

Student and Instructor Experiences with Types of Teaching and Learning in a Computer Course

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Abstract

Research has shown that active classroom engagement increases the learning performance of students in higher education (Cross, 2000; Reese, 2013). This study sought to examine the experiences of students and instructor in a computer applications course in which the pedagogy was changed to encourage additional interaction among students and between students and the instructor. The goal of the study was to generate useful, practical knowledge (Reason & Bradbury, 2001) to help the instructor better understand her pedagogy with the intention of improving both her teaching practice and student learning outcomes, as well as to contribute to related literature in adult education, collaborative learning, and research on effective pedagogies in higher education. Peters and Armstrong's (1998) typology of teaching and learning served as the framework for introduction of two additional types of pedagogies (discussion groups and collaborative learning) into a course traditionally taught utilizing predominately only one type of pedagogy (lecture). Students were interviewed immediately after the course ended and asked to describe their experiences in the course. Results showed that what stood out for students were the positive learning atmosphere, time spent getting to know one another, increased interactions among students and between students and the instructor, attention to process, and awareness of applications of course-related knowledge and skills to work environments. Instructor notes and observations were used as additional data sources to capture her experiences. She reported that she grew as an instructor and a person by forging ahead into new territory, despite anxieties, and practiced new teaching and learning types with her students. Because of the experience, she reported being more confident and a better instructor and facilitator of her own and others' learning. Results led to the incorporation of discussion groups and collaborative learning into the instructor's course in spreadsheet applications. Implications for future research were identified,

including the need to replicate this study in similar content areas in other higher education settings.

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Chapter 1: Introduction

Research has shown that active classroom engagement increases the learning performance of students in higher education (Cross, 2000; Reese, 2013). This study sought to examine the experiences of students and instructor in a computer applications course in which the pedagogy was changed to encourage additional interaction among students and between students and the instructor. The goal of the study was to generate useful, practical knowledge (Reason & Bradbury, 2001) to help the instructor better understand her pedagogy with the intention of improving both her teaching practice and student learning outcomes, as well as to contribute to related literature in adult education, collaborative learning, and research on effective pedagogies in higher education.

Conceptual Framework

Peters and Armstrong's (1998) Types of Teaching and Learning model served as the conceptual framework for my research on expanding the types of teaching and learning used in my course, which was AGNR291, Spreadsheets for College, Business, and Career Preparation. The model describes Type I as "teaching by transmission, learning by reception" (Peters & Armstrong, 1998, p. 78). The authors describe Type II teaching and learning as "teaching by transmission, learning by sharing" (p. 79). Peters and Armstrong distinguish Type III from the other types of teaching and learning "not only by a focus on joint construction of knowledge, but also by the designation of the instructor as a member of the group of learners and by the role of the group in the learning experience" (p. 79). Type III is referred to as "collaborative learning" (CL); thus, Type III and CL have been used synonymously in this dissertation. Each of these types of teaching and learning can be effectively implemented in various contexts of classroom practice. Traditionally, structured classrooms predominantly have used Type I, teaching by transmission, learning by reception. The addition of Types II and III teaching and learning

potentially influences the students' learning experiences by providing them the opportunity to take a more active role in their learning. Freire (1974) states that people are more likely to engage when they have an active role in developing the topic for learning. In Type III, the instructor repositions himself or herself and takes on the role of a co-learner in order for new knowledge to be co-constructed by the whole group.

By using an approach that blended the three types of teaching and learning, I created a space that allowed shared responsibility for learning and joint creation of knowledge in my teaching practice. By obtaining student input on what was to be learned and how it was to be learned, I was able to move beyond the limits of my syllabus and to allow for flexibility in choosing the appropriate teaching and learning strategy. I was able to use the different types of teaching and learning that best fit each part of the course. For instance, I lectured when introducing new concepts, used group work on some assignments, and joined a group as a co-learner to complete other assignments. In other words, I could move among the types of teaching and learning as the situation, learning material, and assignments changed. This typology of teaching and learning also served as the framework for studying how students and I experienced the course. The research involved the utilization of the three types of teaching and learning in the course.

Approach to the Study

I used the DATA-DATA model for action research (Peters, 1991, 1999, 2002, 2009) because it provided a structured approach to reflection-in and reflection-on-action (Schon, 1983) in my practice with the goal of enhancing student learning and improving my teaching. The model addresses the practitioners' concerns for knowing more about their practices and how those can be improved. Using the DATA-DATA model allowed me to critically and

systematically research my teaching practice and make changes based on the formative and summative results of this study.

The DATA-DATA model consists of eight cyclic steps of action and reflection, providing an organized process for designing and conducting an action research project. Each step of the model corresponds to a letter in the acronym. In the first DATA, D = Describe, A = Analyze, T = Theorize, and A = Act. In the second DATA, D = Design, A = Analyze, T = Theorize, and A = Act. The first DATA represents a process of critically reflective practice. The second DATA “represents the more formal methodological aspects of research and the process of re-examining and possibly revising one’s practical theory in the light of findings” (Peters, 2009, p. 150). The steps are “cyclic and can be repeated as many times as needed” (p. 151) in order to answer the researcher’s practical questions. Taken together, DATA-DATA creates a systematic approach to reflecting, planning, conducting, and applying the findings of action research projects.

D = Describe: Background Description of Teaching Practice

As a university instructor in a computer applications course, I teach at a Research I institution in the southeast United States. The college in which I teach has provided computer applications courses to its students for more than 20 years, as this skill set is applicable in other courses, as well as to students’ future careers. The courses are taught in a computer lab consisting of four rows of student computers for a total of 24 stations, arranged facing the instructor stationed at the front of the room. The instructor faces the students and the instructor’s computer monitor can be projected on the screen at the front of the room.

When I started teaching 17 years ago, I taught a course that had been developed more than 20 years ago in response to student need in the use of word processing, spreadsheet, database, and presentation software programs. The course covered Microsoft Office

Professional, which included Word, Excel, Access, and PowerPoint. Approximately 100 students per semester have completed the course. The assumption through the years had been that students did not have knowledge and competence in the software programs prior to enrolling in the course. These skills are needed both in the academic courses and in work situations. Over the course of years, changes in technology, as well as changes in student knowledge of some of the software applications has necessitated an analysis of what skills students currently have upon entering the course and on which skills they need further training.

In order to assess skills and needs, students taking the course from September 2006 to May 2013 were asked to complete surveys, providing detailed information regarding their computer background, including any courses taken, specific software applications used, and other related experiences. Those data were analyzed to determine the level and type of experience students had in each of the applications taught. These data indicated that most incoming students had sufficient skills in word processing and presentation programs, or they could develop the skills on their own, such that formal coursework in these areas was redundant; however, most students still needed formal instruction in Excel and Access. Faculty members in the college were also surveyed to identify which computer applications were needed by students in their courses. The conclusion reached from analyzing student and faculty data was that spreadsheet and database courses were still needed by students in the college. This process led to a decision to drop Word and PowerPoint applications from the curriculum and divide Excel and Access into separate courses.

The two courses I taught at the date of this study were *Spreadsheets for College, Business, and Career Preparation*, covering the Microsoft Excel application, and *Databases for College, Business, and Career Preparation*, covering the Microsoft Access application. Each

course is a half-semester, one-credit hour course. Course enrollment is limited to 24 students because of the number of computers in the lab; however, some students prefer to bring their personal laptops, and additional desk space is available to accommodate those students. I chose the spreadsheets (Excel) course for this study because the content provides more opportunity for utilizing different types of teaching and learning. This is partially attributable to students having at least some knowledge and/or exposure to this software application.

To aid in assessment of this existing knowledge, students complete a *Background Knowledge Survey* at the beginning of the semester to assist me in gauging the level of knowledge and understanding that students bring into the classroom. Students starting the course typically have widely varying levels of knowledge of the computer software to be learned. In addition to demographic data including major, minor, and classification, students are asked questions about previous coursework and experience with the software in order to identify the extent to which the students may be familiar with the concepts covered in the course. To gain student input on the course content, students are also asked about their goals and expectations for the course. Based on information gained from the survey, I can make changes to the course schedule or revise course content to better respond to students' levels of knowledge and to address students' learning goals. For instance, if all students report that they have basic knowledge of Excel, I may speed up the time spent on the basics during the first part of the course to have additional time for more in-depth, hands-on projects later. This flexibility also allows students to have input on what and how they might learn most effectively.

The content for these courses is developed and provided to students utilizing a Cengage product software program, *Skills Assessment Manager (SAM), Assessment, Training, and Projects w/MindTap Reader*. I use the integrated e-book, lecture notes, and other tools provided

with the software to develop course assignments. Regular software upgrades necessitate learning and incorporating changes in to the course development process each time it is offered. Student learning is assessed through student blogs based on reading assignments, completion of online assessments in the SAM software both in and out of the classroom, and journal entries posted by students.

Historically, I have used mostly Type I teaching and learning in my course. This has been due, in part, to replicating how I was taught. I also assumed that lecturing, or some other method of transmitting information on terminology and concepts, is necessary to provide new material to students. The concrete nature of the material being taught exacerbates the problem of expanding beyond the transmission of knowledge on how to operate the software program. Bloom's Taxonomy (1956) provided a framework for categorizing objectives of teaching and learning from simple to complex and from concrete to abstract. The hierarchy developed by Bloom includes, from bottom to top, knowledge, comprehension, application, analysis, synthesis, and evaluation. Krathwohl (2002) later revised the categories to remembering, understanding, applying, analyzing, evaluating, and creating. With the introduction of Types II and III teaching and learning into my course, my goal was to help move students up the taxonomic framework by careful planning of what and how to teach.

A = Analyze: Analysis of Practice

In spite of positive student evaluations, as well as good annual performance reviews throughout my teaching career, I was only teaching basic computer skills using mostly Type I teaching and learning and found that I was not satisfied with the status quo. I wanted to provide students with more than basic computer skills. I considered assumptions that had contributed to the situation in my course and my interest in studying my practice. My assumption had been that I needed to teach students the mechanics of operating the Excel program, such as, which key to

use to get the desired result. Because another aspect of my job is related to helping students obtain internships and jobs, I wanted to expand my teaching responsibility to help students be more work ready when they graduate. In order to do this, I needed to help students gain higher-level skills such as critical thinking, communication, teamwork, and other transferable skills useful in the workforce and desirable to employers. I wanted to teach them to apply this knowledge to different situations and to utilize the software for real-world applications. My concern for helping students become more employable was one reason I became interested in transforming my teaching. My doctoral program coursework focused on collaborative learning (CL), which also piqued my interest in adopting new ways of teaching and learning.

The impetus for incorporating different types of teaching and learning into my course was my desire to study my own practice in an effort to understand it better and thus potentially improve my students' learning. The process of redesigning the course afforded me the opportunity to re-conceptualize my course and allowed me to focus on improving student engagement through more effective instruction. With my desire and the opportunity for change, the question became how I might implement the change. In the next section, I theorize about how to accomplish this implementation.

T = Theorize: A Practical Theory of Teaching

A practical theory “may guide researchers or practitioners to observe, understand, analyze, evaluate and redesign phenomena within practices” (Goldkuhl, 2006). The practical theory of how I wanted to study, and potentially change, my pedagogy, as well as my motivation for doing so, has evolved during my almost 20 years of teaching experience. My teaching experience over the years has brought me to the point where I not only welcome a challenge in making courses more engaging for students, but also in better understanding and improving my own practice.

My formal, as well as informal, learning experiences have influenced my practical theory. My formal education has consisted mostly of traditional Type I teaching and learning, involving the instructor as the keeper of the knowledge and the learner as a mostly empty vessel waiting to be filled with knowledge. Taking in and repeating back information was the main method of teaching and learning utilized in my pre-graduate studies. As a beginning instructor, I generally taught as I had been taught. My informal education, through lived experiences, consisted of observing and mimicking my parents and other respected adults. I was influenced by the culture surrounding my family, which included the importance and expectation of continuing education. Traditional values in my family included a strong work ethic, respect for others, cooperation, and teamwork. Everyone contributed to the success of the family.

In addition to my personal teaching and learning experiences, my graduate coursework and experiences in the CL program have contributed to the development of my practical theory. Studying, as well as experiencing, CL with fellow students in the graduate program expanded my knowledge of, and desire to, further share these CL experiences. My practical theory has evolved into one that incorporates traditional family values (work ethic, respect, and teamwork), personal experiences, teaching experiences, and my own learning experiences. I believe a blending of multiple typologies of teaching and learning (Peters & Armstrong, 1998) can be effective in engaging students to serve as co-learners with me in the construction of new knowledge and affording me the challenge of providing higher levels of learning that I desire.

Specific to the courses I taught at the time of this study, my goals included making the new courses more engaging by incorporating collaborative and interactive group learning. Student learning outcomes included in the course syllabus were the following: Demonstrate a competent skill level in the use of Excel computer application; integrate skills for problem

solving, teamwork, communications, and critical thinking by examining how applications apply to real-life situations; design team projects in which to apply computer skills; translate computer skills to case problems; and critique work through self-diagnostic skills.

