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Focusing on Social Presence in an Electronics Course at a Two-Year College: An Action Research Study

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Dedication

I dedicate this dissertation to my grandmother, Rosa G. Shiver. She always encouraged me to “get my lesson” and stressed the importance of education. I am eternally grateful for her love and support.

Acknowledgments

I am thankful to the many people who supported me during the process of completing my dissertation. I express my gratitude to my advisor, Dr. Christopher Bogiages. I would not have completed my dissertation without his invaluable feedback, guidance, and encouragement. I am also grateful to my committee members, Dr. Debbie Gideon, Dr. Rhonda Jeffries, and Dr. Suha Tamim, for their willingness to serve and their feedback to help create a quality product. In addition, I am thankful for the many expressions of support and encouragement from my colleagues. Furthermore, I express my deepest gratitude to my students for their openness to participate and share in this experience with me. I am also thankful to my family and friends for their belief in my abilities and their encouragement. I express my deepest appreciation for my husband, Michael, and his sacrifices in supporting this academic endeavor. I thank him for his love and support. I have a special thank you to our sons, Jaden and Jacob. I repeatedly answered the question: "Mommy, are you *still* working on your dissertation?" I thank them for their patience throughout the dissertation process.

Abstract

Using a phenomenological approach, this action research study explored the influence of social presence (Garrison et al., 2000) on the achievement of students who were enrolled in Electronics, a two-year college course. Social presence was facilitated through the use and study of reciprocal teaching (Green, 2000), a collaborative learning strategy that has the potential to foster the development of social presence and is inherently culturally responsive (Gay, 2010). Qualitative data were generated through interviews with students, practitioner reflective notes, and classroom observations during the intervention. Analysis and interpretation of the data indicated student-participants had positive experiences during the intervention and reciprocal teaching fostered thoughtful discourse about the content being taught as well as supported student-participants in learning from and with each other. The implications of these findings for college instructors and administrators, particularly in adult education, two-year college or historical black colleges and universities (HBCUs) settings, are discussed.

Keywords: social presence, community of inquiry, culturally responsive teaching, collaborative learning, reciprocal teaching, electronics, STEM, two-year college

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Chapter 1

Introduction

In a recent fall semester, I instructed two sections of an entry-level circuits course at the two-year college in which I serve as a science, technology, engineering, and mathematics (STEM) instructor in the electronics engineering technology program. During these courses, I noticed distinct differences in the interactions of the students. In one section, the students were quiet before class began and continued to remain quiet during class. Even after encouraging the students to ask questions and participate in problem-solving activities, it was difficult to foster authentic engagement during class time. In the other section, the students shared thoughts and views with their classmates before class began, participated in class discussions, and readily assisted each other with learning the concepts during problem-solving activities. Because of the camaraderie I witnessed in this more socially active section, I too felt more connected and personally vested in the success of the group. In addition, as the semester progressed, I recognized a difference in the achievement level of the more social section compared to the less social section: The course average for the socially engaged group was considerably higher than the less socially engaged group. I began to wonder if what I was noticing about social interactions among students and possibly with me was truly having an impact on student achievement in the course. As I reflected further on this observation, I recalled that there have been several students in my entry-level, gateway electronics courses that had not

been successful in completing the course with the required minimum grade of C. Failing to meet this requirement was surely having a deleterious impact on these students' progress in their respective programs of study.

Based on these observations and reflections, I became increasingly interested in the possibility that social interactions, in and out of the classroom, may be essential for students in the successful completion of the course. Being mostly unverified, this tentative explanation sparked my curiosity and, in turn, led me to reconceptualize this phenomenon into a problem of practice that could be studied through action research. In an effort to view the issue from a research perspective, I chose to focus my inquiry on the social factors that support academic performance of students who are enrolled in my electronic circuits course. In the remaining sections of this chapter, I will provide an overview of my efforts to address this issue and, in so doing, set the stage for this phenomenological, action research dissertation in practice.

Problem of Practice

During the academic year 2015–2016, an estimated 14 million students enrolled in degree-granting, post-secondary institutions, and half of these students were enrolled at two-year colleges (National Center for Education Statistics, 2018a). In determining the academic success of these students, two-year colleges monitored retention and graduation rates (Crosta, 2013; Wyman 1999; Yu, 2017), and unfortunately, it became apparent that there was a need to improve retention and graduation rates at two-year colleges (Stovall; 2000; Weiss et al., 2015). Of the first-year students enrolled in two-year colleges in the United States during the Fall 2015 semester, 49% of these students were enrolled at these institutions the subsequent fall semester (National Student Clearinghouse Research

Center, 2017a). In addition, the national graduation rate for two-year colleges was 39% (National Student Clearinghouse Research Center, 2017b). The data for the State of South Carolina, the location in which this study took place, was also discouraging. According to the SC Commission of Higher Education (2017), only 50% of the students enrolled in the technical college system during Fall 2015 continued their education at their respective colleges. This low rate of continuation is a contributing factor to the graduation rate for the technical college system being only 11% (National Center for Education Statistics, 2018a). Research further suggested that academic performance is one reason students leave two-year colleges and do not complete their educational goals (Crosta, 2013; Tinto, 1997; Yu, 2017). Based on these findings, it is clear that students are leaving the two-year college system in large numbers, due in large part to low academic performance.

At my two-year college, the retention rate is 60%, and the graduation rate is 13%. In my educational practice, I have witnessed firsthand students leaving the college because of their low academic performance. For example, during a recent fall semester, I instructed an introductory circuits course, a prerequisite for the electronics course offered during the spring semester. In order to take the second course in this sequence, students must attain a grade of C or higher in the circuits course. During the Fall of 2016, 43 students were enrolled in circuits. The final grade distribution for the course was as follows: A—5; B—12; C—10; D—6; and F—10. Thus, 37% of these students could not progress in the course sequence due to their grades in this course. The subsequent spring semester, there were only 22 students enrolled in the electronics course. Thus, only 51% of the students enrolled in the introductory circuits course continued enrollment in the

circuits course the following semester. From this example, it seems clear that low academic achievement is a primary contributing factor to the problem, both locally and more generally, in two-year colleges.

Theoretical Framework

To improve the student success rates at two-year colleges, Tinto (1993) encouraged the development of classrooms as learning communities. Learning communities, as defined by Lenning and Ebbers (1999), are groups of students and faculty who participate in collaborative activities that are designed to foster academic and social interactions and improve student learning. Tinto (1993) also suggested that it is important for students to have a sense of belonging to the college community and that this sense of belonging is cultivated through social and academic interactions inside and outside of the classroom. A sense of belonging is described by Tinto (1997) as a feeling of being a valued member of a college's community and is shaped by interactions with other students and faculty. However, many two-year college students have personal obligations that precluded them from participating in campus activities outside of the classroom (Deil-Amen, 2011). Therefore, the classroom is likely to be an important place and space in which a sense of belonging can be developed (Emdin, 2007).

Developing an effective learning community, one that fosters a sense of belonging among students, requires the development of interpersonal relationships between students and faculty, active participation of the students in the learning process, and a meaningful learning experience (Tinto, 1997). With these requirements guiding my review of the relevant literature, I became familiar with the community of inquiry (CoI) framework (Garrison, Anderson, & Archer, 2000) and its emphasis on the importance of

intentionally cultivating social and academic interactions among students and instructors. Upon further review of the literature, I recognized how culturally responsive teaching (Gay, 2010) and instructional strategies that promote collaborative learning (Stump, Hilpert, Husman, Chung, & Kim, 2011) could be integrated in the CoI framework and thus be synthesized into a working theoretical framework that would support my inquiry into how the promotion of social interactions could better support students in a two-year college STEM program.

Community of Inquiry

Garrison, Anderson, and Archer (2000) defined the CoI as a group of students and instructors engaged in purposeful and meaningful interactions for an optimal educational experience. Within the CoI framework, social presence, an essential element, fosters socio-emotional interactions and peer-to-peer support related to the educational experience (Garrison et al., 2000). Research has indicated that the use of the CoI framework promoted a favorable experience for students in online courses at two-year colleges (Kupczynski, Mundy, & Ruiz, 2013; Shea & Bidjerano, 2010; Swan, Garrison, & Richardson, 2009). In studies focused on understanding social presence, students were observed communicating their emotions and attitudes, connecting with others (Garrison & Arbaugh, 2007), and showing their personalities (Garrison et al., 2000). The outcomes from these studies demonstrate the desired learning environment of culturally responsive teaching practices (Gay, 2010).

Culturally Responsive Teaching

The majority of students enrolled at two-year colleges are members of historically disenfranchised populations, and these populations respond positively to culturally responsive teaching practices (Flynn, James, Mathien, Mitchell, & Whalen, 2017). Culturally responsive teaching utilizes students' prior experiences, backgrounds, and frames of reference to creating learning experiences (Gay, 2010). By focusing on the students, students learn more (Jett, 2013). Culturally responsive educators develop a cultural diversity knowledge base, care about their students, and support diverse communication styles (Gay, 2002). Thus, culturally responsive educators promote a learning environment in which all students are welcomed and feel comfortable (Gay, 2010). When this is achieved, students are more open to interacting and communicating with one another (Jett, 2013).

