
		Talk outside of class (F1-45)(I5-276)(I4-15)(J3-45)(F14-12)(J11-4)(I10-201)
		Share personal experiences (I15-132)(I5-288)(J13-187)(F11-221)
		Show respect (I4-10)(I12-461)(I2-69)(F13-24)(I9-260)(I2-171)(I8-146)
		Honoring student contributions (F11-224)(I5-136)(I2-70)(I15-417)(I15-312)(I15-470)(I6-180)(I6-191)(I7-276)(F21-92)
	Is a kind of feeling about relationships in collaborative learning	Felt good helping others learn (I7-266)(I15-312)(I4-255), felt great taking initiative (I8-57)
		Felt comfortable, comfortable atmosphere (I4-39)(I5-16)(I2-161)(I6-188)(I5-6)(I16-309)(I15-18)(I15-24)(I20-245)(J12-132)(F13-67)(F15-215)
		Not afraid to talk, not intimidated (I15-225)(I6-75)(I16-331)(F11-82)(J10-22)
Positioning	Is characteristic of student positioning collaborative learning	Students share responsibility for teaching and learning (I4-110)(I5-120)(J13-6)(F12-30)(F12-23)(I17-173)
		Students take ownership of others' learning, helping others learn (I4-476)(I5-194)(F12-78)(I14-494)(I20-411)(J14-14)(I7-159)(I15-68)
		Leave egos at the door, somebody else might have a good idea (I15-172)
	Is characteristic of teacher positioning in collaborative learning	Learn as a co-constructor (I5-11)(I2-101)(F11-402)(J13-229)(I20-118)(I16-59)(F11-302)
		Was not the leader anymore, took a different stance (I5-79)(I15-73)(I11-174)(F20-45)(F14-164)(I8-147)

Vita

Martha J. Merrill currently teaches in the Business and Computer Technology Department of Pellissippi State Technical Community College in Knoxville, Tennessee. She received her B.A. degree in Individual Directions (Psychology and English) from Carson-Newman College in the mid-seventies and her M.S. degree in Leadership Studies (Technological and Adult Education) from the University of Tennessee in the mid-nineties. She will be completing the requirements for her Ed.D. degree in Education in May 2003.

For over twenty years, Martha worked for the local Head Start program--first as the Social Services Coordinator and later as the Management Information Systems Coordinator. She loved working with lower-income children and their families, particularly when she could support the families in their own efforts to create options where none existed before.

Martha enjoys teaching and truly believes that teaching is the finest work she knows (Palmer, 1998). She plans to continue to use action research to teach herself about her practice.