In my own graduate study, I learned about different types of teaching and learning and about creating a learning climate that is conducive to dialogue. For instance, one of the key components of Type III was referred to as “dialogical space,” defined by Merrill (2003) as “a space where we, as co-constructors of knowledge, were welcomed and welcoming, respected and respectful, trusted and trusting, and encouraged and encouraging” (p. 15). Strang (1958) also stated the following:

Development of a supportive atmosphere requires at least two essential conditions within the learning situation: First, threat must be minimized. The climate must be such that defensiveness is reduced. Second, emotional support must be provided while the learner is undergoing change in thinking and action. (p. 84)

Participants in Type III take time to jointly and openly reflect on what they are doing and how they are doing it. An atmosphere of respect for everyone and what they say builds trust within the group. Feeling safe to actively participate in a group without fear of reprisal is an important aspect of dialogical space. Bruffee’s (1993) definition of CL is “Knowledge is a constructed sociolinguistic entity and learning is an interdependent social process” (p. 202). CL involves coming together with a “relational, dialogical stance” (Shotter & Katz, 1996, p. 214). I wanted to create a space where students and I could experience Type III as co-constructors of knowledge in a safe, mutually respectful, dialogical space.

I also wanted to create a classroom environment in which students and I could engage in continuous reflection on what we were doing and why, even as we focused on our joint creation

of new knowledge (e.g., ways of applying technical software and computer skills). I had come to realize that there is not a single best way for students to learn; so, I also intended to open the course experience to multiple ways of knowing, both for students and for myself. These aims are consistent with what Peters and Armstrong (1998), as well as Peters and Gray (2007a), discussed as four elements of CL: Dialogical space, cycles of action and reflection, focus on construction, and multiple ways of knowing, discussed in more detail in the next chapter.

Significance of the Study

The significance of this study lies both in its contribution to my practice and in its potential to provide other instructors with an understanding of how students and instructors can relate to one another in the classroom experience. Understanding both the student and instructor perspectives provides an opportunity for instructors to adjust their pedagogies to not only improve their teaching, but also to enhance student learning outcomes. One of the greatest challenges of teaching is examining our own and others' assumptions about what and how we teach (Brookfield, 1995). This study allowed me to examine my long-held and deep-seated assumptions about what makes a good instructor and how instructors and students should interact in the classroom. This study promises to contribute to the literature in the areas of higher education, action research, student engagement, pedagogy in teaching technology as well as other types of courses, and student readiness for work.

Limitations of the Study

There were some limitations to this study, including those related to the size and selectivity of the student population studied. The research was conducted in two course sessions during one semester at one institution. Thus, the study has limited generalizability to other populations. Per Flick (1998), the “generalizability of results depends on... strategies of selection (but) generalizability is not in every case the goal of a qualitative study” (p. 70). While

generalizability was not a goal of my research, as indicated above, my results may be of interest to others in varying educational and other group settings who want to better understand what happens in situations involving different types of teaching and learning.

Organization of the Dissertation

In Chapter 2, I provide a review of existing literature in the area of study. I discuss in more detail the changes that I made in my pedagogy in Chapter 3. In Chapter 4, I describe the methods I used to collect and analyze data. In Chapter 5, I identify findings from the study and, in Chapter 6, I discuss those findings and the implications for practice and research.

Chapter 2: Review of Literature

In this chapter, I provide a review of literature on topics relevant to my study. These topics include selected areas of learning theory and philosophy, as well as types of teaching and learning. Also reviewed are related studies and related topics, such as student and instructor positioning, roles of knowledge and authority, active learning, and action research. Some theoretical issues that influenced my thinking included incorporating different types of learning and learning, learning by groups and individual learning, developing an atmosphere for creation of knowledge, attending to the learning process, and transferring knowledge from one context to another. These issues are discussed below.

Types of Teaching and Learning

Peters and Armstrong's (1998) Types of Teaching and Learning model describes Type I as "teaching by transmission, learning by reception" (p.78). The authors describe Type II teaching and learning as "teaching by transmission, learning by sharing" (p. 79). Peters and Armstrong distinguish Type III, CL, from the other types of teaching and learning "not only by a focus on joint construction of knowledge, but also by the designation of the instructor as a member of the group of learners and by the role of the group in the learning experience" (p. 79). Traditionally structured classrooms generally emphasize Type I, teaching by transmission, and secondarily, Type II, teaching by transmission, learning by sharing.

Type I. The traditional teaching format for courses in computer skills is a scaffolding approach of *describe, demonstrate, and do* (Merrill, 2003). This approach assumes the learner's role is as the recipient of the knowledge and the instructor's role is the keeper and distributor of the knowledge. This dynamic is typical of Type I. In Type I, the principal relationship is between the instructor and the students with the direction of communication flowing from instructor to students. The instructor is positioned as the expert on the information the students need. The

most common mode of communication in this type of teaching and learning environment is lecture, with the focus on individual learning. The dominance of Type I teaching and learning in educational organizations “is grounded in a worldview that supports the teacher as authority, knowledge as a commodity, and the learner as an empty or nearly empty vessel” (Peters & Armstrong, 1998, p. 79). Freire (1974) suggests that a model of education, in which the instructor “owns” knowledge and “deposits” it in students, may be replaced by a method in which instructors and students learn together, through dialogue. Implementation of this model requires a different type of relationship between instructor and student.

Type II. Type II teaching and learning is described as “teaching by transmission, learning by sharing” (Peters & Armstrong, 1998, p. 79). The role of the instructor becomes the transmitter of information, while also empowering students to transmit and receive information to learn from one another. Therefore, the flow of information goes from instructor to student, student to student, and student to instructor. Relationships are established among the instructor and students, as well as between and among the students. Through lecture followed by discussion, students become both learner and instructor as they bring their personal experience and knowledge to the situation. However, individual learning remains the focus of Type II, as it is in Type I. An example of Type II teaching and learning would be the instructor lecturing on terminology and new functions of the software followed by a classroom discussion on the terms and how the functions work in the software.

Type III. Peters and Armstrong distinguish Type III from the other types of teaching and learning “not only by a focus on joint construction of knowledge, but also by the designation of the instructor as a member of the group of learners and by the role of the group in the learning experience” (2008, p. 79). Type III and CL were used synonymously in this dissertation. Peters

and Armstrong also identify four elements of CL as 1) dialogical space; 2) focus on construction; 3) cycles of action and reflection; and 4) multiple ways of knowing. The elements of Type III interact to form the vital aspects of the teaching and learning process. These four elements are neither mutually exclusive nor exhaustive in their constitution of Type III. A brief description of each element of Type III follows.

Creating a dialogical space, an atmosphere of trust and safety, is conducive to Type III, especially in terms of the major mode of discourse used by its participants, which is dialogue (Merrill, 2003). Unlike discussion or debate, engaging in dialogue means to think together with others and listen with the intent of reaching a mutual understanding of self and others (Isaacs, 1999). With dialogue, an individual's personal position is considered along with the viewpoints of others, which increases the possibility of knowing more than one can know on one's own (Schumann, Peters & Olsen; 2013). Researchers (Gray, 2008; Li, 2011; Merrill, 2003) have found that engaging in Type III creates a sense of comfort and safety in the classroom and contributes to the promotion of positive relationships. Such a climate, which encourages all participants to speak, may reduce the sense of authority hierarchy between students and the instructor and may avoid positioning the instructor as the sole expert. A sense of safety in learning is described by Knowles, Holton, and Swanson (2005), as "...physical comfort, mutual trust and respect, mutual helpfulness, freedom of expression, and acceptance of differences..." (p. 93). Taylor and Cranton (2012) in transformative learning (TL) theory posit that "...the importance of a safe, trusting, and respectful learning environment..." is fundamental to learning (p. 393). A safe environment has been shown to influence student willingness to open up and take risks with their peers (Merriam, Caffarella, & Baumgartner, 2007). Merriam and Brockett

(2007) also reaffirmed that “the environment in which learning takes place plays an important role in successful learning” (p. 149).

Focus on construction refers to attending to what is being constructed within the group and how it is being constructed. The emphasis on joint construction of knowledge by all participants, including the instructor/facilitator and on group learning, helps distinguish Type III, or CL, from the other types of teaching and learning (Peters & Armstrong, 1998). Because the Type III process relies on the co-creation of new knowledge that cannot be fully defined in advance, the outcome of a Type III experience is unpredictable.

Cycles of action and reflection refer to reflection on events and/or utterances that stand out as they occur in the group as well as after they occur. Katz and Shotter (1999) call these “striking moments” or “moments that make a difference.” As participants dialogue, they engage in cycles of action and reflection individually and as a group to create something new from their shared experience. These cycles of action and reflection initiate the exploring of assumptions that, in turn, can lead to the basis for co-construction of knowledge.

The acknowledgment of multiple ways of knowing recognizes the variety of perspectives brought to the group by individuals and what one can know from inside the Type III experience. For example, Ryle (1949) differentiates “*knowing that*” from “*knowing how*.” *Knowing that* refers to grasping or comprehending theories, facts, and figures, while *knowing how* relates to skills and one’s abilities to perform tasks. Shotter (1994) describes a third kind of knowing as “*knowing from within*.” This kind of knowing is what “occurs only among people in the act of being together, in the moment of their being” (Peters & Gray, 2007a, p. 7). *Knowing from within*, as experienced in Type III, is a shared knowledge, held in common with others, that constantly changes and evolves through the experience. As CL participants experience *knowing from*

within, they begin to know themselves in relationship with others, a kind of learning and being together.

Learning as a Group

A constructionist viewpoint emphasizes jointly-constructed group knowledge rather than learning as individuals. Bruffee (1986) had this to say about an important difference between learning in a group setting, as opposed to learning as individuals:

If knowledge is socially constructed, the important intersections of thought and action are not those that take place between an individual and, for example, a canonical text but rather those that occur among the members of a community of knowledgeable peers. From this perspective, knowledge and the authority that knowledge commands are generated and maintained by the community. (p. 787)

In a related case study, Gilbert and Driscoll (2002) focused on identifying and understanding the conditions that promote knowledge-building in CL communities. They agreed with other researchers who found that a constructionist viewpoint in education requires a focus on knowledge jointly constructed as a group of learners, rather than from individually constructed knowledge, a constructivist viewpoint (Brown, 1994; Brown & Campione, 1990; Scardamalia & Bereiter, 1992; Wenger, 1998). In group learning, students add to each other's learning through the process of socially constructing knowledge as a group (Lebow, 1995). The problem-solving skills of the group of learners are also enhanced through the joint construction of knowledge (Scardamalia & Bereiter, 1994). An important consideration in knowledge-building communities, according to Lebow, Wager, Marks, and Gilbert (1996), is that outcomes developed by a group of learners support the goals of the group as well as its individual members. Attention to these areas allows learning communities to solve problems that individuals cannot solve alone (Bowen, Bereiter, & Scardamalia, 1992).

Students bring differing perspectives to the classroom, reflecting their diverse backgrounds, assumptions, beliefs, learning styles, experiences, and goals. By working collaboratively with students, instructors can better understand how students are learning and what experiences and ideas students bring to the learning experience (Smith & MacGregor, 1992). Smith and MacGregor stated the following:

To learn new information, ideas, or skills, students have to work actively with them in purposeful ways. They need to attach this new material to, or integrate it with, what they already know--or use it to reorganize what they thought they knew. In collaborative learning situations, students are not simply taking in new information or ideas. They are creating something new with the information and ideas. These acts of intellectual processing--of constructing meaning or creating something new--are crucial to learning. (p. 11-12)

Bartlett (2005) studied education programs in Brazil and his research is based on Freire's (1974) seminal work and philosophy of education. Bartlett noted that instructors spend significant time and energy on the topic of the instructor-student relationship. He also reported that instructors "worked hard to create a climate of friendship, trust, and equality inside the classroom" (p. 352). That practice can help reduce a hierarchy, allow instructors to avoid positioning themselves as the expert, encourage dialogue, and provide for the inclusion of students' experiences, which are a major source of their knowledge, into the classroom. The role of interpersonal relationships between instructor and students can contribute to building dialogue skills. Crosse (2001) found that positive interpersonal relationships within a group aid the dialogical learning process; and likewise, participating in a dialogical learning process promotes positive interpersonal relationships. Type III also emphasizes the role of the group in the learning

experience. Cross (2000) wrote “Students have to do the actual work of learning by actively making connections and organizing learning into meaningful concepts. When students are interacting with other students to clarify, explain, and understand, they are actively building their own minds” (p. 10). This is consistent with Astin’s (1993) research that concluded that student-to-student and student-to-instructor interactions are especially important in academic achievement.

The experiences and strengths of each learner can be a valuable resource to the group. People “accumulate an increasing reservoir of experience that becomes an increasingly rich resource for learning” (Knowles, 1980, p. 44). Relating to the relationship between life experiences and learning, Dewey (1938) agreed that “all genuine education comes about through experience” (p. 13). To utilize the experience of each learner, the instructor and students need to be open-minded and step outside traditional roles for each other. Researchers reported that CL is highly effective (Cross, 2000; Kyndt et al., 2013), and there is evidence that the effectiveness of Type III largely depends on the quality of student interaction (Dillenbourg & Tchounikine 2007; Kobbe, Weinberber, & Dillenbourg, 2007). Kaendler, Wiedmann, Rummel, and Spada also indicated that the “effectiveness of collaborative learning largely depends on the quality of student interaction” (2015, p. 505). These authors focus on how an instructor’s role can foster student interaction and identify important instructor competencies, such as the ability to plan, monitor, support, consolidate, and reflect upon student interaction. Instructors’ willingness to delegate some authority and responsibility to the group can result in more group interaction among students to successfully complete a task (Cohen, 1994; Gillies, Ashman, & Terwel, 2008). Because students in Type III must depend on one another, as well as the instructor, all students need to feel a responsibility for sharing their knowledge with others (Roschelle, 1992).