Collaborative Learning

Much like the efforts of instructors who employ strategies for culturally responsive teaching, Hajra and Das (2015) noted that the implementation of collaborative learning strategies encourages students to feel welcomed and comfortable in the classroom. Collaborative learning is an educational philosophy that involves "joint intellectual efforts between students or between students and the instructor" (Stump et. al, 2011, p. 476), and these joint efforts are connected to student success (Tinto, 1997). Collaborative learning has been shown to increase student engagement and foster peer-to-peer communication (Chauhan, 2013; Hajra & Das, 2015; Stump et al., 2011). This peer communication promotes learning without pressure and fear of judgment by instructors and peers (Hajra & Das, 2015; Kolvoord et al., 2016). Additionally, collaborative

learning enhances social and academic involvement and increases self-efficacy (Hennessy & Evans, 2006; Kolvoord et al., 2016; Stump et al., 2011).

Synthesizing My Theoretical Framework

To address the problem of practice in this study, I integrated social presence from the CoI (Garrison et al., 2000) and elements of culturally responsive teaching (Gay, 2010) with a focus on collaborative learning (Green, 2000) into a theoretical framework that guided my decisions for this study. Social presence emphasizes meaningful classroom interactions, an important element and expected outcome of culturally responsive teaching (Gay, 2010). In turn, culturally responsive teaching provides opportunities for students to express themselves in the classroom. When students express themselves in the classroom, they become comfortable (Garrison & Akyol, 2013). This comfort level leads to open communication and exchanging ideas (Garrison et al., 2000). By exchanging ideas, students acknowledge others' contributions to the community, which helps build group cohesion (Garrison & Arbaugh, 2007). Culturally responsive teaching also promotes the welfare of the group over the individual (Gay, 2010). These benefits of culturally responsive teaching are also important outcomes of a focus on developing social presence (Richardson, Maeda, Lv, & Caskurlu, 2017). Based on this complimentary alignment, these frameworks provided a foundation on which I developed my own framework, which I was able to use as a guide when making decisions regarding the instructional strategies used in the intervention and the research methodology I selected for this study.

Research Question

The purpose of this action research study was to develop, enact, and study an intervention that would support positive social interactions in an entry-level, gateway circuits course. Using the integrated theoretical framework previously described as a guide, I identified and selected a strategy that would be likely to improve student achievement in a course in which students must earn a minimum grade of C in order to proceed in their program of study. For this study, I selected an instructional strategy known as reciprocal teaching (Green, 2000). I selected reciprocal teaching as the intervention because it could provide opportunities for peer-to-peer interactions among students, authentic interactions with the course content, and meaningful student–instructor interactions that foster collaborative learning and the development of social presence among students in an entry-level electronics course. In implementing reciprocal teaching, I desired to learn about the student-participants' experiences participating in the intervention and what happened during the intervention that may have helped them achieve academically. In order to understand the experiences and perspectives of the student-participants, I needed first-person accounts of their lived experiences. In learning about their lived experiences, it was important to examine how these social interactions aided the student-participants' academic performances. To this end, the following research questions were developed:

1. How did the student-participants describe and perceive their social interactions in a college electronics course?
2. How did strategies for developing student and instructor social presence in a college electronics courses promote student achievement?

Action research affirms that each educational context is different and the study of complex problems of practice situated in unique contexts requires research questions that uncover deeper understanding of the intervention being tried (Mertler, 2017).

Researcher Positionality

Positionalities for researchers are evaluations of their positions in relation to their studies as these positions may affect their studies (Herr & Anderson, 2015). The positionality of insider is that of one who is personally involved in the setting being studied, whereas the positionality of outsider is one who is not involved in the setting being studied (Herr & Anderson, 2015). In this study, my researcher positionality was that of an insider because I was studying my classroom. As the participant-researcher of this action research study, it is reasonable to expect that my "beliefs, political stance, and cultural background (gender, race, class, socioeconomic status, educational background) are important variables that may affect the research process" (Bourke, 2014, p. 2). However, it is important during the research process as an insider for me to remain objective while conducting all research activities, including collecting data and gathering information (Bourke, 2014). In this phenomenological, action research study, I provide a description of the phenomenon studied. In providing this description, I set aside my previous experience with the phenomenon and looked at the data with a fresh perspective (Moustakas, 1994). In my role as an instructor at a technical college, I am in a position to help students complete their educational and career goals and share my career successes in STEM. I have a similar experience as my students in terms of where I grew up and my career goals. I grew up in a small, rural area in SC similar to the location of my college. Based upon growing up in a rural town with limited economic means, I chose to pursue a

career in STEM to increase my social and cultural capital. However, as an African American female in a classroom with predominantly Caucasian males, I have been apprehensive about sharing my stories and experiences because of our differences. In the past, I received negative comments in evaluations based upon my race and gender, and admittedly, these evaluations made me reserved about sharing my personal stories and experiences with the students in the classroom. However, during this study, I made a conscious effort to share who I am with my students and learn about them as well. Thus, I acknowledged these vulnerabilities and remained open-minded by focusing on our humanity (hooks, 2003).

Research Design

Context and Participants

The site for this study was a two-year college located in a rural region in the southeastern United States. During the Fall 2017 semester, 2,479 students were enrolled at the college (National Center for Education Statistics, 2018a). In the Fall of 2017, 64% of the student population was female and 34% was male (National Center for Education Statistics, 2018a). Students who were enrolled part-time made up 64% of the student population while 36% of the student population was enrolled full-time (National Center for Education Statistics, 2018a). The racial and ethnic composition of the student population was 54% Black or African American, 40% White, 2% Hispanic or Latino, 1% Asian, and 1% American Indian and Alaskan Native (National Center for Education Statistics, 2018a). The majority of the student population (69%) was under 24 years of age (National Center for Education Statistics, 2018a).

All students enrolled in electronic circuits agreed to participate in this study. The number of full-time students enrolled in the course was 27, and there was one student enrolled with a part-time status. Two of the student-participants identified as female and 26 of the student-participants identified as male. The racial and ethnic composition of the student-participants was as follows: 6 Black or African American (21%), 20 White (72%), and 2 Native American (7%). The majority of the student population was under 24 years of age (69%). The student-participants' ages were as follows: 17–24 (23 students), 25–34 (3 students), and 35–44 (2 students).

Action Research and Phenomenology

Action research is a cyclical, inquiry-based process that addresses a localized problem in an educational organization (Herr & Anderson, 2015). Practitioners of action research are viewed as generators of knowledge because they are professionals capable of making well-informed decisions about their own inquiries and are responsible for their own research-based actions (Efron & Ravid, 2013). Mertler (2017) presented the cyclical process of action research in four stages: the planning stage, the acting stage, the developing stage, and the reflection stage. During the planning stage, I reflected on my classroom experiences and thought about the actions of students who performed well in the course. In reflecting on my classroom experiences, I noted how the students who engaged socially with their classmates and me performed well in my courses. Thus, I began to review literature on social interactions in the classroom. During this review, I learned about the importance of establishing a social presence within the CoI framework for a successful experience in higher education (Garrison et al., 2000). Upon further review of the literature, I learned about culturally responsive teaching and the positive

outcomes for two-year college students (Aronson & Laughter, 2016; Flynn et al., 2017; Jett, 2013) Then, I continued my literature review and learned about instructional strategies that promote collaborative learning for two-year college students (Hennessy & Evans, 2006; Stump et al., 2011). In reviewing the CoI, culturally responsive teaching, and collaborative learning, I recognized how I could integrate them into a theoretical framework to address my problem of practice.

After developing my theoretical framework to address my problem of practice, I selected an appropriate research design to collect and analyze data. For this study, the appropriate research design was phenomenology. A phenomenological research design focuses on one phenomenon and employs methods to understand the lived experiences of the participants (Creswell, 2018). My problem of practice is focused on one phenomenon: social interaction in the classroom. To learn about the students' social interactions in the classroom, I must learn about and understand their lived experiences with the phenomenon. To learn about and understand these lived experiences, I must hear directly from my students. In hearing directly from my students through interviews, I am able to describe the student-participants' common experience of participating in purposeful social interactions designed using the theoretical framework, an outcome of a phenomenological research design (Creswell & Poth, 2013). During the acting stage, I collected and analyzed qualitative data based on phenomenological methods. The data analysis procedures followed four steps delineated by Moustakas (1994). The first step is developing a list of significant statements. *Significant statements* are descriptions or highlights of the lived experiences relevant to the phenomenon under investigation. Next, these significant statements are grouped into themes. *Themes* are extended phrases or

sentences that identify what the data means (Saldaña, 2016). The themes are used to develop a textual description, what the participants experienced, and a structural description, how the participants experienced the phenomenon in terms of conditions, situations, and contexts. Then, the researcher develops a composite description of the entire experience.

Student-participants participated in pre-intervention interviews for me to collect data on their previous social interactions in the classroom. These data were used to plan the implementation of reciprocal teaching during the intervention. Student-participants participated in post-intervention interviews for me to collect data on their lived experiences during the intervention. I completed three cycles of the intervention with the student-participants. During each cycle of the implementation of reciprocal teaching, I observed the student-participants and wrote reflective notes on these classroom observations. These classroom observations and reflective notes determined how I would alter the next cycle of the intervention. The process of collecting data followed by reflection with the anticipation of improving teaching and learning is the core of action research (Mertler, 2017). In improving teaching and learning through reflection, this new knowledge helps me become a better instructor.

Once the acting stage was completed, I moved into the developing stage and began to develop a plan of action based on my findings from the data collection. I facilitated a meeting and discussed the findings from the study with the student-participants and my colleagues in the STEM department. During this meeting, we developed a plan of action for the department based on the findings (Mertler, 2017). Thus, another purpose of action research was realized, which is educating the

practitioner-researcher and the student-participants (Herr & Anderson, 2015). The plan of action included strategies to address my problem of practice and the individuals responsible for carrying out and monitoring the success or failure of the strategy (Mertler, 2017). Thus, the results were relevant to my local setting and produced knowledge that was useful to my educational practice (Herr & Anderson, 2015). This plan of action also provided a list of action-oriented outcomes, which is a goal of action research (Herr & Anderson, 2015). Once the plan of action was created, the reflecting stage began. During the reflecting stage, I shared my findings and action plan with the other instructors at my college. The reflecting stage was also an opportunity for me to review the process and make plans for future studies (Mertler, 2017). Thus, the knowledge and experience gained from this study led to new questions for me to investigate, ways to improve my intervention in the future, and the beginning of my next research cycle (Efron & Ravid, 2013). Therefore, the action research framework, combined with the phenomenological data collection and analysis, provided a sound and appropriate research methodology to address my problem of practice (Herr & Anderson, 2015).

Data Collection Methods

The data collection methods selected for this study were based on my theoretical framework, action research, and phenomenology. In this study, I used surveys (Mertler, 2017), semi-structured interviews (Efron & Ravid, 2013), classroom observations (Mertler, 2017), and reflective notes (Efron & Ravid, 2013). The surveys were analyzed using quantitative methods to report the demographics of the study's student-participants. Before and after the intervention, I conducted one-on-one interviews with seven student-

participants to learn about their experiences socially interacting in the classroom at the college. These interviews were analyzed based on the methods discussed by Moustakas (1994). During the intervention, classroom observations were completed and used to complete reflective notes. These reflective notes provided information for me to make informed decisions about the next cycle of the intervention.

Surveys. Surveys collect a group of quantitative data that includes a set of questions or statements to sample a group of people (Mertler, 2017). Survey items are structured, where respondents choose from presented options (Efron & Ravid, 2013). Survey items are also unstructured, where a statement or question is followed by a blank space. In this study, electronic surveys were administered because of their easy access through the internet and quick turnaround (Fraenkel, Wallen, & Hyun, 2015). I used Google forms to create, administer, and calculate the results of the survey. The surveys collected data on the student-participants' demographics and their willingness to participate in a one-on-one interview discussing their social interactions on campus prior to the intervention and their social interactions following the intervention. The survey items were structured with pre-selected options to which the student-participants could respond. Each response by the student-participant was quantified by counting the number of student-participants who selected each option. The Google form calculated the responses of each item to report in this study.

Semi-structured interviews. Semi-structured interviews are based on questions that are prepared prior to the interview (Efron & Ravid, 2013). The questions are open-ended and allow the student-participants to talk about their experience. Follow-up questions are also included for the participant to extend and think deeper about their

experiences (Efron & Ravid, 2013). The questions used in the study were prepared prior to the interviews. In addition, follow-up questions were included with each open-ended question asked during the interviews to deepen the conversation. To plan for this study's intervention, pre-intervention interviews gathered data on the student-participants' prior social interactions with their peers and their instructors. After the intervention, I interviewed student-participants about their experiences during the intervention. These interviews illustrated that I care about my students' experiences and backgrounds and my willingness to implement a classroom activities based upon these prior experiences, which is characteristic of a culturally responsive educator (Gay, 2010).

All interviews were audio recorded for accuracy. The interviews were manually transcribed by me and analyzed using the methodology outlined by Moustakas (1994) to provide a description of the student-participants' experiences before and after the intervention.

Classroom observations. Classroom observations provide insight into the daily activities in the classroom (Efron & Ravid, 2013). Carefully observing the classroom allows me to see things that I may unconsciously miss (Efron & Ravid, 2013). Observations may be semi-structured or unstructured. Semi-structured observations are designed to consciously look for particular patterns of behavior in the classroom (Efron & Ravid, 2013). Unstructured observations have no design and are not based on an agenda (Efron & Ravid, 2013). Unstructured observations are conducted to decide what is significant to investigate in the classroom (Efron & Ravid, 2013). During the intervention, I collected data by observing the lecture session. The focus of these semi-structured observations was based on the study's phenomenon, social interactions in the

classroom, under investigation. During each cycle of the implementation of reciprocal teaching, I looked for meaningful interactions, which is an important part of social presence (Garrison et al., 2000) and an outcome of culturally responsive teaching (Gay, 2010). To ensure my observations were not completed at the expense of my teaching, I audio recorded the lecture sessions to observe what I could not see with my eyes in the classroom setting (Mertler, 2017). I listened to these audio recordings and added to my field notes completed during the lecture sessions. These field notes showed what happened in the classroom, and I utilized my field notes to write reflective notes on the meaning of what I observed (Efron & Ravid, 2013).

Reflective notes. Reflective notes record insights and reflections on what happened in the classroom and in my experience (Efron & Ravid, 2013). These reflective notes included the meaning of what was observed, reflection on the procedures and materials used during the lecture session, reflection on problems encountered, and my own feelings, attitudes, and expectations (Efron & Ravid, 2013). In reflecting on my experiences, I was cognizant of the fact that I set the tone for social presence in the classroom and contemplated how I could positively impact the social presence of the student-participants (Shea et al., 2010). These data provided information to make informed decisions on the following cycle of the intervention.

Data analysis. In this study, the data collected were qualitative by design and the analysis aligned with phenomenology. Phenomenological research collects data to understand the participants' perceptions, views, and understandings of a phenomenon, and these significant statements preserve the participants' meanings and actions (Saldaña, 2016). In analyzing the data, I identified significant statements from the student-

participants' interviews (Moustakas, 1994). Once the significant statements were identified, I developed themes from these significant statements (Moustakas, 1994). These themes described what happened during the intervention, a textual description, and why it happened, a structural description (Creswell & Poth, 2013). In developing the structural description, I asked, is this description accounted for and connected to the classroom experiences (Creswell & Poth, 2013)? Next, a final synthesis was written about the experience of participating in the intervention (Moustakas, 1994). These data were utilized to answer the research questions.

Validity and Transferability

The validity of qualitative data in action research is concerned with the trustworthiness of the data (Mertler, 2017). Trustworthiness is established by four characteristics: credibility, transferability, dependability, and confirmability (Mertler, 2017). Credibility establishes that the results of the study are believable (Mertler, 2017) and was demonstrated by performing member checks (Mills, 2014). In this study, the student-participants read and approved the text of their interviews, and the student-participants' descriptions are detailed in Chapter 4. I also discussed my analytical thoughts and interpretations with the student-participants (Efron & Ravid, 2013). These reviews allowed the student-participants to ensure their experiences were not misrepresented (Creswell, 2018). By having the student-participants review their interview transcripts, my analytical thoughts, and interpretations, I was able to preserve the student-participants' voices, which aligns with phenomenology (Saldaña, 2016). Credibility is also established by peer review (Efron & Ravid, 2013). Peer review provided me with an additional set of eyes on my interpretation and accuracy of my

findings (Efron & Ravid, 2013). This peer review was conducted by my department's dean. During this study, performing member checking illustrates the collaborative nature of action research (Mertler, 2017).

To ensure transferability, I collected descriptive data to ensure the setting was easily identifiable (Mertler, 2017). Action research is situational and aims to understand the unique context of the setting and the participants (Efron & Ravid, 2013). Thus, a detailed description of the context and setting are included in Chapter 3. In phenomenology, a heterogenous group must be identified and interviewed (Creswell & Poth, 2013). The detailed descriptions of the interviewees in Chapter 4 affirm I interviewed a heterogenous group for this study. Dependability refers to the stability of the data and is executed in this study by collecting various types of data to compensate for weaknesses among the data collection (Mills, 2014). For example, data about the student-participants' perceptions of social interactions in the classroom was collected before, during, and after the intervention. These data collection methods included interviews, observations, and reflections. Using data points from various perspectives permitted the use of triangulation to ensure the validity of the data (Efron & Ravid, 2013). Triangulation is the practice of relying on more than one source of data to have varied perspectives on a phenomenon (Efron & Ravid, 2013). Action research is intentional, thoughtfully planned, and systematic to produce meaningful results (Efron & Ravid, 2013). In addition, phenomenology supports multiple interviews to fully describe the lived experience of the student-participants (Creswell & Poth, 2013). Thus, planning for and completing triangulation aids in producing valid results for this study.

Lastly, confirmability, establishes the objectivity of the data (Mertler, 2017). Reflexivity acknowledges the researcher's perspectives and positions shape the research process (Efron & Ravid, 2013). Reflexivity requires commenting on two points: the researcher's past experiences with the phenomenon and how these past experiences influence the study (Creswell, 2018). Being the principal instrument of data collection, I reflexively discussed my biases through the writing of my role as the researcher (Creswell, 2018). In addition, I wrote notes about what I learned, concerns about the data collection process, and concerns about the student-participants during the process. In phenomenology, reflexivity aligns with the concept of bracketing. In order for the researcher to have a fresh perspective of the phenomenon, the researcher must bracket or set aside, as much as possible, her prejudgments and personal experience with the phenomenon under investigation (Moustakas, 1994). By setting aside my personal prejudgments and personal experience, I self-reflect to improve my educational practices and make informed decisions about my classroom, which illustrates tenets of action research (Mertler, 2017). Therefore, in completing these procedures to ensure quality and rigor, I produced a sound phenomenological, action research study that shapes my future decisions and actions as a practitioner-researcher (Efron & Ravid, 2013).