Cross (2000) agreed that students can be responsible both for their own as well as others' learning. As well, Slavin endorsed individual accountability and team rewards for successful groups. "It is not enough to simply tell students to work together; they must have a reason to take one another's achievement seriously" (Slavin, 1996, p. 21). Cross stated that "students are well-motivated to get involved in learning when they are faced with peers who depend on them and in turn nurture them in challenging learning tasks" (p. 26).

Group learning and Type III. Dillenbourg (1999) defined Type III as "a situation in which two or more people learn or attempt to learn something together" (p. 1). A well-known proponent of CL, Bruffee (1984, 1995, 1999, 2003) stressed that students in higher education may experience new ways of learning, namely Type II or Type III, that have not been encountered in their earlier education. Part of that experience, according to Bruffee (1984), requires students to look critically at their own sets of assumptions, beliefs, and values, as well as to question others about their assumptions, beliefs, and values, which may be different. This "abnormal discourse" (Rorty, 1979) enables students to "establish knowledge or justify beliefs collaboratively by challenging each other's biases and presuppositions; by negotiating collaboratively toward new paradigms of perception, thought, feeling, and expression; and by joining larger, more experienced communities of knowledgeable peers through assenting to those communities' interests, values, language, and paradigms of perception and thought" (Bruffee, p. 646). Dialogical classrooms use a more open-ended process that pays attention to how teaching and learning occurs both for each individual and the group (Gray, 2008).

In Type III, the goal is the co-construction of new knowledge by the group and by individuals. According to Freire (1974), "Knowledge emerges only through invention and re-invention, through the restless, impatient, continuing, hopeful inquiry [people] pursue in the

world, with the world, and with each other” (p. 58). While engaged in Type III learners construct new knowledge as a group, Type III does not automatically occur; “it takes crafting” (Flannery, 1994, p. 20). “The purpose is . . . to create a supportive atmosphere which will encourage [the student] to undertake the task of learning, to cope with anxieties and concerns, and to experiment with new ways of thinking and behaving” (p. 21). The relationships become learner-to-learner, learner-to-group, and group-to-learner. The importance of these relationships in Type III is discussed below.

Student and instructor positioning. In Type III teaching and learning, participants learn a new way of engaging with others in a collaborative relationship. Students are sometimes initially confused and frustrated by the new atmosphere. It takes time and effort for most participants to adjust to their new roles (Burrell, 2013; Crosse, 2001; Long, 2016; Tisue, 1999).

Because many students have not previously experienced Type III, researchers in that field (Barnes, 2004; Bruffee, 1995; Panitz, 1999; Roschelle & Teasley, 1995) have emphasized the need for students and instructors to amend their assumptions of exclusive instructor knowledge so that they can effectively participate together in the construction of knowledge. Within Type III, the instructor or facilitator takes on an additional role as a purposeful co-learner within the group. The instructor’s co-learner role helps students avoid looking to the instructor as the sole source of knowledge, instead allowing students to benefit from interaction with all members of the group and to share responsibility for their own learning. Although the instructor has specific knowledge of the course content, individuals in the group bring their own experiences and knowledge which can contribute to the construction of new knowledge and new ways of interacting in the classroom (Gray, 2008). Peters and Gray (2007b) state that “The teacher is also a learner and should position himself or herself as a co-learner with students as well as serve as

facilitator, sometimes lecturer, and coach” (p. 327). Positioning the instructor as a co-constructor of knowledge can impact the student-to-student and student-to-instructor interaction (Dillenbourg, 1999). Merrill (2003) concluded that an instructor in Type III may have a sense of freedom moving from being the sole keeper of knowledge to having a shared responsibility for learning. Sharing power is an important aspect of this re-positioning (Grant, Nelson, & Mitchell, 2008). This process of sharing power can be aided by openly discussing and clearly defining power relationships. However, Flannery (1994) argued that issues of knowledge and authority exist in all classroom experiences.

The use of Type III techniques in the traditional classroom can change both the role of knowledge and the role of authority. Giroux and Simon (1989) stated the following:

The issue at stake is not one of relevance but empowerment. We are not concerned with simply motivating students to learn but rather establishing conditions of learning that enable them to locate themselves in history and to interrogate the adequacy of that location. (p. 3)

Without abandoning authority, the instructor can delegate some authority and, therefore, some responsibility for learning to students (Cohen, 1986). It can be a balancing act to foster active learners while also shifting some of the responsibility for learning away from the instructor and toward the student. A key challenge of Type III is to encourage risk-taking by both the instructor and students.

Incorporating different types of teaching and learning can contribute to student engagement and active learning. In addition, students find learning to be more enjoyable and more meaningful when given the opportunity to direct their own learning (Taylor, 1995; Temple & Roderio, 1995). Although students do not have complete independence in directing their

learning, enabling them to participate in the decision-making process of what they are to learn, how they are to learn it, and how their learning will be assessed can promote more student engagement. Enabling students to manage the learning objectives for a course, how those objectives are to be achieved, and how student learning will be evaluated has been repeatedly shown to motivate students to take more responsibility for their learning (Bolhuis, 1996; Garrison, 1997; Horn & Murphy, 1983; Taylor, 1995). Zimmerman and Risemberg agreed that the use of self-regulation strategies can increase student self-efficacy and motivation (1997). Linnenbrink and Pintrich stressed that instructors can design and organize their instruction to have a positive impact on student self-efficacy and, therefore, positively influence student engagement and learning. Some of the ways instructors can achieve this impact is to provide challenging but achievable tasks, provide feedback, and foster student belief that competency is attainable (2003).

The instructor's facilitation role may include providing opportunities for students to work on open-ended tasks that promote student interaction, as well as challenge thinking (Gillies et al., 2008). Instructors can model facilitation manners that will help students learn how to interact with each other. The facilitator needs to be aware of group dynamics and must attend to interpersonal relationships of the group (Crosse, 2001). Facilitators need to be reflexive, acknowledging power issues, and willing to share power. It is also important that instructors pay attention to the personal and social needs of the students in their classrooms.

Attending to Process

In Type III, instructors are concerned with not only content to be learned but also the process through which the learning takes place. Learning involves relating parts of the subject matter to each other and to the real world. Learning can be thought of as “a process by which behaviour changes as a result of experience” (Maples & Webster 1980, p. 1). Cross stated that

“Students quite literally build their own minds by making the connections in the brain that organize bits of information into coherent understandings” (2000, p. 18). Students first acquire pieces of knowledge, make meaningful connections between individual pieces of knowledge, practice combining and integrating the knowledge, and learn when and how to apply what they have learned to new situations (Taategen, 2013). For instructors, it is important to develop an understanding of how students learn and apply knowledge to different circumstances in order to help students learn more effectively (Bandura, 1989). It is, therefore, a goal of instructors to create a space where students actively engage together in thinking, analyzing, reflecting, and making connections between the pieces of collaboratively-constructed knowledge.

In addition to understanding how students learn, instructors also need to communicate expectations honestly and openly with members of the group and take time to learn about the group, to build and maintain relationships (Grant et al., 2008). Engaging in Type III requires students to reflect critically about how they are learning in addition to what they are learning (Kaplan, Silver, Lavaque-Manty, & Meizlish, 2013). A reflexive process, referred to as *levelising* (Peters, 1999; Peters & Ragland, 2009), allows students to examine group dialogue in action, as it reveals different viewpoints against which “students may test their own and others’ ideas” (Gray, 2008, p. 12). The four levels of levelising allow an individual or group to move from a non-reflective position to a critical examination of the situation, including different ways of viewing the situation. In level one, *pre-reflective being*, the group may provide information and make observations without reflection on such. At level two, *reflective being*, the participants notice and reflect on the process taking place. Level 3, *framing*, allows participants to recognize personal assumptions, how the assumptions impact thinking, and how one is looking through a framework as they reflect on their own and others’ actions. At level 4, *theorizing*, multiple points

of view are explored and critically examined. These processes of reflection are not sequential, but, rather, cyclical. As members of the group of learners reflect on this process, they can experience what is being said to one another from different perspectives (Peters, 1999; Peters & Ragland, 2009).

Transferring Knowledge

Learning the process as well as content may assist students in applying the knowledge to other circumstances and situations (Taatgen, 2013). Students often experience difficulty when attempting to transfer knowledge and skills learned in a classroom to new situations. Salomon and Perkins (1988) posited that more can be done to teach with the goal of transferring learned knowledge and skills to various everyday situations. For example, instructors can point out overall principles behind skills and knowledge to help students generalize application of the skills to other situations. Likewise, learning can *begin* with experience, with knowledge and skills *resulting* from the experience (Jarvis, 1987). Jonassen (1999) stated that “knowledge is individually constructed and socially coconstructed by learners based on their interpretations of experiences in the world” (p. 217), and, according to Crawford, Lang, Fink, Dalton, and Fielitz (2011), these skills are needed in the workplace. Cross (2000) posited that “unless learners process the new information by reflecting on it and making connections within their own minds, the new information...is quickly forgotten. Employers need workers who have learned how to learn the new lessons” (p. 6). Active learning contributes to this goal of transferring knowledge and skills.

Research supports the idea that taking an active role in learning can benefit the learner more than passively acquiring information can (Glassman, 1980). Rather than passively listening to a lecture, students can become active learners when their thinking skills and creativity are stimulated through various types of teaching and learning. Active learning may provide an

opportunity for the translation of knowledge so that it becomes a significant experience for the learner and increases the odds that further applications of the learning can be found outside the classroom. Active participation by students in problem solving and critical thinking situations provides the opportunity for students to construct their own knowledge, apply this knowledge to new situations, and integrate the new knowledge with previous knowledge. Therefore, “a major goal of teaching for transfer becomes not just teaching particular knowledge and skills for transfer but teaching students in general how to learn for transfer” (p. 30). Kuh (2001) suggested that students should be encouraged to take an active role in their learning and included active learning in the practices that contribute to positive learning outcomes. Another proponent of active learning, Fink (2003) provided a process for the design of courses to align activities with learning goals to provide significant learning experiences for students.

According to De Hei, Strijbos, Sjoer, and Admiraal (2015), Type III helps students develop skills for critical thinking and working in teams (Slotte, Palonen, & Salminen, 2004), and teamwork is one of the most valued aspects of the workplace. For an effective Type III experience, it is important to focus on the team aspects of a learning experience, such as interdependence, accountability, and interaction, rather than focusing solely on the task (Johnson & Johnson, 1994; Strijbos, 2011). According to Slavich and Zimbardo (2012), Type III teaching and learning allows students to “restructure their own knowledge and understanding of concepts...recognize gaps in their understanding, synthesize, communicate, and discuss ideas in ways that advance conceptual understanding, (and engage in) modeling of effective problem solving strategies” (p. 574).

Dissertation Research on Type III

Many of the studies of Type III have been completed at the University of Tennessee (see Alderton, 2000; Armstrong, 1999; Brickey, 2001; Cotter, 2001; Crosse, 2001; Dillivan, 2004;

Duncan, 2009; Gaskin, 2007; Roberts, 2005; Tisue, 1999; and Torres, 2008). These studies, as well as more recent studies by Burress (2013), Creekmore (2011), Damewood (2016), Li (2011), Reese (2013), and Seeley (2015), were among sources used for my study. I will discuss here the studies (e.g., Alderton; Burress; Crosse; Dillivan; Gray, 2008; Li; and Merrill, 2003) that are most closely related to my study. Li studied how a group of Chinese university students made meaning of their Type III experience in an English reading class. Li concluded that the incorporation of Type III into the course helped improve student engagement in learning, changed student thinking about the roles of instructor and students, and facilitated student learning. Alderton investigated the experiences of adult learners in a nontraditional classroom environment incorporating dialogue as the primary mode of discourse for teaching and learning. Dillivan focused more on exploring the process of knowledge construction as experienced by a group of graduate students. Some of the dissertation studies showed that Type III teaching and learning is new and difficult for students, especially in the beginning of such an experience (Armstrong, 1999; Burress, 2013; Crosse, 2001). Alderton and Dillivan reported that time impacts how students experience Type III and the ability to form a cohesive group in a short time. They also showed that participants experience frustration with the dialogue process early in the course.

Students need time to adjust to different relationships with one another and with the instructor. Armstrong (1999) stated although participants experienced frustration early in the course, “Most participants grew over time, in terms of their ability to dialogue and to form relationships with one another” (p. 121). Likewise, Burress reported that “participants built relationships with other members” (p. 151). Instructors may also struggle with the need to share responsibility for the learning process with students in Type III teaching and learning (Cross,

1999). Tisue (1999) reported that time was a factor in how study participants experienced CL and that changes in their relationships as they learned to work and learn collaboratively only occurred over a period. These were action research studies, and more about action research follows.