Significance of the Study

Action research is an investigation conducted by practitioners to improve teaching and learning in their own educational settings (Efron & Ravid, 2013), and as a practitioner, action research is a valuable tool for me to improve my classroom practices to reach my students. First and foremost, this study is significant in providing support for the student-participants to be successful in their academic and career endeavors. In

performing this study based on my theoretical framework, I had the opportunity to learn more about my student-participants on a personal level, show them I care about them, and that I am personally vested in their futures. During this study, I also learned more about my students as we interacted in meaningful, respectful exchanges.

Additionally, I benefited from conducting this phenomenological, action research study. Once I executed the first iteration of my intervention, I had observations and reflective notes as immediate feedback to adjust my instructional strategies for the next iteration of my intervention (Mertler, 2017). By conducting this study based upon my theoretical framework, I became open to sharing my life and my personal experiences, which are essential to become an effective educator (Gay, 2010). Thus, as a practitioner-researcher, I examined and reflected upon my life experiences and professional practices to create better educational outcomes for my students (Mertler, 2017). Ultimately, if my students are not meeting their educational goals, I must engage in reflective teaching, the process of developing lesson plans and accessing student learning based on educational theories, scholarly literature, and practical experience (Mertler, 2017).

Moreover, I shared my findings with other instructors and developed an action plan at my college and helped fulfill one of the college's goals, taking students from college to career. Over the past six years, Chapman County (a pseudonym) has experienced record industrial growth with 4,000 new manufacturing jobs (Chapman County Chamber of Commerce, 2016), and the industrial growth continues in the State (SC Department of Commerce, 2015). Thus, this action research study is important to provide a plan of action to retain and graduate more STEM students and provide qualified employees for these local industries.

Furthermore, the knowledge generated from this study is intended to be shared with other instructors who were interested in improving their classroom practices and producing positive outcomes for their students. Although this study was completed to generate new knowledge, it does not demonstrate external validity or is applicable to the general population of two-year college students.

Limitations

My courses have enrollments with a high population of White males. Unfortunately, only one White male agreed to participate in one-on-one interviews with me during this study. In hindsight, it would be beneficial to my educational practice and professional development to hear from more White males about their experiences during this study and how I can help them achieve their academic and career goals. Focus groups benefit student-participants who may be too shy to express themselves in an individual interview (Efron & Ravid, 2013). If I facilitated a focus group in this study, this interview option may have drawn more interest from this demographic.

In addition, the student-participants had prior classroom experiences with me as their instructor. Thus, I was familiar with the student-participants, and the student-participants had social relationships with their classmates. With this comfort level in the classroom, the student-participants also easily communicated their needs to me. If this study was conducted with students enrolled in their first semester at the college, it would be challenging to group them effectively because we are just beginning to establish relationships. Thus, the findings from this study may be different with new students.

Organization of the Dissertation

This dissertation in practice consists of five chapters. Chapter 1 provides an introduction to this phenomenological, action research study that explored improving student achievement by focusing on social interactions in a college course. Chapter 2 includes a thorough review of the literature regarding the problem of practice through a discussion of the historical significance of measuring student retention at a national, state, and local level and how student retention is addressed at my college. I also discuss the theories, social presence from the CoI (Garrison et al., 2000), culturally responsive teaching (Gay, 2010), and collaborative learning (Stump et al., 2011) that serve as the foundation for my theoretical framework. This chapter concludes with an overview of the history and characteristics of the research methodologies, action research and phenomenology, used to study the impact of collaborative learning in my electronics course. In Chapter 3, I discuss the procedures followed to collect and analyze data based on the phenomenological approach within the action research framework. Chapter 3 also discusses the types of data collected, the context and setting of the study, and the details of implementing this study's intervention, reciprocal teaching. The procedures to collect and analyze data are discussed in three phases: the pre-intervention, the intervention, and post-intervention. In Chapter 4, the data collection methods, the presentation of the data, the analysis of the data, and the findings from this study are presented based on these three phases. Lastly, Chapter 5 presents a detailed plan of action to address student achievement in my classroom based on the findings from this study and how I plan to share this information with the local stakeholders as well as contributing to the state and national conversations on academic achievement at two-year colleges.

Glossary of Key Terms

These definitions are provided to clarify meanings of key terms (Leedy & Ormrod, 2013) used in this action research study.

Academic achievement: Academic achievement is maintaining the required grade point ratio to continue enrollment, developing leadership skills, the ability to work in a group, and confidence in discussing technical content (Chapman County Technical College, 2018).

Academic integration: Academic integration includes formal and informal interactions. *Formal academic interactions* for students occur during class time and also include student performance and grades. *Informal academic interactions* are connections made by students with faculty and staff outside of the classroom (Tinto, 1993).

Action research: Action research is an inquiry-based process that addresses a localized problem in an organization (Herr & Anderson, 2015). Mertler (2017) presented the cyclical process of action research as four stages: the planning stage, the acting stage, the developing stage, and the reflection stage.

Collaborative learning: Collaborative learning is an educational philosophy that involves "joint intellectual efforts between students or between students and the instructor" (Stump et al., 2011, p. 476).

Community of inquiry: Garrison, Anderson, and Archer (2000) defined the community of inquiry (CoI) as a group of students and instructors engaged in purposeful and meaningful interactions for an optimal educational experience.

Culturally responsive teaching: Culturally responsive teaching is defined as "using the cultural knowledge, prior experiences, frames of reference, and performance styles of

ethnically diverse students to make learning encounters more relevant to and effective for them" (Gay, 2010, p. 31).

Credit hour: A credit hour is the equivalent of 50 minutes per week of instruction over the entire semester (National Center for Education Statistics, 2017b).

Developmental courses: Developmental courses are courses designed for students unprepared academically for college coursework (Barbatis, 2010).

First-time student: A first-time student is a student who has no prior post-secondary experience (National Center for Education Statistics, 2017b).

First-year student: A first-year student is a student who has less than a year of post-secondary experience (National Center for Education Statistics, 2017b).

Full-time student: A full-time student is a student who is enrolled in more than 12 credit hours at a post-secondary institution (National Center for Education Statistics, 2017b).

Graduation rate: The graduation rate is the percentage of full-time, first-time students who graduated within normal time to complete their degrees (National Center for Education Statistics, 2017a).

Learning community: Learning communities are groups of students and faculty who participate in collaborative activities that are designed to foster academic and social interactions and improve student learning (Lenning & Ebbers, 1999).

Lived experience: A lived experience is a first-hand account of a personal encounter with a phenomenon (van Manen, 2016).

Nontraditional student: A nontraditional student is a student who is older than the typical college age of 24 years of age, enrolled as a part-time student, financially independent, or a parent (National Center for Education Statistics, 2017c).

Normal time: Normal time is the length of time for a full-time student to complete a degree, which is typically two years for a degree at my college (National Center for Education Statistics, 2017a).

Part-time student: A part-time student is a student who is enrolled in less than 12 credit hours at a post-secondary institution (National Center for Education Statistics, 2017b).

Pass rate: The pass rate for a course is the number of students who passed a course out of the total of students who were enrolled in the course (Oja, 2012).

Persistence: Persistence is the continuous enrollment of a student from one semester to the subsequent semester at a post-secondary institution (Tinto, 1993).

Phenomenological study: "A phenomenological study describes the common meaning for several individuals of their lived experiences of a concept or a phenomenon" (Creswell & Poth, 2013, p. 74).

Phenomenology: Phenomenology is the description of what something is and its meaning (van Manen, 2016)

Reciprocal teaching: Reciprocal teaching is a collaborative learning strategy where the student acts as both the student and the instructor (Barkley, Major, & Cross, 2014)

Retention: Retention is the number of first-time students who continue enrollment at a post-secondary institution from one fall semester to the subsequent fall semester (National Center for Education Statistics, 2017a).

Retention rate: The retention rate is the percentage of first-time students who continue enrollment at a post-secondary institution from the initial fall semester to the subsequent fall semester (National Center for Education Statistics, 2017a).

Sense of belonging: A sense of belonging is a feeling of being a valued member of a college's community (Tinto, 1997).

Social integration: Social integration for students includes formal social interactions such as club participation, athletics, and student government, and informal social interactions for students include connections made with peer groups outside of the classroom (Tinto, 1993).

Social interaction: Social interaction is a reciprocal exchange between two parties (Kožuh et al., 2015).

Social presence: Social presence is the "ability of participants to identify with the group, communicate purposely in a trusting environment, and develop personal and affective relationships by way of projecting their individual personalities" (Garrison & Akyol, 2013, p. 207).

STEM: STEM is an interdisciplinary study of science, technology, engineering, and mathematics involving problem solving techniques that include inquiry, design, and analysis (Feller, 2011). The term was initiated by the National Science Foundation during the 1990s (Bybee, 2010).

STEM curricula: In this action research study, STEM curricula are defined as programs of study within the department of engineering and advanced manufacturing. These programs of study include computer technology, electronics engineering technology, engineering graphics technology, industrial electronics technology, machine tool technology, and mechatronics technology.

Chapter 2

Literature Review

As an instructor of first-year students at a two-year community college, I witnessed the decline in student enrollment in sequential courses offered during the fall semesters and the subsequent spring semesters. In response to the declining enrollment that is most likely due to dropout, I reflected on my classroom and how I can improve my instructional methods to improve the academic performance of the students. In reflecting on my educational practice, I noted students who were socially engaged performed well in my courses. Thus, because I witnessed this phenomenon first hand and the scholarly literature supported the premise that social interactions improved student success, I desired to learn more about the phenomenon.