Action Research

Action research is a process used to study one's practice with the intention to better understand and potentially improve the practice. Peters (2009) has defined action research this way:

Action research is a systematic and critical study of one or more aspects of their work by practitioners, their aim being to make changes in their work based on the results of their inquiry. Action research focuses on the practitioner-researcher's own theory of practice, against the background of how his or her practice is situated, organized, and carried out. (p. 149)

In addition to identifying ways of improving one's practice, undertaking an action research project may provide opportunities for personal growth through reflection. Through reflection, a practitioner-researcher has the opportunity to examine the practice from multiple perspectives. As defined by Carr and Kemmis (1985):

Action research is simply a form of self-reflective enquiry undertaken by participants in social situations in order to improve the rationality and justice of their own practices, their understanding of these practices, and the situations in which the practices are carried out. (p. 162)

Action research involves cycles of planning, acting, observing, and reflecting in the practice setting (Quigley & Kuhne, 1997). It is an on-going process of testing new ideas, reflecting on the changes, and continuing or changing the idea. Findings from an action research

study can be applied to one's own practice and shared with others. Marshall and Reason (1994) identify the following aims of action research that involve three different audiences:

All good research is for me, for us, and for them: It speaks to three audiences...It is for them to the extent that it produces some kind of generalizable ideas and outcomes...It is for us to the extent that it responds to concerns for our praxis, is relevant and timely...(for) those who are struggling with problems in their field of action. It is for me to the extent that the process and outcomes respond directly to the individual researcher's being-in-the-world. (pp. 112-113)

Action research involves some form of reflective practice (RP) (Quigley & Kuhne, 1997). RP "involves 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 of practice" (Peters, 1991, p. 89). The skills emphasized in RP include climate building, listening, focusing, questioning, facilitating, thinking and acting. These skills aid in the creation of an atmosphere for dialogue with the purpose of addressing concerns of the participants (Schumann et al., 2013).

Schon (1983), whose seminal writing informed many others' concepts of RP, defines RP this way:

When someone reflects-in-action, he [*sic*] becomes a researcher in the practice context. He is not dependent on the categories of established theory and technique, but constructs a new theory of the unique case. His inquiry is not limited to a deliberation about means which depends on a prior agreement about ends. He does not keep means and ends separate, but defines them interactively as he frames a problematic situation. He does not separate thinking from doing, ratiocinating his way to a decision which he must later

convert to action. Because his experimenting is a kind of action, implementation is built into his inquiry. (p. 68)

We reflect *on* action as well as *in* action. Reflection is grounded in one's practice, as, per Schon (1983), it is primarily the practitioner's own theory that drives his or her actions. RP may also be considered an important component of a formal, systematic inquiry into one's own practice. In RP, practitioners learn from their own and others' experiences both during and after the experience (Schon, 1983, 1987).

Summary

The findings of the studies discussed above, indicating successful incorporation of Type III teaching and learning into courses, piqued my interest in examining my practice. I learned from these studies that students and instructors can engage together in CL. I wanted to experience this process with my students to challenge myself as an instructor and to impact student learning outcomes. This is what prompted me to examine my practice through an action research study. In Chapter 3, I discuss the changes made in my pedagogy.

Chapter 3: Changes in Pedagogy

A =Act: Revised Pedagogy

To operationalize my practical theory and address my research questions, I changed my method of teaching and incorporated more Type II and newly incorporated Type III teaching and learning. Additionally, I conducted my action research project to study the experiences my students and I had with the changes. I had previously followed a mostly Type 1 format for teaching--teaching content just as I had been taught. I now approached this course by intentionally incorporating different types of teaching and learning. I used a traditional lecture format early in the course and/or at the start of new text chapters to introduce new concepts in the course. The syllabus, schedule, announcements, assignments, contact information, and other resources were available on the Blackboard site. Students took online quizzes, accessed and submitted assignments, checked grades, reviewed lecture notes, etc. within the Blackboard site. SAM software, a Cengage Learning software product, was used for accessing an e-book, as well as for accessing and completing online training, exams, and project assignments. Students practiced some in-class skills, individually, and I assisted them. Other skills were performed and practiced by the class as a whole. Because of the physical arrangement of the computer lab and the size of the course enrollment, large group dialogue was constrained as it is difficult for all of us to see and hear one another.

As I moved toward adding more Type II as well as Type III to my pedagogy, I anticipated that students would have some reservations and challenges associated with the teaching and learning process because it was new and different to them. Attending to the four elements of Type III, as well as practicing the new instructor and student relationships of Type III teaching and learning, contributed to my practical theory and resulted in the creation of a Type III experience. Working as a collaborative group, my students and I brought in our

individual knowledge and unique skills to jointly create shared knowledge that was new and different. In taking more responsibility for our jointly constructed learning, we could focus on *how* we learned, as well as *what* we learned. I had to be conscious of my role as a co-learner and resist the temptation to fall back into the role of instructor. An important element of Type III is dialogical space that is discussed in the next section.

Creation of Dialogical Space in the Classroom

Space wherein participants feel safe, both physically and psychologically, is essential to Type III teaching and learning. Creation and maintenance of an environment conducive to dialogue enhances collaborators' capacity to engage in cycles of action and reflection, employ multiple ways of knowing, and focus on the co-construction of new knowledge. A safe environment has been shown to influence student willingness to open up and take risks with their peers (Merriam, Caffarella, & Baumgartner, 2007).

To create a safe space for dialogue and a space that reduced my positional authority in the computer lab, I greeted students at the door as they entered the classroom, rather than standing at the instructor's station at the front of the room. I sensed that students felt more comfortable asking me questions before the start of class when I appeared more approachable. I made every effort to learn students' names and communicate with them during and outside class time. This created a demonstration of respect and was intended to make students more comfortable.

To aid in the creation of a comfortable and open environment in the classroom, on the first day of class I introduced myself to the students and described my background. I asked students to stand when I called each name, give their preferred names (if other than what was on the roster), correct me if I mispronounced a name, and then tell the group something about themselves. Some students seemed hesitant to stand up and speak to the group; however, as the process continued, students began to relax and enjoy the communication. As they told things

about themselves, the process allowed us to begin to identify connections among the group members. To help students make connections, I interjected comments related to commonalities in what some students revealed about themselves or things I had in common with students. For example, if one student said Nashville was home, and then another was also from that city, I pointed out that perhaps both attended the same high school. In some cases, one of the students indicated which high school he or she attended and the other student followed with the same information. My goal was to facilitate the making of connections so that we all could more easily dialogue with one another. By the end of that first meeting, each of us knew something about the others in the course. This exercise also helped the students and me to connect names and faces of students. Starting this process of connection among our group members helped make the classroom atmosphere more open and inviting.

The first out-of-class assignment asked students to create an introduction blog for the other course members to read. I participated in the exercise by creating my introduction blog and commenting on each student's blog. In addition to creating blogs, students were asked to read and comment on at least two other students' blogs. I observed that students freely wrote information about themselves in the blog, many of them sharing considerable information about their family, personal background, and future career plans. While some students had seemed hesitant to introduce themselves to the group, it seemed that they were more at ease telling about themselves in an online blog. I attribute this to a general lack of self-confidence and timidity in face-to-face situations. The comments and responses within the blogs resulted in many common interests and activities across the group. To follow up on this blog assignment, I asked students at the next meeting to get up and meet others. They could either find a student with whom they had blogged or meet other students. I joined in the activity and followed up on some comments made

in the blogs. I noticed that some of them gathered in groups of three or four students while some just turned to the student sitting next to them. After about 10 minutes, I asked that they move around and meet others. This activity went well and students commented later that they enjoyed the opportunity to get to know others in the course. Throughout the course, I encouraged students to ask questions of each other and help each other during class time, as well as to ask questions of me at any time.

Creating a space where dialogue was encouraged was critical to the course and the study. I made a conscious effort to create such an environment for my students and me. I felt more comfortable by getting to know students and helping them get to know one another. Closely related to the creation of a comfortable learning environment is the instructor-student relationship. I worked to reduce the effects of hierarchical authority that are typically associated with Type I and sometimes even Type II teaching and learning. To help this, I encouraged multiple-direction dialogue including student-to-student and group, student and group-to-instructor, and instructor-to group and student interaction. I also sought student input on how to complete tasks as we worked through assignments together. I worked to reduce the appearance of being the sole expert in the group.

Tools of RP helped us to dialogue with each other and foster a dialogical space. These tools included making inquiries of each other, asking back when unclear, voicing concerns and assumptions, reflecting on what happens in the group, and, ideally, emerging with a clearer image of the product and its use by the group. In RP, there is an emphasis on listening for understanding of one's own and others' experiences. Students were encouraged to ask probing questions of one another and of me, ask back for more information about a question, and share

experiences. Using this more open-ended approach, we, as a group, had greater influence on the teaching and learning process.

In summary, my goal was to create a non-threatening climate and to provide mutual support throughout the course by taking time to get to know one another via in-class introductions and blogs early in the semester and to continue to offer help throughout the joint experience. This pattern was reciprocated by students relative to my role and each other. This provided a positive environment for Type II and Type III teaching and learning.

Type II

I utilized minimal lecturing only to introduce new terminology early in the course. Rather than always lecturing, I used a Type II approach more frequently to work through assignments with students as a group. While I did not position myself as a co-learner, I engaged in dialogue with students. Utilizing the SAM software program, I engaged in dialogue with students about information contained in the reading, without giving them a formal lecture. Starting with the assignments, labeled as *exams*, students and I reviewed each question, discussed different ways to complete the task, and then moved the mouse around on the screen as we completed the task together. These were online assignments that were auto-graded, providing immediate feedback on whether the task was correctly completed. By working through these tasks together with students, I encouraged dialogue on different methods of completing the tasks. From my perspective, this process seemed to work well, as students appreciated the opportunity to redo the task multiple times and gain feedback. Throughout the course, I noticed considerable student-to-student interaction as students asked questions of each other during completion of the assignments. I always encouraged this interaction as it helped to reinforce relationships among students.

I continually posed questions to the group throughout the assignment to assess student comprehension of the material presented. I would also ask for student input on different ways each task could be completed. As students responded, I would make remarks about how there were always multiple ways to complete tasks in the software. Students would share with the group how they preferred to complete the task and the dialogue would continue between the students and me. I encouraged students to discuss the work being done by the group. If students were hesitant and spoke quietly, I would ask that they repeat the suggestions louder so everyone could hear. Immediate feedback provided by the software allowed students multiple attempts to complete the task and reports on whether the student had correctly answered the question. Grading of these assignments resulted in an assessment of overall student understanding of the material. If students had difficulty with particular parts of the assignment, I would follow up with additional practice of the concepts in a subsequent class meeting.

Another type of assignment used was referred to as a *project*. In these assignments, students and I worked through the online instructions to revise an Excel spreadsheet. Again, we completed the assignment together allowing students to ask questions of each other or me throughout the process. This process allowed student-to-student, instructor-to-student, and student-to-instructor interaction. While formal group work had been minimally utilized in the past, students could practice their skills through group assignments. Working within the software to complete projects, students gained more hands-on experience and the chance to complete real-life projects. Students needing additional help could utilize supplemental online training assessments. After we covered a topic and completed the in-class assignment, students completed similar exercises on their own, either as an in-class or homework assignment.

Students also took online quizzes outside class time for me to assess their comprehension of the material.

Type III

I designed one project specifically to incorporate a Type III experience in the course. For this project, I asked students to get in groups of two, three, or four. The configuration of the workspaces in the classroom made it challenging to work in groups; therefore, I asked them to work in small groups within the rows of computers. Each of these small groups, jointly planned and completed a project using a data spreadsheet. Each group of students was responsible for inquiry within their small group as to how to perform the assigned tasks, as well as the process to follow. Each group selected one student to download the instruction and start files as well as do input for the exercise. I suggested that halfway through the project, another student take over the input task. I joined one group with the intent to learn with them and told them I was joining as a co-learner, not the instructor. I was well received by the group. In my group, one student was doing input and another student kept the instruction file open on the computer for the group. Several tasks in this project had been covered in the assigned reading but had not been presented in class. The object of this assignment was to experience Type III within each group as we collaboratively determined how to approach the assignment and created new group knowledge that no single member of the group possessed individually.

One member of my group read aloud to the group each consecutive instruction and members of the group contributed ideas about how to complete the task. I was concerned that the students would always look to me for guidance; yet, to my surprise and satisfaction, they did not. Students began to propose ideas on how to complete each task and collectively decided how to proceed. As I joined in the discussion, I was delighted to hear students' suggestions to go to the online help feature of the software, look at lecture notes, refer to the book, or use another

student's prior knowledge to help the group complete the task. Our group was modeling collaboration to create knowledge of how to complete this project.

After we had completed the project in the small groups, I assumed the role of facilitator for the entire group. I asked first how each group began the process and what the overall experience was like. After a few minutes of hesitation, students began to offer comments and ask questions of each other. The process of how each group approached the project resulted in the creation of new knowledge. For example, one group's members said they started by reading the entire set of instructions for the project. Others reported that they used the online help option to look up new terms. Some students had prior knowledge of Excel or had read about the functions in the assigned reading. Different members of each group contributed ideas about how to approach the project step-by-step. When one student suggested what to do, other students in the group asked questions about that process or suggested alternative ways of doing the task.