Research indicates students who are integrated academically and socially into campus life and have a sense of community are more likely to be successful in the college classroom (Deil-Amen, 2011; Lundberg, 2014; Tinto, 1993, 1997). However, many students enrolled in community colleges have responsibilities that preclude them from participating in activities outside of the classroom (Deil-Amen, 2011). Thus, the classroom is the ideal place for the study of how social interaction can further support and develop a sense of classroom community (Tinto, 1993). Consequently, I desired to cultivate a classroom experience that promoted social interactions designed to improve student learning. In learning about the experiences of the participants in this study and

using this data to make informed decisions about my classroom, I chose two research questions to guide this study:

1. How did the student-participants describe and perceive their social interactions in a college electronics course?
2. How did strategies for developing student and instructor social presence in a college electronics courses promote student achievement?

Therefore, this phenomenological, action research study implemented learning strategies focused on social interactions in an electronics course to promote and improve student success.

This chapter will provide a thorough review of the literature regarding the problem of practice through a discussion of the historical significance of measuring student retention in the United States and the recent efforts to monitor and promote student retention in the South Carolina technical college system. Upon situating the problem at multiple context levels, I will provide a thorough discussion of the theories that served as the foundation on which the theoretical framework for this study was developed. These theories include the community of inquiry framework (Garrison et al., 2000), culturally responsive teaching (Gay, 2010), and collaborative learning (Stump et al., 2011). I will then elaborate on how these theories were synthesized into a working theoretical framework for this study and integrated into the design of the intervention. This chapter concludes with an overview of the methodologies used to study the impact of reciprocal teaching on student achievement in my electronic circuits course taught as part of a two-year college STEM program.

Measuring Student Retention: A Historical Perspective

Retention has become an important measure of student success for colleges and universities. Initially termed mortality, the earliest studies on retention in higher education began during the 1930s (Demetriou & Schmitz-Sciborski, 2011). One notable study on retention was led by John McNeely and published in 1938 by the U.S. Department of Interior and the Office of Education (Demetriou & Schmitz-Sciborski, 2011). This study collected data that examined demographics, social engagement, and reasons for departure from 60 institutions and was considered the precursor for studies on retention that occurred during the 1960s (Demetriou & Schmitz-Sciborski, 2011). During the 1940s and 1960s, growth in enrollment at institutions of higher education was stimulated by governmental policies (Mellow, 2000), and, as a result, the need for studies on retention increased (Demetriou & Schmitz-Sciborski, 2011).

After World War II, higher education experienced another significant rise in enrollment (Demetriou & Schmitz-Sciborski, 2011). This dramatic growth in enrollment was a result of the Servicemen's Readjustment Act of 1944 that provided funding for World War II veterans to attend college (Spring, 2014). Following the Servicemen's Readjustment Act of 1944, the National Defense Act of 1958 provided access to higher education for specific disciplines (Gilbert & Heller, 2013). During the early 1960s, the federal government also provided grants and loans for higher education through the Vocational Education Act of 1963 (Bragg, 2013) and the Higher Education Act of 1965 (Lingenfelter & Lenth, 2005). Moreover, the Civil Rights Act of 1964 passed by Congress was also instrumental in providing opportunities for minorities in the United States to enroll in institutions of higher education that were segregated (Demetriou & Schmitz-Sciborski, 2011). These governmental policies were effective catalysts for the

increase in enrollment in higher education (Mellow, 2000). As a result, administrators in higher education began to raise questions about who was enrolling, succeeding, and graduating from college (Demetriou & Schmitz-Sciborski, 2011). These questions led to a comprehensive and systematic examination of retention (Bragg, 2013).

During the 1960s, two major studies guided practices of retention in higher education (Demetriou & Schmitz-Sciborski, 2011). One influential study on retention in higher education, Student Mortality and Related Factors, was published in 1961 by Gekoski and Schwartz (as cited in Demetriou & Schmitz-Sciborski, 2011). Gekoski and Schwartz recommended that post-secondary institutions provide counseling services for personal issues, improved advisor relationships, and improved orientation for new students to influence retention. In addition, Panos and Astin (1968) noted the importance of social activities and permissive faculty in promoting retention of students.

In 1970, William Spady published Dropouts from Higher Education: An Interdisciplinary Review and Synthesis. This publication became the first nationally recognized model of retention, and this model emphasized satisfaction and commitment as factors contributing to the success of college students (Demetriou & Schmitz-Sciborski, 2011). A year later, Spady (1971) followed this retention model with additional research, which indicated academic performance as the dominant factor in student success.

In 1975, Tinto's seminal study on the model of student integration was published and created the basis for a national dialogue on retention in higher education. Tinto posited that student retention was linked to formal and informal academic experiences as well as social integration. Tinto's theory focused on the role of the college in the academic and social experiences of the students. Students entering college have pre-entry

factors such as family background, academic and social skills, and high school achievement that affect their persistence. However, Tinto posited that student interactions on campus and the student's perception of these interactions were more important than pre-entry factors in determining student success in college. Students need to be integrated academically as well as socially to become a part of a college's community. Academic integration includes formal and informal interactions. Formal academic interactions for students occur during class time and also include student performance and grades. Informal academic interactions are connections made by students with faculty and staff outside of the classroom. Additionally, social integration for students includes formal social interactions such as club participation, athletics, and student government, and informal social interactions for students include connections made with peer groups outside of the classroom. Moreover, Tinto noted involvement in the classroom leads students to contact faculty and their classmates outside of class time, which further aids in the academic and social integration of students. Thus, the quality of these academic and social interactions is critical for students to remain enrolled in college.

Astin's (1977) model of student engagement, which described student development during the college experience, stated that student involvement was essential to retaining students. During the 1980s, Bean (1980) stressed the importance of prior academic performance, socioeconomic status, and student satisfaction. Bean also noted that men and women leave higher education for different reasons. In the 1990s, higher education began to embrace diversity and promote multiculturalism, and retention studies focused on underrepresented populations (Demetriou & Schmitz-Sciborski, 2011).

Tinto also continued to update his earlier model on student integration (Mellow, 2000). Moreover, Tinto (1993) researched the importance of academic advisement and student development in retaining students. Additionally, Tinto proposed that colleges acknowledge and use the importance of academic and social integration to develop retention programs for students. For nonresidential, two-year colleges Tinto encouraged the development of classrooms as learning communities because students are in class the majority of their time on campus. Therefore, classrooms have the greatest potential to facilitate academic and social integration, and this potential can be realized by implementing collaborative learning strategies (Tinto, 1993). By employing collaborative learning strategies, there is increased communication between students and between students and instructors (Hajra & Das, 2015). This increased communication allows students and instructors to project their personal characteristics and present themselves as real people, or the social presence within the CoI (Garrison & Arbaugh, 2007). In addition, increased communication promotes a learning environment that welcomes all participants, which is promoted by culturally responsive educators (Gay, 2010). Thus, the theoretical framework for this study focused on developing social presence and supporting culturally responsive teaching through collaborative learning strategies in the classroom.

During the 21st century, higher education emphasized high expectations and actively involving students in their learning environments, as these were environments where students are most likely to be successful and retained (Demetriou & Schmitz-Sciborski, 2011). Therefore, this action research study acknowledged the historical perspectives on retention and focused on student integration through social interactions.

Monitoring and Promoting Retention in the South Carolina Technical College System

South Carolina was leading the southeastern United States in manufacturing growth with a 13.5% growth rate that was measured from January 2011 through December 2014 (SC Department of Commerce, 2015), and this business model impacted the ways in which two-year, post-secondary institutions oriented curriculum and pedagogy. For example, during 2014, South Carolina recruited more than $4.6 billion in capital investment and more than 10,000 jobs in the manufacturing sector (SC Department of Commerce, 2015). The arrival of these industries created a high demand for qualified manufacturing workers, and they continue to rely on two-year, post-secondary institutions in the state to provide qualified and well prepared STEM graduates to fill these positions (SC Technical College System, 2016), Chapman County Technical College (CCTC), a pseudonym, as a member of the SC Technical College System, is one of the institutions working to provide well-qualified graduates to the state's manufacturing employers. However, doing so has been challenging. According to the National Center for Educational Statistics (2018a), the graduation rate for CCTC has historically been low and reflective of the national trend in low student retention. Only 55% of CCTC's full-time students and only 30% of its part-time students who began in the Fall of 2014 returned to CCTC in the Fall of 2015 (National Center for Educational Statistics, 2018a).

To improve retention at CCTC, there has been a focus on providing services to meet the social and academic needs of the students and improve student outcomes. At the college, student services provides counseling for students. Counseling is available for career planning, academic concerns, financial problems, and personal issues. The college

also offers a college skills course that covers topics needed to be successful in college. The topics for this course include stress management, reducing test-taking anxiety, effective study skills, and the use of campus resources. This course is recommended for all students entering college following high school graduation, all students who have been out of school for more than five years, and all students who are on academic probation. In addition, CCTC has a student success center that provides resources to support academic success. The student success center offers tutoring, peer study groups, and workshops related to students improving their academic performance. The college also promotes best teaching practices based on educational research to improve student academic performance. The college has assembled key faculty in a community of practice to study and recommend best practices for instruction. Additionally, the South Carolina technical college system also provides monthly, online training that provides faculty with pedagogical practices to improve student learning (SC Technical College System, 2016). Thus, CCTC provides student services and faculty professional development to improve the college's retention rate.

Theoretical Framework

The theoretical framework for this phenomenological, action research study was grounded in the community of inquiry (CoI) (Garrison et al., 2010) and culturally responsive teaching (Gay, 2010) with a focus on collaborative learning (Green, 2000).

Community of Inquiry

The community of inquiry (CoI) stemmed from the concept that learning at the post-secondary level required collaborative support and sustained communication

(Garrison & Arbaugh, 2007), which aligned with the concept of socially constructed knowledge (Garrison et al., 2010). In order to support this student learning, the CoI included three interacting elements: teaching presence, cognitive presence, and social presence (Garrison et al., 2000). In this framework, the teaching presence was the design and facilitation of processes in the learning community that guided students to meaningful and worthwhile learning (Garrison & Arbaugh, 2007). The second element, cognitive presence, was the ability to "construct meaning through sustained communication" (Garrison et al., 2000, p. 89). Social presence, the third element, was the ability of participants to project their personal characteristics and present themselves as real people (Garrison & Arbaugh, 2007). Thus, social presence promoted learning and developing trust within the classroom through social interactions, which aligns with social constructivism (Bozkurt, 2017; Morrone & Tarr, 2005). For a comprehensive framework, Shea and Bidjerano (2010) later introduced learning presence as a fourth element of the CoI. Learning presence was the self-regulated, co-regulated, and shared regulatory actions of the students, which aid in student learning (Hayes, Smith, & Shea, 2015). Although this framework was conceptualized for online learning in higher education, the CoI has been utilized in research and classrooms of hybrid and face-to-face courses in higher education (Archer, 2009).

Teaching presence. Teaching presence is defined as "the design, facilitation, and direction of cognitive and social processes for the purpose of realizing personally meaningful and educationally worthwhile learning outcomes" (Anderson, Rourke, Garrison, & Archer, 2001, p. 5). There are three indicators of teaching presence: instructional management, building understanding, and direct instruction (Garrison et al.,

2000). The first indicator, instructional management, is selecting curriculum content, designing instruction, and establishing timelines for the course. Building understanding, the second indicator, is ensuring an effective community for sharing meaning, identifying and resolving disagreements, and reaching consensus through discussion. The third indicator, direct instruction is providing feedback and evaluating needs so that the intended learning outcomes are met. In this collaborative learning community, it is important to note that building understanding and direct instruction is a shared responsibility of all members in the learning community (Garrison, Cleveland-Innes, & Fung, 2010).

Cognitive presence. Cognitive presence is "the extent to which the participants in any configuration of a community of inquiry are able to construct meaning through sustained communication" (Garrison et al., 2000, p. 89). In the CoI, the practical inquiry model grounded in Dewey's work (Garrison et al., 2000) defines cognitive presence. Garrison, Anderson, and Archer (2001) discuss the four phases of the practical inquiry model. The first phase is the triggering event. During this phase, a problem or task is defined for the students and is followed by questions from the students. During the next phase, exploration, students search for information related to the problem that may help make sense of the current situation. After exploration, the students attempt to make sense of or integrate the information into an idea or concept. During the final stage, resolution, the students test possible solutions to the problem. All of the phases of the practical inquiry model occur in an educational environment that encourages reflection, discussion, analysis, and synthesis (Garrison et al., 2000).

Learning presence. Shea and Bidjerno (2010) introduced learning presence, which accounted for the active behaviors of students, to the CoI framework, and these active behaviors are prevalent when students collaborate (Shea et al., 2012). Learning presence includes three active behaviors: self-regulation, co-regulation, and shared-regulation in the learning environment (Hayes et al., 2015). Self-regulation is the student's cycle of planning, setting goals, and self-assessing to complete tasks and assignments individually (Shea & Bidjerano, 2012). Co-regulation provides an opportunity for a more knowledgeable student to share information with and provide support for another student (Shea et al., 2012). Shared regulation applies to groups collectively planning, setting goals, and assessing progress to complete a shared goal (Hayes et al., 2015).

Social presence. Social presence is the "ability of participants to identify with the group, communicate purposely in a trusting environment, and develop personal and affective relationships by way of projecting their individual personalities" (Garrison & Aykol, 2013, p. 207). The first indicator of social presence, the expression of emotion, is the ability of the participants to express their feelings in the learning environment and express these feelings confidently (Garrison & Arbaugh, 2007). Two examples of contributing factors to the expression of emotion are humor and self-disclosure (Garrison et al., 2000). Humor decreases social distance and shows goodwill to others (Garrison, 2011). When participants in a CoI share their attitudes and feelings with one another, trust, support, and a sense of belonging develop (Garrison et al., 2000).

The second indicator of social presence, open communication, involves respectful and reciprocal exchanges between participants (Garrison et al., 2000). Members in a CoI

must acknowledge others' contributions to the community, which, in turn, builds group cohesion, the third indicator of social presence (Garrison & Arbaugh, 2007). This indicator emphasizes the need to develop learning activities that build and sustain commitment to the group and the educational process (Garrison, Cleveland-Innes, & Fung, 2010). By focusing on social presence, students become comfortable in the learning environment and are more open to collaborative discourse (Garrison, 2010). This discourse aligns with social constructivism because it encourages dialogues and thoughtful reflections between students and students and instructor. These dialogues and reflections are stimuli for learning (Dixson, 2015; Harasim, 2017) and are opportunities for an instructor to embrace the role of facilitator and co-participant (Morrone & Tarr, 2005; Setianin & Mackinnon, 2015).

Social presence performs a critical role in favorable learning outcomes. Social presence positively influences participation and students' motivation to participate, course and instructor satisfaction, and actual and perceived learning (Richardson et al., 2017). Additionally, social presence increases performance for students' individual projects in a course (Hostetter & Busch, 2013; Richardson & Swan, 2003). Thus, social presence supports a learning community by encouraging social interaction to engage learners in higher-level learning, which is essential at the post-secondary level (Garrison & Arbaugh, 2007).

The construct of social presence from the CoI framework provided a positive learning experience in higher education (Garrison & Arbaugh, 2007), and the instructor's social presence set the tone for the classroom. Shea et al. (2010) examined if social presence develops because of instructor social presence or instructor teaching presence.

Shea et al.'s (2010) study examined the content of two online courses at a college that focused on distance education and nontraditional students. Both courses utilized the same template but different instructors. The data analysis included social network analysis and quantitative content analysis. All qualitative data were coded using the CoI framework's indicators. The study found that social presence develops because of instructor social presence. The study suggested that social presence is critical to student learning and required special attention from instructors.

In addition, teacher social presence had a direct relationship with positive student learning experiences (Shea et al., 2010). Shea and Bidjerano (2010) completed a quantitative study to describe and explain the differences in learning outcomes for hybrid and online classes. They examined the CoI constructs in terms of learning environment, interactions, and their interdependence. The participants in their study included 723 college students who enrolled in hybrid and online courses at a private college. To collect data on the students' experiences in their classes, the researchers used the CoI survey instrument in collecting data on teaching, cognitive, and social presences. In addition, the level of interaction between the students and instructors was quantified by discussion messages, announcements, calendar events, and feedback. Shea and Bidjerano (2010) found that students in hybrid courses rated their perceived learning as better and felt more socially connected to their peers than students in online courses. Additionally, the students who interacted more with their instructors during the class felt as though they learned more than students who interacted less with their instructors. Thus, the more instructors were involved socially in the learning environment, the more students' experiences were positive. For educational practices, Shea and Bidjerano (2010)

recommended focusing on collaborative instructional methods for students to interact with the course content, instructors, and other students to improve learning in hybrid and online environments.

In a case study conducted by Szeto (2015), the effects of the CoI presences in face-to-face and synchronous online instructional methods were investigated. Twenty-four first-year engineering students participated in Szeto's study at a university. One group of students completed laboratory activities face-to-face with an instructor and the other group viewed the instruction via videoconferencing at a remote site. Qualitative data were collected by using interviews, focus groups, and observations. In this study, teaching presence played a dominant role in building the social and cognitive presences in both learning environments. The students in the face-to-face environment felt as though the instructor was more attentive to the students at the remote location. It was challenging for the instructor to facilitate and interact in both environments simultaneously. Thus, the instructor did not initiate a strong social presence needed for a positive learning experience. Therefore, as I implemented reciprocal teaching in my classroom, I was cognizant of setting the example of socially interacting in class.

Culturally Responsive Teaching

Two-year college students are more likely to be economically disadvantaged, first-generation college students, racial and ethnic minorities, and immigrants than four-year college students, and these historically disenfranchised populations continue to grow at two-year colleges (Flynn et al., 2017). Noting this broad range of backgrounds and needs of the two-year college students, faculty must adjust their practices to ensure student success (Jett, 2013). One set of practices that encourages success for these diverse

students is culturally responsive teaching (Aronson & Laughter, 2016; Flynn et al., 2017; Jett, 2013). Culturally responsive teaching is defined as "using the cultural knowledge, prior experiences, frames of reference, and performance styles of ethnically diverse students to make learning encounters more relevant to and effective for them" (Gay, 2010, p. 31). When course content is situated around their lived experiences, students learn more (Jett, 2013).