I then asked one group to volunteer to display their completed datasheet for the whole group to view. Using software at the instructor's station, I could project the screen from that group's computer to all monitors in the lab. The small group of students shared their work with the group. Members of each small group discussed the process of how they completed the assignment. When the small group presentation was completed, I positioned myself as facilitator and modeled Type III by asking questions to stimulate dialogue from the entire group to analyze how different groups approached the assignment, what they learned together to complete the project, what the experience was like, and how it contributed to their learning. I used techniques such as eye contact, moving around the room, sitting with students, asking open-ended questions, and encouraging students to ask each other for more information to stimulate dialogue (Barton, Heilker, & Rutkowski, n.d.). Because of this collaboration, we created new knowledge together

on different approaches to solving the problem presented in the project. While, as Merrill (2003) points out, we cannot change the way a software works, the value of Type III in a computer technology course is not in learning the software functions, but in learning together new ways of utilizing the software to complete projects as a group of co-learners. We can also find multiple sources of information to inform ways to proceed.

Formative assessment tools were developed and used to gain student feedback on a regular basis to incorporate student ideas into the course, assess student learning, and help assess instructor effectiveness. Classroom assessment techniques (CATs), in the form of blogs, were used to provide immediate feedback about student learning (Angelo & Cross, 1993). This formative approach allowed students to reflect on experiences and then provide input for future learning objectives and outcomes. According to Greenberg et al. (2009), implementing this approach aids in more student ownership of learning and creates legacy input for future students.

Summary

The revised pedagogy for the course and how we--the students and I--experienced it together was the situation I explored in this research project. Students learned to create, modify, and use spreadsheets to effectively and efficiently complete course assignments as well as for career preparation and business use. New strategies for learning and assessment of learning were utilized. Creative methods of engaging students were explored. My goal was to increase this student-to-student transmission in a more systematic way. This, as well as the incorporation of Type III into the course, helped to foster an environment where we as a group felt comfortable with new roles and responsibilities in the classroom. We began to co-construct our own knowledge about how to apply the computer applications to more and different situations as well as how to improve the learning experience.

In the next chapter, I discuss the method and procedures for collecting and analyzing data on how students and I experienced the course.

Chapter 4: Research Methodology

This study sought to examine the experiences of students and instructor in a computer applications course in which the pedagogy was changed to encourage additional interaction among students and between students and the instructor.

Research Questions

The questions I addressed in my research were:

1. How do students and I experience different types of teaching and learning in the course?
2. How does the incorporation of these types of teaching and learning contribute to student learning outcomes and teaching improvement?

D = Design: Study Design

I approached this inquiry from the view that perceptions of reality are culturally, socially, and historically constructed (Lincoln & Guba, 1985); therefore, I conducted my inquiry in a real-world setting and placed no prior constraints on what the exact outcome would be. A qualitative methodology is consistent with this constructionist view. According to Creswell (2007), qualitative methods are effective when the researcher's goal is an understanding of research participants' own descriptions of their experiences. These methods allow researchers to "study things in their natural settings, attempting to make sense of, or interpret phenomena in terms of the meanings people bring to them" (Denzin & Lincoln, 2005, p. 3).

This type of research is also described by Herr and Anderson (2002) as "insider action research" (p. 31). My project was an interpretive study (Denzin & Lincoln, 2005) with the goal of understanding how participants experience the different types of teaching and learning in the classroom. It is important in such a study to acknowledge the importance of the perspective of the participants as a means of understanding our interactions in the classroom (Drake & Heath,

2008). Reflexivity “entails the researcher being aware of his effect on the process and outcomes of research based on the premise that knowledge cannot be separated from the knower” (Steedman, 1991, p. 53) and that “In the social sciences, there is only interpretation. Nothing speaks for itself” (Denzin & Lincoln, 1994, p. 500). For a qualitative researcher, it is impossible to remain completely outside the subject matter; the researcher’s presence will have effect. Reflexive research takes account of this researcher involvement.

Peters and Gray (2007a) posited that, unlike a positivist, conventional research approach, those who wish to understand their practices better should conduct research as an involved subject. To be personally involved, this type of research requires that researchers identify and account for how their own frameworks and assumptions influence the understanding of their practices. Action research as a mode of inquiry can link real-world encounters to the classroom experience, as it is designed to yield practical results that are applicable to a specific situation or problem. The data involved may be qualitative, quantitative, or both. Action research was uniquely suited to my research project because I sought to study my practice to understand it better and, with that understanding, to implement improvements in my practice.

The information from this study can contribute to education literature by making a connection between computer applications courses and implementation of different types of teaching and learning, especially Type III. This study also provides practitioners with an example of how students and an instructor can experience different types of teaching and learning and can co-construct knowledge together. The findings of this study may be applicable to other classroom situations where different types of teaching and learning are being explored. It may also contribute to the literature in such areas of research and theory as student engagement, pedagogy in teaching technology, and student readiness for work.

Study Participants

I conducted this study in an Excel computer applications course at my institution. While this is a sophomore-level course, students from all classification levels take the course, including majors from multiple disciplines and colleges. The students in the course were approximately 60% female and 40% male. Students typically come to the course with varying levels of competency in its content.

Data Collection

I received Institutional Review Board (IRB) approval from my institution prior to conducting the study (see Appendix A). To address my research questions, I utilized multiple data collection procedures as shown in Table 1. The primary mode of data collection consisted of interviews conducted after the end of the course. I regularly recorded my observations of student actions, reactions, behaviors, comments, and expressions (verbal and non-verbal) during class meetings throughout the course, and these observations served as another source of data. I also kept field notes, including my reflections on classroom experiences. The notes identified students' actions but did not identify individual students by name or by any other personal identifiers. These notes became part of the data analyzed for the study. My observations and notes were used as supplements to my analysis of interview results.

Table 1. Data Sources

Collection Tool	Source	Description
Interviews	Research team member	Interviews conducted at the end of the course with participants who volunteered for the study.
Field notes	Researcher	Recorded reflections of interactions among participants, including personal reflections during the process.
Observation	Researcher	Recorded observations of student reactions, comments, expressions (verbal and non-verbal) during class meetings.

At the end of the course, a faculty member (research team member) from the College of Education, Health, and Human Services (CEHHS) or another research team member (advanced doctoral student) agreed to introduce the study to my students and to participate in collecting data. I chose to involve a faculty member and advanced doctoral student from CEHHS for two reasons: 1. They were familiar with the type of study being conducted; and 2. They were not likely to work with participants in any other way prior to or after the study was completed. This helped ensure confidentiality and reduced the overall risk to participants.

The process of identifying participants in the study began on the last day of the session. On that day, I completed the scheduled course activity, requested that the students remain in the room, and excused myself from the classroom. After I left the classroom and returned to my office, the team member stated the purpose for being present and gave students a five-minute overview of the study. The team member stated at the beginning that students were free to leave the class at any time and were not obligated to participate in the study. The team member said that non-participants would suffer no penalty whatsoever, and that students' grades would not be impacted by their decisions to participate or not to participate in the study. No incentives were offered for participation. During that time, the team member also distributed copies of the Informed Consent Form (see Appendix B) to the students and asked them to read it and then the team member answered any questions asked by students about the study. Students choosing to participate were asked to sign and date the Informed Consent Form. They were given a card on which they printed their names and contact information for arranging interviews. Informed Consent Forms were securely stored in the office of the researcher's committee chair, to be kept there for at least three years after the study is closed with the IRB.

Thomas and Pollio (2002) suggested that studies of this type have a range of $n = 6-12$ participants. Because course enrollment was usually 24 students, I decided that if more than 12 students volunteered to participate, a random selection process would be utilized to select a total of 12 participants. If fewer than six students volunteered, this study would not have been conducted. I had planned to only collect data in the first session of the semester; however, only five students in the first eight-week session volunteered to participate. I revised my approved IRB application to include participants from the second eight-week session of the semester. This session covers the same course material and I taught both. After receiving approval, the process of informing students about the study and gaining informed consent was repeated in the second-session course and three more students volunteered to participate. Thus, a total of eight students participated in the research.

The advanced doctoral student team member used the contact information provided by volunteers to arrange for individual interviews that she would conduct. The provision of an outside interviewer helped ensure that I, as the instructor, did not know the identities of students who volunteered to participate in the study as well the identities of students who did not volunteer. I was not in a position to apply undue influence or pressure on students to participate or not participate, or to influence their work in future courses.

The interview protocol (see Appendix C) followed Jacobs and Furgerson's (2012) guidelines as well as information adapted from Rabionet (2011). Interviews were designed to capture students' descriptions of their experiences in the course. The interviewer audiotaped each interview. The interviewer began by asking at least one open-ended question at the outset of the interview, e.g. "Please describe your experiences in this course." This open approach was used to capture, in their own voices, what stood out to the individual participants. The interviewer then

asked follow-up questions to probe for more information related to participants' responses to the opening question. Interviewees were assigned identifiers P1 through P8 by the interviewer.

Upon completion of the data collection, an independent transcriptionist transcribed the interviews. Transcriptions were completed using Microsoft Word with numbered lines for ease of reference. The transcriptionist used the assigned participant identifiers (P1 through P8) to label each transcription. The transcriptionist sent the transcribed interviews to me in the form of Word document files (labeled P1 through P8) via a digital cloud. Upon receipt, I uploaded the files into NVivo software for data analysis.

At no time during the entire process did I know the identities of students who chose to participate or those who chose not to participate. Because this research was started with a first-session course, per university policy, grades are not submitted until the end of the semester. It is my practice, however, to calculate and record final course grades in the Blackboard course site gradebook immediately after the course ends. Students were informed via e-mail when grades had been posted. This was completed prior to the scheduling of interviews of volunteer participants in the study.

A = Analyze: Data Analysis

Using the NVivo program, I carefully and iteratively read through each document and used open coding (Bazeley & Jackson, 2013) to begin my analysis. Open coding refers to the initial phase of the coding process in qualitative research. Strauss and Corbin (1998) described open coding as the process in which “data are broken down into discrete parts, closely examined, and compared for similarities and differences” (p. 102). According to Benaquisto (2008), “The intent of open coding is to break down the data into segments in order to interpret them” p. 582). I analyzed each interview transcript word-by-word and line-by-line to identify and name codes.

I allowed codes to emerge from the data, so none were a priori codes. According to Glesne (2006), data analysis involves organizing what you have read so you can make sense of it. One “must categorize, synthesize, search for patterns, and interpret the data...” (p. 147). “Begin by reading through whatever data you have...Identify what appears to be important and give it a name (code)” (p. 154). I constructed these codes as I analyzed the data. These analyst-constructed meanings are distinguished from indigenous meanings, those from the participants being studied (Patton, 2002).

I used the constant comparison method described by Glaser and Strauss (1967) to analyze participant responses and to identify codes that reflected similarities and differences in the responses. Flick (2014) described this method as a circular process in which codes are compared repeatedly until the analysis is completed. The number of participants’ quotes assembled in each code reflect the similarities of interview responses after I reached a point of data saturation. Saturation is defined by Dey (1999) as “reaching the point where it becomes ‘counter-productive’ and that ‘the new’ discovered does not necessarily add anything to the overall story” (p. 136). Saumure and Given (2008) added that “saturation cannot be achieved through frequency counts but instead must be achieved through an examination of variations within the data” (p. 196).

After this initial review and coding, I used the NVivo program to examine participant quotes across interviews. If a quote appeared in multiple codes, I sought to determine how the codes might be merged or renamed to better reflect the data. Developing codes in the NVivo software program allowed for creating diagrams and conceptual networks that graphically portrayed codes and represented links between codes (Bazeley & Jackson (2013). Finally, I merged the list of codes into themes, or recurring patterns appearing across the eight

participants' interview responses. These themes represented the findings of the study and they are described in Chapter 5.

Ethical Considerations/Minimizing Risks

Participants' identities were protected to the extent possible by the following provisions:

1. I was not present when students decided whether to participate in the study. At no time during the entire process did I know the identities of students who chose to participate or those who chose not to participate.
2. Grades were recorded before the data were collected through interviews.
3. An outside faculty member and an advanced doctoral student conducted the key stages of data collection. Even though this faculty member and advanced doctoral student knew the names of participating students, it is unlikely that either will have any other reason to interact with the participants and thus any risks associated with the students' academic program are minimal.
4. No other personal identifiers were used in the remaining stages of the study, including the dissertation writing stage. Numbers were assigned to refer to participants during the data collection and analysis phases, and used in the dissertation writing stage.
5. All research materials were maintained in a locked office, on a password-protected computer and/or in a locked cabinet at each of the research stages.

I safeguarded participant anonymity by having others solicit for volunteers; having an outside interviewer; utilizing a third-party transcriber; and not soliciting for participants until after final grades were calculated so that no students felt compelled to participate, and no participants felt that what they said could have an impact on final grades.

Data Validity

Glesne (2006) summarized some verification procedures that help to address validity of research data. These include prolonged engagement and observation to develop trust in a

relationship, triangulation, and clarification of research bias. Each of these procedures is discussed below.

This study extended over two course sessions, each an eight-week session, with classes meeting twice a week for one hour and fifteen minutes per class period. While this is a limited time frame, it allowed enough time for trust to develop among and between the participants.

Triangulation involves the use of multiple data-collection methods and multiple data sources (instructor and students) and contributes to trustworthiness of the data (Glesne, 2006). Glesne (p. 36) stated “the more sources tapped for understanding, the richer the data and the more believable the findings.” To understand my students’ experiences, I used participant interviews, conducted by a third party, to explore and understand individual student’s experiences in their own voices. Grant et al. (2008, p. 598) defined “‘credible accounts’ as those that adequately capture the experiences of participants.” These interviews were designed to elicit rich data from the participants’ experiences. Data need to reflect the interests and experiences of the participants. As volunteers, participants should have an interest in the project. In addition to interviews, I used my field notes and observations as data sources.

Positioning myself as a learner helped me guard against confirmation bias, which, according to Nickerson (1998), “connotes the seeking or interpreting of evidence in ways that are partial to existing beliefs, expectations, or a hypothesis in hand” (p. 175). My research goal was to seek an understanding of the experiences of both me and my students while setting aside previous assumptions and expectations. I did not introduce students to the typology of teaching and learning during the semester. This was an intentional effort not to introduce any bias or pre-conceived ideas into the research study. The students were, therefore, unfamiliar with the terminology and process of the different types of teaching and learning utilized in the course.

This lack of familiarity with terms and processes used as part of the course restricted the flow of dialogue and language used by study participants during the interviews. This restriction did not afford me the rich experience of dialoguing with students using Type III terminology.

To include my experiences as the instructor, I recorded my observations of the students, as well as my feelings during and outside of class time. As noted above, I used multiple data sources to counteract threats to validity of the data collection. As a participant-observer, I carefully observed student interactions, was intentionally mindful of verbal and non-verbal actions, and recorded particulars of the students' actions. Through participant observation, I took note of the study setting, participants, and events based on my senses. What I saw, heard, felt, and thought were recorded in my field notes. On an ongoing basis, I analyzed these observations for meaning and looked for evidence of personal bias and assumptions. "Continual alertness to your own biases assists in producing more trustworthy interpretations" (Glesne, 2006, p. 167). I needed to guard against bringing my preconceived opinions into the research setting. This required continual reflection on, and monitoring of, my own assumptions to establish credibility as a non-judgmental participant. These field notes served as one source of data collection for the study.

Lincoln and Guba (1985) asserted that establishing credibility, transferability, dependability, and confirmability aid in creating trustworthiness of research data (Bryman, 2008). Each of these elements is discussed below.

Credibility can be defined as confidence in the truth of the findings (Guba & Lincoln, 1994) and acknowledges there are multiple accounts of social reality. The goal of trustworthy research is to confirm that the researcher correctly understood the social world. Findings in my

study were developed without any knowledge of which students participated in the study and were based on the participants' own descriptions of their experience.

Transferability refers to showing that the findings have applicability in other circumstances. Lincoln and Guba (1985) recommended producing a rich description of a research setting to assist in the determination of whether findings are valid in other situations. Since findings of this study were based on students' experiences, the findings should be applicable to other teaching and learning contexts across disciplines and settings.

Dependability, or reliability, of the research findings relates to showing that the findings are consistent. To protect the dependability of my data, I recorded timely field notes, developed interview questions to be used consistently for every participant, and used uniform coding procedures. In discussing reliability or consistency, Merriam (2009) explained, "The more important question for qualitative research is *whether the results are consistent with the data collected*" (p. 221).

The issue with the element of confirmability is that the researcher's interpretations be reflective of the participants' perceptions. This requires that the researcher account for any biases by being open and honest about them and acting in good faith. By reflecting on my past experiences in teaching and learning, I identified my assumptions and worked hard to set them aside. I neither informed students in advance of my intent to study different types of teaching and learning in the course, nor did I provide them any training on the subject. This allowed for objectivity as the findings of the study were based on the participants' own account of the experience.

A limitation of this study was the potential bias created by my position as both the facilitator and the researcher. In my role as researcher, I had to continually reflect on my

subjectivity related to the course I teach and how my role as instructor might influence my research. Recognizing this need, I recorded field notes to reflect on my various roles within the situation. In participatory action research, “the reality we all see is based on our understanding of the world, which is, in essence, self” (Mehra, 2002, p. 8).

Glesne (2006) described “member checking” (p. 38) as one verification procedure to augment the trustworthiness of research. This procedure includes sharing information gathered in the research as well as analyses of the data with research participants to ensure that “you are representing them and their ideas accurately” (p. 38). Since I did not know the identity of the study participants, I was unable to use this procedure.

Chapter 5 includes findings of the study.

Chapter 5: Findings

This study sought to examine the experiences of students and instructor in a computer applications course in which the pedagogy was changed to encourage additional interaction among students and between students and the instructor. In this chapter, I identify the findings developed in the analysis of the data. The findings are presented in terms of five areas: Atmosphere, Time, Connection, Process, and Transferability. Included are quotes from the participants' interviews that illustrate each finding. My interpretation of findings was augmented using my recorded classroom observations and field notes.

Atmosphere

Participants used “friendly,” “open,” “comfortable,” and “accessible” to describe the learning environment in the course. Creation of a space where participants feel safe and comfortable is important to learning. Participant comments below reflect how this space was created from the beginning of the course.

P1:

We also had to comment on two other people's blogs just to kind of get to know the class so it would not be so unusual and not as friendly I guess, quiet all the time. So it was nice. You end up meeting some people, talking to people, instead of just showing up to class and leaving.

P2:

Just thought it was really nice and like I said the class was a lot smaller and it was just really beneficial because it is a lot easier to ask questions then and there. It is just a lot less intimidating for me. It was just easier to learn that way, just being in a more comfortable setting like that. Because it was a smaller class I got to know people really well.

P3:

Everyone was very friendly. You felt like you were at home. There was no this part of the room was on this side and that part of the room, it was very open, you could feel free to ask questions, you did not feel like you were isolated...we learned it, but it was fun, how we learned it and like it is going to be with us.

P4:

Think that is mostly because of the way, she taught. She did not just give us the assignments and have us do them.

P6:

Just talking, socializing, getting to know another person. I can go to class and I would be like, Oh hey there is that person I saw the other day...it makes me more willing to actually want to go to class.

P7:

It is very comfortable. You get to know the people around you since this is a small class. It is a nice atmosphere. We got to introduce ourselves to the class and we got to know each other better as far as students go. Whenever she talks about class you can tell she likes what she does. So, I think that is really nice. So, I did not feel like I was alone. I know it might sound funny but it makes me feel not so dumb.

P8:

I could tell she was trying to make the class accessible to any level. Her positivity kind of went throughout the whole class ...because she looked at it with such remarkable positivity and just always came in with a smile, it made every student kind of want to match that just a little bit more...it really enhanced the learning experience.

Time

The element of time was mentioned by participants as it related to time spent in the classroom. References were made to how the in-class time was used for completing assignments as well as time spent getting to know each other. Time is an important element in learning. Taking time to get to know one another as well as allowing adequate time to complete assignments are important to the overall experience in the classroom. Comments from participants on the element of time are listed below.

P1:

So I guess you can say it was really nice knowing what to expect after the first or second section you realized okay this is how the class works, so I can structure my time around that. It was almost mind-blowing in a way how much time I could have been saving and how easy it actually was to use Excel.

P2:

I thought it was a good amount of time.

P3:

Because if everyone did not understand the concept, of course we are going to take more time...Because she gave us plenty of time.

P4:

Because she did take so much time to stop and explain things, sometimes the class seemed to go a little slow.

P6:

We can take our time in learning it and if we need extra help it is there for us.

P7:

We got to introduce ourselves to the class and we got to know each other better.

P8:

Because she does work very slowly through problems.

Connection

This finding included participants' expressions about instructor-to-student interactions as well as student-to-student interactions. There was considerable discussion of student-to-student interaction, such as asking another student for help or providing help to another student.

Developing relationships among the instructor and students contributes to learning and aids in the transfer of responsibility for learning to students. Participants used the terms "relationships," "more personable," "peer interaction," and "support" in their interviews. Below are some examples from the participants' interviews.

P2:

In a bigger class, it is a lot more intimidating and then you do not really have that professor-student connection as much because there are so many people. This was more personable. You kind of get to know the people around you and then they can help you, and she helps you out, the student assistants help you out. It is just, it is just a lot more beneficial, I feel like. If you ever had a question you could just ask somebody next to you and they would help you out too.

P3:

Well everyone is kind of in the same boat...

P5:

Everyone would kind of help each other out, if one person missed a problem you could ask the person next to you or the TAs [teaching assistants] that were in there for help and they would help you and the instructor would be very helpful with how to do it and she would go at a good pace during the lectures and the projects to be able to learn it.

P6:

But that was pretty fun getting to talk to other students, seeing how they did things. Just having all that peer interaction also was pretty fun. If you are learning about the same topic with another person you can see that person's views on the topic from a different standpoint that you might have not thought about. So, it gives you sort of like a new way of seeing things. If the person had like a new, different way of doing things, something that was easier than my way, then I would just do that way.

P7:

Since you are sitting next to them while you are doing the assignment if you need help and they have already went past that point you can ask them for help, it is not a restriction as far as if you needed more assistance and you wanted guidance from another peer you could ask. To ask a peer for help even though the teacher might have already explained it a certain way it is different to get a student's perspective because most of the time students think on the same plane rather than teachers because they have done it so often. It is like they might not know how to explain it a little, I guess, more simple...that peer-to-peer relationship that we created.

P8:

And that you had other, you had support...you just had pretty much anything you might need. As I check with a student next to me, neither of us is really going to have more knowledge than the other...and so as were saying, hey what did you get, this is what I got, then I am saying, well I got this because this is what I did...so I have to explain my reasoning to them as they explain their reasoning to me and then that way we can kind of go to a deeper level of reasoning...it is a deeper connection than just seeing it

and taking, Yeah, she knows what she is doing, I will do that too. Working with the people around me was very beneficial. Whenever I was confused and usually it was small things, but it was so nice to have a TA who could come over and look at it and point it out and explain.

Process

Process referred to how the course was designed, organized, and taught. It is important to consider the process of how learning takes place as well as the content being learned. To create a process-oriented classroom experience, the incorporation of both process and content is needed. This included both *how* students and I learned and *what* we learned. In addition to learning the mechanics of operating the Excel software, we co-created new understanding of Excel concepts as well as new ways to apply the concepts in educational and workplace situations. Below are participants' comments regarding the process of the course.

P1:

Structure was laid out very well. It was really nice knowing what to expect after the first or second section you realized this is how the course works, so you can structure your time around that. It still gave you enough freedom that if you kind of got slowed up on something, you could always raise your hand and the TA would come up to you and explain through that and you could get caught right back up with everyone. And even if the TA's were not available, she was happy to kind of slow the pace down a little bit more for the class because a lot of times if one person had a question, a few other people did as well so she would go back over that step which was very nice. I guess because it did go at the pace it did, it was easy to kind of let it sink in a little bit...so you had time to process what you were learning in class.

P2:

I thought it was really helpful that she went through the exams and projects with us so that we knew what was expected on the homework. So she taught it and then you had to do it hands on yourself, which I thought was a really good method.

P3:

I liked the process, I really did. Because, it gave you a chance to, I guess introduce yourself to... okay you did it, I read it, I somewhat understand it, but I do not have to absolutely understand it all the way because we are going to sit down and we are going to talk through it. So it was fun to like be able to sit down and see all the stuff that it can do. It is amazing that you can put this information in and then it pull it up and it narrow it down. So, I guess it was just fun to see the actual software itself work. . .you actually got to see it unfold...hands on.

P4:

When we were doing projects in class, she would do them along with us...So that if we got stuck on something or had a question she was already there with us and she could show us on her screen, how to do it and explain to us, why we are not really understanding it and help us, understand how to do that part of the project. So, that was really helpful. We could also look around in the program and just see what different tools and functions there are in the program that we could use and we could just play around with it and see what everything actually does and that gave us an opportunity to figure things out for ourselves--no permanent damage if you were to do something wrong, but opportunity to try. We were progressively doing something different and going deeper into Excel as the class went on.

P5:

It was kind of like almost two similar projects and so the first one you would work together...And then the next one you would kind of do on your own to see what you really learned. She would actually let us work for it and try to answer it.

Transferability

The participants' words related directly to applicability and transferability of the knowledge gained in the course. Not only acquiring new knowledge and skills but also being able to transfer that knowledge and apply it to different situations is important to participants' other courses, personal lives, and future careers. Participants' comments below reflect how this finding stood out as important.

P1:

If I knew that the first few times I took a biology lab it would have saved me hours of time because you have to just type all of the equations again and also like making templates for things that you are going to be using the same calculations for, just plugging in different numbers, I learned how to do that.

P2:

We are just in a world where computers are very relevant and a lot of jobs require that sort of thing like knowledge of Excel, or just like Word, or any of that stuff. So, I felt like it is really beneficial to me that I know how to do like all that Excel stuff plus more now that I took the class. I took a lot of science classes and they all required Excel in the lab and I feel like if you took that Excel class first then you just would have probably excelled.

P3:

It was very helpful in other classes, like chemistry, we did Excel for our labs. It was real-life situations that, you can actually use and it makes sense. It gave you pretty much real-life examples.

P4:

I think this class was a really good class to just have because of the skills that we got from it...it is something that we are going to actually be using in our life. I actually learned how to use it and I feel confident now that I can take what I learned in the class and actually apply it, instead of just learning it in the classroom and then forgetting about it. It is definitely very applicable to life and in careers. Really glad that I got the chance to take the class because it is useful and helpful in real life.

P5:

I thought it was good to actually be doing something that I could see as useful in the future. I wanted to learn actually how to do it. I remember helping a friend of mine who was using Excel for a different class, and I remembered a few tips and tools that I learned in that class to be able to help my friend. It was good to get that outside knowledge...good for me because I felt like it was useful.