To be an effective culturally responsive educator, instructors require knowledge of content as well as the student population (Aronson & Laughter, 2016). Culturally responsive educators develop a cultural diversity knowledge base (Gay, 2002). Part of developing this knowledge base of diverse groups includes learning about a group's cultural characteristics, cultural contributions, and detailed information about specific ethnic and racial groups (Gay, 2010). This knowledge bridges the gap between home and school when utilized to develop diversified instructional strategies (Aronson & Laughter, 2016). Additionally, culturally responsive educators care about their students (Gay, 2002). This caring begins with having high expectations for all students and seeking to educate the entire learner (Gay, 2010). Another component of culturally responsive teaching is awareness of and attention to the diverse communication styles of students (Gay, 2002). Instructors must be able to create learning environments that appreciate and support these communication styles so that the diverse students feel comfortable communicating (Gay, 2010). When students are comfortable communicating, the classroom is conducive to building community. In terms of building community, collaborative learning and peer coaching fit well with culturally responsive teaching (Jett, 2013). Students may perform a set of actions individually but perform better when working collaboratively or interacting

with others (Dixson, 2015; Morrone & Tarr, 2005). Thus, interacting with others encourages dialogues and thoughtful reflections between students and between students and instructor. These dialogues and reflections are stimuli for learning and support a social constructivist classroom (Dixson, 2015; Harasim, 2017) and are opportunities for an instructor to embrace the role of facilitator and co-participant (Morrone & Tarr, 2005; Setianin & Mackinnon, 2015).

Some educators misconstrue culturally responsive teaching as multicultural education, social justice education, or culturally relevant teaching (Bassey, 2016). Multicultural education celebrates diversity and provides opportunities for students to see themselves and their cultures reflected in the classroom (Chan, 2013). Sometimes, this leads to surface images of diverse populations (Aronson & Laughter, 2016). However, culturally responsive teaching focuses on developing a deeper knowledge of cultural diversity, not simply a majority understanding of a minority group (Gay, 2002). In addition, social justice education provides a lens for students to recognize inequities and injustices in society (Bassey, 2016). Although recognizing injustices in society is valued, student learning is not the focus, whereas culturally responsive teaching supports effective strategies for student success (Hammond, 2015). Furthermore, culturally relevant teaching focuses on pedagogy, and culturally responsive teaching focuses on instructional strategies (Aronson & Laughter, 2016). Culturally relevant teaching emphasizes long term achievement, cultural competence, students recognizing and honoring their own culture, acknowledging other cultures, and developing a consciousness to recognize, understand, and critique social inequalities (Ladson-Billings,

2009). Thus, culturally relevant teaching is the disposition of a culturally responsive educator (Aronson & Laughter, 2016; Flynn et al., 2017).

Collaborative Learning

Collaborative learning strategies are essential for developing a social presence in the classroom. Stover and Ziswiller (2017) examined large classes initially instructed with traditional lecture and redesigned using collaborative learning strategies. The study measured the CoI presences in the traditional lecture and redesigned courses. The 411 participants were students enrolled in eight undergraduate courses at a university. This study administered the CoI survey for data collection at the end of the fall semester in the traditional lecture classes and spring semester in the redesigned courses. Stover and Ziswiller found that teaching presence decreased when transitioning from traditional lecture to collaborative learning strategies. Three of the four classes reported higher levels of social presence in the interactive classes. Thus, the researchers recommended instructors implement collaborative learning strategies to increase social presence in the classroom. Therefore, collaborative learning strategies are a viable solution to creating a social presence in my classroom.

In addition, collaborative learning strategies were beneficial for improving student achievement and providing positive learning experiences for the students. Stump, Hilpert, Husman, Chung, and Kim (2011) examined the relationship between collaborative learning strategies and student achievement. Their study also examined gender differences in the responses. The participants in this study were enrolled in mechanical and aerospace engineering courses at a public university. Qualitative data were collected with the Student Perceptions of Classroom Knowledge-Building Survey and the

Motivated Strategies for Learning Questionnaire. Student grades were also considered during this study. The results suggested that collaborative learning strategies were a significant predictor of students' academic performance. The students who completed assignments, discussed course content, and shared ideas with each other performed better academically than the students who completed assignments independently. Based on the results of the study, Stump et al. (2011) suggested that engineering faculty implement collaborative learning strategies in the classroom.

Collaborative learning strategies also increased student engagement. Swap and Walter (2015) examined the effectiveness of collaborative learning strategies in a large-enrollment, introductory STEM course at a university. There were 714 participants over a four-year period. The instructor of the course focused on implementing small group activities throughout the course. Swap and Walter collected quantitative and qualitative data from the end of course evaluations. This study indicated there was a high degree of student satisfaction with the small group activities. The students commented positively on the effort of the instructors to engage the class with meaningful interactions. Swap and Walter (2015) recommended for instructors to implement small groups to improve student engagement and increase social interactions. Therefore, as an instructor, I am mindful in creating interactions that are meaningful to encourage students to participate in small groups.

Hajra and Das (2015) examined students' perceptions of collaborative learning strategies in an entry-level mathematics course. The 25 participants in the study were enrolled at a southern college. The three collaborative learning strategies implemented in this study were think-pair-share, group-quiz, and online discussion. The researchers

collected data with surveys at the end of each activity and a survey at the end of the intervention. In addition, pre-tests, post-tests, and individual and group quizzes were analyzed. Overall, the students' perceptions of the collaborative learning strategies were positive. The collaborative learning strategies helped students fill in the gaps and learn from others. However, the online discussions were the least favorite of the students. The students felt it was unnecessary to have discussions online since they contributed to discussions during the face-to-face time. Therefore, it was important to capitalize on class time for social interaction.

Alt (2016) examined the relationships between the students' perceptions of self-efficacy and motivation in collaborative learning environments in relation to lecture courses. The 411 participants in Alt's study were enrolled in undergraduate courses at a small private college. Data were collected with three surveys: the Academic Motivation Scale, the Motivation Strategies for Learning Questionnaire, and the Constructivist Learning in Higher Education Settings Questionnaire. The surveys were administered to students at the end of the semester. Alt (2016) found that instructor–student interaction enhanced motivation for learning. This motivation for learning contributed to a strong sense of self-efficacy. This study recommended that instructors implement collaborative learning strategies that promote dialogue to improve students' perceptions of self-efficacy and motivation in the classroom.

Although studies showed positive outcomes from implementing collaborative learning strategies in the classroom, there were also limitations worth noting. Emerson, English, and McGoldrick (2015) conducted an experimental study to investigate the effect of collaborative learning strategies on student success in an introductory college

economics course. The intervention selected as the collaborative learning strategy was think-pair-share. The study included students from seven sections at a research university and six sections at a small liberal arts college. Each class size ranged from 25 to 45 students. Students in the control section were given independent problems to solve during class. Conversely, students in the intervention section completed the same problems using the think-pair-share learning strategy. All materials and assessments were identical in all sections. Students were also administered surveys to gather data on the participants' experiences. The researchers found that there were no significant differences in experiences of the control group or the intervention group. All participants reported a similar level of interaction with their classmates and instructors. In addition, all students in the study reported a similar level of course satisfaction. Emerson et al. (2015) suggested instructors increase the time spent on these collaborative learning strategies to see the benefits of social interactions in the classroom. Thus, time is a factor in witnessing the positive effects of collaborative learning strategies in the classroom.

Zhan (2011) explored the effects of a collaborative learning strategy in an undergraduate psychology class. The 115 participants in this study, over a three-semester period, participated in jigsaw activities that lasted an hour in a 75-minute class. In assessing the effectiveness of the activities, data were collected using a survey and multiple choices assessments. The students who participated in the jigsaw activities felt the classes were enjoyable and desired to participate in such activities in the future. These activities were more favored by the students than traditional lecture. Although the experience was positive, there was no significant difference in the assessment scores when compared to the traditional classes. The researcher suggested instructors provide

alternative instructional methods in their courses to engage students in the learning process. Therefore, instructors varied instructional strategies to promote dialogue and engage students but students' grades remained the same.

Karacop and Doymus (2013) studied the effect of jigsaw, a collaborative learning strategy, and computer animation on academic achievement of first-year students at a university. The participants of this study were 115 students enrolled in three general chemistry classes. The instructor implemented jigsaw in one class and computer animation in another class. The third class was instructed with traditional lecture. The study used a pre-test and a post-test created by the researchers to collect data. The study found that jigsaw and computer animation strategies were more effective than traditional lecture in increasing academic achievement. The students in the jigsaw class demonstrated their knowledge to peers and the instructor and spent more time outside of class with the course content. The computer animation was particularly helpful in teaching the 3-D component of the course content. The researchers suggested that instructors use alternative methods other than lecture to engage students in the classroom.

Ochsner and Robinson (2017) conducted a study on implementing collaborative learning strategies in a college-level STEM course to explore the influence on student confidence and academic achievement in performing STEM skills. The study utilized two strategies: think-pair-share and peer instruction. The participants included 31 undergraduate students and 25 graduate students. The participants completed confidence surveys at the beginning and the end of the course. The instructor implemented think-pair-share and peer instruction within the same exercises. Students were given a multiple-choice problem to respond to individually. Then, the students were asked to discuss the

problem with a peer and respond to the question again. The majority of the students who answered the question incorrectly before the interaction answered correctly after the interaction. Thus, this study provided evidence of some level of learning through the interaction. At the end of the course, the students reported increased confidence regarding the technical skills. These collaborative learning strategies helped improve student performance. Ochsner and Robinson (2017) recommended collaborative learning strategies in STEM to increase student confidence and improve academic achievement. However, there was no relationship shown between confidence level and academic achievement. Unfortunately, at the community college level, many instructors are reluctant to implement collaborative learning because they feared the loss of a structured classroom (Hennessy & Evans, 2006; Stump et al. 2011; Tinto, 1997). In addition, students are not able to facilitate discussions and were reluctant to participate in groups (Hennessy & Evans, 2006; Stump et al., 2011). Thus, collaborative activities must be carefully planned and discussions modeled by instructors (Hennessy & Evans, 2006; Stump et al., 2011).