P6:

What I really like about it was we had like plenty of chances to just put what we learned into use...it was pretty interesting learning about how that very project can be used in the actual world in a way that is useful.

P8:

I had no idea how to do graphs and I definitely did not know how to make them look good so I think the whole class was a good learning experience, but having that experience of, in another class, being able to so quickly be able to use the tools that I would been given and to see it actually affecting like the rest of my academic career...And that was two days after we learned about graphs. I obviously needed that information so badly.

Connections Between Findings and Research Questions

My first research question, *How do students and I experience different types of teaching and learning in the course?*, was addressed, from the students' perspectives, by the themes in participants' answers to the interview questions and, from my perspective, by my reflections on my recorded field notes and observations. Although the participants did not make specific references to different types of teaching and learning, the comments made reflected some elements of the different types that I used in the class. Students were not provided any information on the typology of teaching and learning to be used in the class. However, the participants used the terms "friendly," "open," "comfortable," and "accessible" to describe the atmosphere in the class. Participants also reported that they felt comfortable in the classroom partially because of the time spent developing relationships among students and between the students and me. These descriptions fit into the creation of dialogical space, an element of Type III. Participants used the terms "relationships," "more personable," "peer interaction," and "support" in their interviews. Student interaction could be a descriptor for Type II and Type III teaching and learning.

My second research question, *How does the incorporation of these types of teaching and learning contribute to student learning outcomes and teaching improvement?*, was also answered

through analysis of the data collected. Student learning outcomes identified in the syllabus for the course were:

1. Demonstrate a competent skill level in the use of Excel computer application
2. Integrate skills for problem solving, teamwork, communications, and critical thinking by examining how applications apply to real-life situations
3. Design team projects in which to apply computer skills
4. Translate computer skills to case problems
5. Critique work through self-diagnostic skills

As evidenced by participants' responses to interview questions, students were able to demonstrate a competent skill level in the Excel computer application by repetition of completing assignments in class and then completing outside-of-class assignments to demonstrate knowledge of the software. Participants also reported on the utilization of teamwork, communication, and problem solving skills in completing some assignments in class. The assignments involved simulated real-life situations in which students were given files with descriptions of the "company" and situation in which they were operating. Participants acknowledged the benefits of applying computer skills gained in the course to other aspects of their coursework as well as daily life. Other participants noted that they would be able to use this new knowledge in future careers.

Summary

In summary, I found that what stood out for the study participants included the positive learning atmosphere created from the beginning for the course. According to the participants, the time spent getting to know one another contributed to this atmosphere. Closely related to these two findings were the connections made between me and the students as well as among the

students. Also, important to the participants' experience was attention to the learning process and the transferability of the knowledge and skills acquired in the course.

The next chapter explores themes that emerged from the study data.

Chapter 6: Discussion and Conclusions

In the previous chapters, I described the situation of my course, analyzed why and what I wanted to study about the practice, theorized about my practice, identified my research questions, designed the study, analyzed the data, and reported findings. In this chapter, I will discuss what the findings mean in terms of my practice as well as implications for related research and theory. I begin this chapter with a synopsis of the study.

Synopsis of the Study

Research has shown that active classroom engagement increases the learning performance of students in higher education (Cross, 2000; Reese, 2013). This study sought to examine the experiences of students and instructor in a computer applications course in which the pedagogy was changed to encourage additional interaction among students and between students and the instructor. The goal of the study was to generate useful, practical knowledge (Reason & Bradbury, 2001) to help the instructor better understand her pedagogy with the intention of improving both her teaching practice and student learning outcomes, as well as to contribute to related literature in adult education, collaborative learning, and research on effective pedagogies in higher education. The study addressed the following questions:

1. How do students and I experience different types of teaching and learning in the course? and
2. How does the incorporation of these types of teaching and learning contribute to student learning outcomes and teaching improvement?

In order to determine how students described their experiences, volunteer participants were interviewed within one week of the course session's end. Participants' responses were recorded, analyzed, and compiled into the findings identified in Chapter 5. Through analysis of

the participants' interviews, I discovered what stood out for students in the class experience. I examined my own experiences using field notes and classroom observations during the term.

Summary of Findings

What stood out for the study participants was the positive learning atmosphere, the time spent getting to know one another and to learn the process, the connections made between students and me, as well as the connections among the students, the attention to the learning process, and the transferability of the knowledge and skills acquired in the course. As I reflected on these areas of importance to students, the following themes emerged from the data: "Creating a positive learning atmosphere," "Taking time," "Making connections," "Attending to process," and "Transferring knowledge and skills." These themes were supported by the participants' own words. In addition to analyzing the participants' interviews, I also used my notes regarding the experience.

T = Theorize: What do the findings mean to my practice?

Connections with other Studies

My study built on the research of Gray (2008), who used three types of teaching and learning in a community college composition course to examine narratives students had about themselves and the connection between those narratives and students' experiences of Type III activities. Gray's conclusions linked the use of Type III to a process-oriented class experience that, in turn, lent itself to the meaning-making of college writing. She found that Type III contributed to the creation of an open, comfortable classroom environment and generation of new ideas. I also found that students and I enjoyed having a comfortable classroom with interaction between and among us. Students and I found that more emphasis on the process of the course stood out in our learning experience.

Most closely related to my study was a study by Merrill (2003) that described the Type III experiences of a community college instructor and her students in an information technology course. Merrill posits that “the addition of collaborative learning to the course design enhanced students’ learning experiences and led to changes in the instructor’s practice” (p. vii). Her analysis indicated that the incorporation of Type III into the course helped to create a comfortable classroom environment, built relationships between members of the group, and helped to understand other’s perspectives. My study built on this research by examining the experiences of the students and instructor as co-learners in a similar course and provided another example of the implementation of three types of teaching and learning. I also found that incorporating Type III into the course aided in the creation of a comfortable environment that, in turn, stood out for the students as a good experience. Students also reported that taking time to build relationships and make connections with one another, and with me, stood out for them.

Merrill (2003) found the theories of Peters and Armstrong’s (1998) Types of Teaching and Learning, Peters’ (2002) four elements of Type III, and Isaacs’ (1993, 1999) concept of dialogue a workable conceptual base from which to facilitate Type III. These theories helped form my practical theory and supported this study as well. Merrill recommended a blended approach in utilizing three types of teaching and learning. In my study, while some assignments were designed to implement a specific type of teaching and learning, I was able to move between the types depending on the content of the material being covered in each portion of the class. For example, some portions of the class, such as the introduction of new concepts, lent themselves more toward Type I because of the technical nature of the content (Bloom, 1956). Once this basic knowledge had been presented and comprehended, students were able to begin to move up the taxonomy to *application*, *analysis*, and *synthesis* of the new information.

Merrill (2003) stressed the importance of establishing open and trusting relationships among the group. I worked diligently to establish and maintain these relationships with and between students. My study participants described the relationships in my course as “open” and “comfortable.” Similar terms were used by participants in Merrill’s study. Participants in both studies described the atmosphere as “comfortable.” The participants in both studies also expressed that taking time to establish connections was important to them. As trusting and open relationships develop, students and instructors are able to move beyond the Type I roles and, therefore, more Type II and III teaching and learning can be incorporated into the class and assignments. In computer applications courses, such as the ones I teach, students must first have a basic knowledge of how to make the software program work and which button to push to get the desired result before they can expand that knowledge to new ways of using the software. Merrill also stressed allowing time for students to share responsibility for facilitation of Type III. She found the most value in Type III as a way to help students learn to learn the course content (how to learn, not learning content), how and when to use each type of teaching and learning, and how to assess what was collaboratively learned. Another aspect was to use Type III to learn how to apply the computer concepts. While learning basic structure and commands of the software are fixed, how the software is applied can be collaboratively co-constructed.

Other studies with similar results to my study showed that Type III teaching and learning is new and difficult for students, especially in the beginning of such an experience, and that students need time to adjust to different relationships with one other and with the instructor (Armstrong, 1999; Burress & Peters, 2015; Creekmore, 2011; Crosse, 2001). My findings were also in accord with the research done by Crosse (2001), who found that positive interpersonal relationships within a classroom aid the dialogical learning process; and, likewise, participating

in a dialogical learning process promotes positive interpersonal relationships. Crosse also found that students were dependent on the instructor as the sole source of knowledge at the beginning of the course, which was the same experience I had with my students. I agree with Crosse's observation that the instructor needs to be aware of group dynamics and must attend to interpersonal relationships of the group.

Connections among Themes and Elements of Type III

As discussed in Chapters 1 and 2, the elements of Type III include dialogical space, focus on construction, cycles of action and reflection, and multiple ways of knowing. Each element is discussed below as it relates to my study themes.

Dialogical space. The themes from my study of “Creating a positive learning atmosphere,” “Taking time,” “Making connections,” and “Attending to process,” related closely to the creation of a safe, comfortable dialogical space for learning. Participants commented on the time taken to get to know one another and how this created a comfortable, relaxed atmosphere that encouraged them to learn. Although students are initially confused and sometimes frustrated by the new atmosphere, it takes time and effort for most participants to adjust to their new roles (Burrell, 2013; Crosse, 2001; Long, 2016; Tisue, 1999). Developing relationships between instructor and student, as well as among students, also contributed to the learning environment. Under the theme of “Attending to process,” participants commented on how the class was structured, how time impacted the process, how the class worked through tasks together, and how these contributed to a learning space. Also included were comments about the relationships created. Alderton (2000) and Dillivan (2004) reported that time impacts how students experience Type III and the ability to form a cohesive group in a short time. They also showed that participants experience frustration with the dialogue process early in the course.

Focus on construction. The emphasis on constructing new ways of using the Excel software relates to the element of focus on construction. As co-learners, the students and I were able collaboratively to discover different ways of approaching a project. We could work collaboratively in small groups to co-construct new knowledge of how to utilize the Excel software to complete a project. In the theme, “Attending to process,” participants noted that knowledge was shared among students.

Cycles of action and reflection. As the course progressed, students read assigned texts, created blogs, completed assignments along with me in class, and then completed additional assignments outside of class. In this process, students experienced cycles of action and reflection as they completed an assignment (action) in class, discussed the assignment with me and other students, and thought about and applied the knowledge gained from that assignment (reflection) to the completion of the next task. At the end of the course, I asked students to complete a course reflections journal entry. Because the design of my study precluded my knowing which students volunteered to participate, I was unable to use these reflections as data sources for the research. In my role of instructor, I experienced cycles of action and reflection as I prepared for class, experienced Type III in class with the students, and reflected on the experience. As I thought about each assignment in preparation for class, I reflected on my experience with students in completing the assignment. I thought about optional ways to approach the assignment to incorporate more Type II and III teaching and learning into the course. After completing the assignment in class, I reflected on the experience and how it might be changed in the future. I incorporated student comments into my reflection.

Multiple ways of knowing. Multiple participants remarked about repetition as a good way to learn. Several participants noted the benefit of working with other students who presented

multiple perspectives and ideas. Being able to consider different viewpoints acknowledges the Type III element of multiple ways of knowing. The theme of “Transferring knowledge and skills” also emerged from participants’ comments about utilizing the practical knowledge gained in the course in other aspects of their coursework as well as in daily life. Other participants noted that they would be able to use this new knowledge in future careers. These aspects of transferability were also noted in the theme, “Attending to process.”

I was encouraged to learn from participants that they recognized the transferability of the skills learned in the course. Sometimes, it seemed that students wanted to just get through the material, complete the assignments for the course, and then forget what they learned. However, participants in this study noted the usefulness of knowledge and skills from this course in other courses, personal life, and future jobs. Being able to apply skills in different situations is an important aspect of education. Krathwohl’s (2002) revision of the Bloom Taxonomy contains the categories of remembering, understanding, applying, analyzing, evaluating, and creating. The findings of this study relate to the taxonomies in that students experienced moving up the hierarchy which allowed them to apply skills learned in this course to new situations, analyze and evaluate the results, and thereby, create new learning opportunities.

My Reflections Based on Field Notes and Observations

As I approached the start of the course, I recorded notes about my feelings of both excitement and apprehension. I was excited to experience different types of teaching and learning with my students. However, I was also fearful of the unknown. As an instructor, I am always ultra-prepared. I study the material to be covered in each class and complete the assignments that students will be working on so that I am prepared for any question. As I planned to introduce Type III teaching and learning to the students, I had to be willing to

relinquish some control over what happened in class. This was hard for me. I noted my “fear of the unknown and not being able to prepare for that aspect of teaching.”

I am also averse to change, so I was concerned about changing my teaching process, lest the changes produced negative outcomes for students and me. I had previously followed a mostly Type 1 format for teaching. I approached this course by intentionally incorporating different types of teaching and learning into my pedagogy. I had to step out of my comfort zone and overcome, or at least set aside, my fear and be willing to take risks to experience Type II, and especially Type III, teaching and learning with my students.

The challenges associated with incorporating new teaching and learning types were varied and included practicing the new instructor and student relationships, which in turn demanded that I focus more on moment-to-moment classroom interactions. I was also concerned about how I would react to the process of co-constructing new knowledge that I could not specify in advance. I knew I would have to move away from my previously long-held role as the sole knowledge keeper in my classroom. Although I understood the need to help students be more responsible for their learning, it was a major change in how I viewed my role and the way knowledge is created.

I learned to be much more self-aware and mindful of the influence of my assumptions about teaching and learning through coursework in the CL program. It is hard to put aside basic assumptions I have held most of my life, such as the assumption that the instructor is the one with the knowledge that is passed on to students in the classroom. Suspending this assumption to allow students to be more active in their learning and to become a co-learner with them is difficult and sometimes unsettling.

From my perspective, students and I were able to foster a dialogical space that was conducive to Type III teaching and learning. Based on the participant comments and my notes, it was a safe, comfortable environment. Although participants did not use the language of Type III in their descriptions of the experience, I concluded that we did experience Type III in at least one episode as described in the Type III section of Chapter 3. When we worked in small groups on a project, I joined a group as an intentional co-learner. After the project was completed by each group, I facilitated a whole-class session in which we dialogued about the experience, including how each group approached and completed the task. Groups used various approaches and processes that utilized their collective knowledge and experience.

As the course progressed, I became more comfortable with Types II and III. Overall, I am convinced that my fears and reservations were far outweighed by the benefits gained. I grew as an instructor and a person because I forged ahead into new territory, despite my anxieties, and practiced new teaching and learning types with my students. I am more confident and a better instructor and facilitator of my own and others' learning. I look forward to continuing to grow and learn alongside my students.

Conclusions

From these participants' comments, along with my notes and observations, I concluded that while the students and I experienced all three types of teaching and learning, we were able to create a dialogical space that was conducive to Type III teaching and learning. The environment created felt safe to both me and the students.

In the absence of training on the typology of teaching and learning, participants did not use terminology associated with Type III to describe the experiences in the class. I was, however, able to associate some of the comments with the elements of Type III. I, therefore, depended on my notes and observations, as well as these associations, to conclude that together we

experienced Type III. A focus on construction was evident to me in the one class assignment described above. The small groups described how they collaboratively completed the assignment, which was designed to be a Type III experience, by pulling in knowledge from each member, asking each other to contribute, compiling the collective knowledge, and putting the pieces together to complete the assignment. In the small group in which I participated, each member of the group, including me, contributed knowledge to the group and we were able to co-construct knowledge as a group in order to progress step-by-step through the assignment. None of us knew at the start how we would complete the process. In this instance, Type III was effective in engaging students and me as co-learners in the construction of new knowledge on how to utilize the Excel software. From my perspective, both students and I appeared to embrace at least some of the elements of Type III.

Participants' responses to interview questions indicated that they experienced elements of CL in the class. Themes developed from the data support that what stood out for students were the positive learning atmosphere, time spent getting to know one another, increased interactions among students and between students and the instructor, attention to process, and the transferability of knowledge and skills developed during the course. Without data from previous students, I cannot definitively compare outcomes; however, I observed that the students and I created more connections, felt more comfortable, and interacted more as co-learners than I had previously experienced or observed with my course.

From my perspective and based on my researcher notes, introducing and using different typologies provided me the challenge I desired in my teaching and gave me the opportunity to grow as an instructor. As a co-learner with my students, I was better able to engage in learning with them and, I think, improve my teaching. Ultimately my goal as an instructor is to help

students take ownership of their education and learn to teach themselves and each other. In analyzing the findings of my study, I reflected on what the collected data revealed about my practice.

Act: Revisions to Pedagogy

The results of an action research project are intended to help the practitioner-researcher re-examine his or her practice and practical theories. Based on the findings and conclusions of this study, I expect to make changes in the design and delivery of this course in a continuing effort to enhance student learning outcomes and improve my teaching pedagogy. I propose making similar changes in other courses I teach as well.

For example, I plan to continue utilizing different typologies of teaching and learning in my Excel course. To expand the use of Types II and III, I would like to introduce all the typologies to the class earlier in the course. Giving students some information about the different types of teaching and learning to be utilized in the course should contribute to a better understanding of what we will do together and enhance the experience. Being familiar with the language used in describing the types of teaching and learning should allow my students and me a richer dialogue as we work together to construct new knowledge. Moving to Type III earlier in the course will provide more opportunity and time to experience this type of teaching and learning.

I also want to add more projects in which we can experience Type III as a group of learners. I plan to revise my schedule for the course to introduce Type III earlier so we can gain more experience with this type of teaching and learning. To accomplish this goal, I will need to revise my course schedule to cover basic information on how to use the software application more quickly at the beginning of the course. My student survey will provide information about what, if any, experience students have with the application, which can inform my decision on

how much time is needed for basic Excel skills development. Once students are comfortable with the mechanics of Excel, we can move into applying that knowledge to projects. I plan to ask students to bring projects to the class, such as a spreadsheet needed for another class, a personal life situation, or an idea about a spreadsheet that might be required on a job. By utilizing students' input on these projects, I will be giving students opportunities to contribute to the course content. We would then complete these projects using a Type III approach as a group of co-learners.

I look forward to the opportunity to further my skills as a co-learner, as well as a facilitator in Type III. After some additional experience with facilitating Type III, I also plan to introduce these changes in the other course I teach. I want to utilize Type III along with Type I and II teaching and learning in the future because this study showed elements of Type III, specifically creation of a dialogical space and construction of new knowledge, were positively received by students. I also enjoyed these aspects of the class. I also want to help students be better prepared for work and other classes by giving them experience in team building, critical thinking, and communication.

Areas for Future Research

This study has the potential to contribute to literature in adult and other learning environments by providing an example of how students and instructor can experience different types of teaching and learning and can co-construct knowledge together. The results of this study can also help make a connection among computer applications, action research, collaborative learning, and other learning situations.

To enlighten my decisions in the future, I would like to continue research with students in my classes. Gaining student input on how and what to teach would help me make informed decisions about revisions to my pedagogy. I also plan to publish my research in literature in the

fields of action research, adult learning, CL, and computer learning. I will also explore others' research especially in computer learning.

I am aware of only two such studies, Merrill's 2003 study and my study, that were conducted in computer technology courses. It would be beneficial to conduct additional studies in this area to further the literature on student and instructor experiences with different types of teaching and learning. Similar research on courses throughout higher education could enlighten us on how best to learn together with our students. Additional research can help instructors and students become more familiar and comfortable with the different types of teaching and learning. As practitioners, we can continue to research and apply results in our courses for continuous improvement in our teaching.

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Appendices

Appendix A - IRB Approval Letter

THE UNIVERSITY of TENNESSEE 

KNOXVILLE

Office of Research & Engagement
INSTITUTIONAL REVIEW BOARD (IRB)

1534 White Ave.
Knoxville, TN 37996-1529
865-974-7697
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October 6, 2015

Emily C Gray
UTIA - RES-College of Agriculture & Natural Resources
118 Morgan Hall
Campus-4500

Re: UTK IRB-15-02472-XP

Study Title: Experiences of Students and the Instructor with Three Types of Teaching and Learning in a Redesigned Computer Applications Course

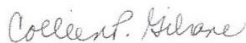
Dear Ms. Gray:

The Administrative Section of the UTK Institutional Review Board (IRB) reviewed your **application** for the above referenced project. It determined that your application is eligible for **expedited** review under 45 CFR 46.110(b)(1), categories (6) and (7). The IRB has reviewed these materials and determined that they do comply with proper consideration for the rights and welfare of human subjects and the regulatory requirements for the protection of human subjects. Therefore, this letter constitutes full approval by the IRB of your application version 1.2, as submitted. Approval of this study will be valid from October 6, 2015 to October 5, 2016.

In the event that subjects are to be recruited using solicitation materials, such as brochures, posters, web-based advertisements, etc., these materials must receive prior approval of the IRB. Any revisions in the approved application must also be submitted to and approved by the IRB prior to implementation. In addition, you are responsible for reporting any unanticipated serious adverse events or other problems involving risks to subjects or others in the manner required by the local IRB policy.

Finally, **re-approval** of your project is required by the IRB in accord with the conditions specified above. You may not continue the research study beyond the time or other limits specified unless you obtain prior written approval of the IRB.

Sincerely,



Colleen P. Gilrane, PhD
Chair

Appendix B – Informed Consent Form

Informed Consent Form

Experiences of Students and the Instructor with Three Types of Teaching and Learning in a
Redesigned Computer Applications Course

INTRODUCTION

You are invited to participate in a research project to study and describe the experiences of students and instructor in a redesigned computer applications course. By studying these experiences, the researcher hopes to gain a better understanding of her teaching practice and contribute to the literature in the areas of teaching and learning, reflective practice, and action research.

INFORMATION ABOUT PARTICIPANTS' INVOLVEMENT IN THE STUDY

If you volunteer to participate in this research project, you will be asked to participate in a semi-structured interview about your experience in the course. The interview will be conducted by a member of the research team. The interview will be held in 613 Greve Hall on the University of Tennessee campus and will be audio taped. The interview is expected to last approximately 45-60 minutes.

RISKS

You may decline to participate without penalty. If you volunteer to participate in this research, there will be minimal risks, including potential undue influence or breach of confidentiality, to you. Your participation in this research is voluntary and you may withdraw from the study at any time without penalty or bias.

If you choose to participate in the study, your identity will be protected to the extent possible by the following provisions: 1. The researcher will not be present when students decide

whether or not to participate in the study. At no time during the entire process will the researcher know the identities of students who choose to participate or those who choose not to participate.

2. Final course grades will be calculated and recorded in the Blackboard (Online@UT) course site gradebook immediately after the course ends, and students will be informed via e-mail when grades have been posted. This will be completed prior to the scheduling of interviews of volunteer participants in the study.

BENEFITS

You may stand to gain additional understanding of your course experience by reflection on and sharing your experience with the interviewer.

CONFIDENTIALITY

If you volunteer to participate in this research project, you will be asked to participate in a semi-structured interview scheduled after the course has ended and to occur after grades for the course have been recorded. The interview will be conducted by a member of the research team. The provision of a research team member as the interviewer will help ensure that the instructor does not know the identities of students that volunteer to participate in the study as well the identities of students who do not volunteer. The research team members from CEHHS were chosen for two reasons: 1. They are familiar with the type of study; and 2. They are not likely to work with participants in any other way prior to or after the study has been completed. This helps ensure confidentiality and reduces the overall risk to participants. Members of the research team will conduct the key stages of data collection. Even though these research team members will know the names of participating students, it is unlikely that either will have any other reason to interact with the participants and thus any risks associated with the students' academic program are minimal.

Numbers will be assigned to participants by a random selection process, and these numbers will be used instead of the student's name to identify each audio tape. An independent transcriber, employed to transcribe the audio tapes, will use the number assigned to each audio tape for purposes of labeling transcriptions of the tape. The transcriber will be required to sign a pledge of confidentiality. No other personal identifiers will be used in the remaining stages of the study, including the dissertation writing stage. Numbers will be used to refer to participants during data collection and analysis and then converted to pseudonyms in the dissertation stage.

The audio tape will be kept in a locked cabinet in the CEHHS research team member's office, 519 Bailey Education Complex, until all interviews have been completed. The interview transcripts and the researcher's field notes will be the data for this study. All electronic research files will be maintained on a password-protected computer in the researcher's locked office and transcripts, notes, and all other research materials will be kept in a locked cabinet in the researcher's office in Room 118, Morgan Hall. Informed Consent Forms will be securely stored in the CEHHS research team member's office for three (3) years after the study has been closed with the IRB.

COMPENSATION

No incentives will be offered for your participation.

CONTACT INFORMATION

If you have questions at any time about the study or the procedures, (or you experience adverse effects as a result of participating in this study,) you may contact the researcher, Emily Gray, at University of Tennessee, 2621 Morgan Circle, 118 Morgan Hall, Knoxville, TN 37996-4500, and 865-974-8502. If you have questions about your rights as a participant, contact the Office of Research Compliance Officer at (865) 974-7697.

PARTICIPATION

Your participation in this study is voluntary; you may decline to participate without penalty. If you decide to participate, you may withdraw from the study at any time without penalty or bias. If you withdraw from the study before data collection is completed your data will be returned to you or destroyed.

CONSENT

I have read the above information. I have received a copy of this form. I agree to participate in this study.

Participant's signature _____ Date _____

Investigator's signature _____ Date _____

Appendix C - Interview Questions

Initial Question

Please describe your experiences in this course.

Potential Follow-Up Probing Questions

What contributed to your learning?

Describe a good learning experience you had.

What detracted from your learning?

Describe a poor learning experience you had.

What could be done differently to enhance your learning experience?

What have we not talked about that you would like to share about our learning experience?

Vita

Emily Carter Gray was born in Knoxville, TN, the third of five children. At a young age, Emily's first thought related to her career was her desire to be a teacher. Emily initially completed the two-year Office Administration program at the University of Tennessee, Knoxville (UTK). While working at Oak Ridge National Laboratory (ORNL), Emily continued her education at UTK taking evening classes. Emily earned her B.S. degree in Business Administration in 1983. After this accomplishment, Emily moved from an office assistant position into the finance/accounting arena. Returning to UTK, Emily earned her MBA in 1991, with the goal of teaching. While working 21 years at Oak Ridge, Emily taught evening classes at Pellissippi State Community College (PSCC). In 1995, Emily took a part-time job teaching Accounting and Office Systems Technology classes at PSCC. This job led to her current job at UTK in the College of Agricultural Sciences and Natural Resources (CASNR) where she teaches Microsoft Office computer applications courses. Emily loves teaching and working with students. In addition to teaching, Emily provides career-related services to the CASNR students.

Emily and her husband, Larry, have three children and eight grandchildren.