Synthesizing Social Presence, Culturally Responsive Teaching, and Collaborative Learning

Creating a social presence in the classroom aligns with the framework of culturally responsive teaching and is supported through collaborative learning. The instructor's social presence is essential in setting the tone for the learning environment (Shea et al., 2010). Students perform well in environments where they feel comfortable and valued (Gay, 2010). Thus, the instructor must learn about the culture and backgrounds of the diverse learners in the classroom and incorporate this knowledge into

their classroom practices (Gay, 2002). This promotes student confidence in who they are and their ability to express themselves in the classroom (Gay, 2010) or, the first indicator of social presence, the expression of emotion (Garrison & Arbaugh, 2007). In addition, a collaborative learning environment encourages dialogue so that students feel confident in the classroom (Alt, 2016) and helps build community (Hajra & Das, 2015). Building community among many diverse learners is key to their academic success (Gay, 2002). Many diverse cultural communities believe the welfare of the group supersedes the individuals (Jett, 2013). Thus, members of diverse populations perform better academically because they feel responsible for helping others and need to work collaboratively (Gay, 2010). This commitment to the group epitomizes group cohesion, an indicator of social presence (Garrison & Arbaugh, 2007). Furthermore, collaborative learning provides opportunities for the roles of instructor and student to be fluid (Gay, 2002). By providing fluidity between instructor and student roles, respectful and reciprocal exchanges occur or open communication, the third indicator of social presence. By creating a social presence in the classroom through collaborative learning, instructors promote students being themselves when attaining academic success (Ladson-Billings, 1995).

Rationale for Intervention

Collaborative learning strategies support creating a social presence and practicing culturally responsive teaching within the learning environment (Garrison, 2010; Jett, 2013). Thus, a collaborative learning strategy, reciprocal teaching, was selected as the intervention for this action research study. Reciprocal teaching emphasizes small group discussions where students serve as both students and instructors (Emerson et al., 2015).

When students serve as both students and instructors, they become interdependent and committed to helping their peers (Swap & Walter, 2015). This interdependence and commitment develops group cohesion, which is characteristic of social presence and culturally responsiveness. In the learning environment, the instructor's social presence sets the tone (Shea et al., 2010), and reciprocal teaching begins with a brief lecture. This brief lecture discusses course content and models reciprocal teaching to encourage meaningful classroom interactions (Swap & Walter, 2015). By modeling the behaviors of reciprocal teaching, the instructor promotes high expectations, a characteristic of a culturally responsive educator (Gay, 2010). In addition, students gain confidence in themselves and the course content by participating in open communication (Shea & Bidjerano, 2010). This is manifested by students discussing content collaboratively with their peers and the instructor (Stump et al., 2011). This communication leads to trust and familiarity and is necessary for exchanging ideas in the classroom (Garrison et al., 2010). If students are exchanging ideas openly, they hear another perspective, ask questions, process this information, and internalize this information (Garrison & Arbaugh, 2007). Furthermore, reciprocal teaching ends with the students sharing with the class (Green, 2000). This sharing at the end reinforces a commitment to the process and ensures no one is left behind (Gay, 2010). By implementing reciprocal teaching in my classroom, the students and I have the opportunity to develop social presence and practice culturally responsiveness through working collaboratively and establishing avenues for communication.

Research Methodology

Action Research

Mertler (2017) defined action research as a cyclical, inquiry-based process conducted by administrators, teachers, instructors, support staff, or other stakeholders to improve an institution's operation, teaching, and learning. Action research attempts to understand a specific situation, and the conclusions apply to a particular setting and context of which the researcher, as a participant, has firsthand knowledge (Mertler, 2017). This knowledge provides valuable insight into the students' world (Efron & Ravid, 2013). Being cyclical in nature, action research begins with a research question and ends with new questions and another cycle of research. Thus, action research serves as an immediate improvement of educational practice. Specifically, action research provides methods for practitioners to improve instructor effectiveness and student outcomes at their institutions (Mills & Gray, 2016).

During the early 1900s, progressive educational leaders encouraged practitioners to study their settings (Efron & Ravid, 2013). This was based on the argument that educators must become reflective practitioners and adjust classroom strategies based on their own ideas and educational theories. The term "action research" was utilized by John Collier, a commissioner of the Bureau of Indian Affairs from 1933 to 1945. Collier stated that all tribes did not have the same needs and described a research method that was particular to the local community. Kurt Lewin, a psychologist and the credited founder of action research, posited research should be participatory and conducted by members of the group, whose situation would be changed.

In the 1950s, Stephen Covey, a dean at Teachers College–Columbia University,

wrote a seminal book *Action Research to Improve School Practice* (1953). This book stated teachers must be involved in developing curricula and instructional practices. However, in the following decade, teachers were relegated to roles using curriculum designed by outside experts. During the 1970s, Lawrence Stenhouse, a professor of education in the United Kingdom, rejected the idea that teachers were the blame for failed curriculum provided by experts. He posited that teachers should be able to modify curriculum as necessary and examined if the materials are suited for their students. Stenhouse began the Humanities Curriculum Project that encouraged teachers to systematically self-assess their school settings and classrooms. This movement inspired the growth of action research in the United States and redefined teachers as leaders who are involved in making decisions in their schools and classrooms.

Researchers proposed models for the action research process, and Mertler (2017) stated each model established four stages to the process: the planning stage, the acting stage, the developing stage, and the reflecting stage. Action research is not linear, and, typically, does not have a definite ending. Practitioners design, implement, and evaluate projects and reflect on revisions to implement for future projects. During the planning stage, the practitioner identifies a problem of practice, gathers information about the identified problem, reviews scholarly literature and curriculum theories, and develops a research plan. During the acting stage, data collection occurs. Once the acting stage has been completed, the practitioner consults with the participants to develop a plan of action. The development of a plan of action provides strategies to address the identified problem of practice. After a plan of action is developed, the reflecting stage will include sharing and communicating the study's results with the participants as well as other stakeholders.

The reflecting stage also provides an opportunity to review the process and make other adjustments, which illustrates the iterative process of continually reviewing practices to make improvements in action research (Efron & Ravid, 2013).

Phenomenology

Phenomenology, the study of human experience, has three types: descriptive or transcendental, interpretive or hermeneutic, and post-intentional. Edmund Husserl, the founder of phenomenology, defined the concepts of transcendental phenomenology in his 1913 work, *Ideas Pertaining to a Pure Phenomenology and to a Phenomenological Philosophy* (Kaufer & Chemero, 2015). Phenomenology asks what is it like to have an experience and examines the meaning of this experience (Moustakas, 1994). Husserl believed in removing any preconceived notions or bracketing when examining a phenomenon to get a true understanding of what is happening (Creswell & Poth, 2013). Husserl argued that "careful, elaborate description of our experience can reveal essential features" (Kaufer & Chemero, 2015, p. 26). By noting and describing these essential features, the true essence, or description, of the experience is captured (Moustakas, 1994). These descriptions are based on personal data gathered from the participants through interviews (Creswell & Poth, 2013).

Martin Heidegger, a student of Husserl, believed that transcendental phenomenology was too theoretical and conceptualized interpretive phenomenology (Smith, Flowers, & Larkin, 2009). Interpretive phenomenology focuses on more than the description of an experience; it interprets the experience (Ricci, 2000). It makes sense of the participants' personal, social, and historical contexts, and the researcher makes sense of the participants' experiences (Smith et al., 2009). Data collection focuses on

understanding what it is to be in a particular state of being (Valentine, Kopcha, & Vagle, 2018). These data include interviews and texts. In analyzing and interpreting the data, there are iterative cycles of writings and interpretations to understand the phenomenon.

During the 1970s, Amedeo Giorgi applied Husserl's descriptive phenomenological to psychology and education (Giorgi, 2009). During the 1980s, post-intentional phenomenology developed and focused on the evolving nature of the world (Valentine et al., 2018). Post-intentional phenomenology considers phenomena as socially produced and are not manifested individually (Ricci, 2000). Meaning is produced in terms of cultures, genders, contexts, and conversations. Data are collected from participants, documents, video, art, and news (Vagle, 2018). In analyzing the data, the researcher iteratively questions and reflects on the data to understand the phenomenon (Valentine et al., 2018).

Rationale for Utilizing the Selected Research Methodology

Students enrolled in my courses have career goals of becoming technicians in the manufacturing industry. To prepare them for their career goals, I must teach them the fundamentals of electrical circuitry. However, not every student completes the course. As I continue to instruct the same courses each academic year, I desire to change my instructional strategies to reach my students. Thus, employing action research in my classroom allows me to implement instructional strategies based on educational theories and related research (Mertler, 2017). Within this action research framework, a phenomenological approach was enacted. A phenomenological approach focuses on one central concept, a phenomenon, experienced by participants in a study (Creswell, 2018). In this study, the phenomenon under investigation is social interactions within a college

classroom. Phenomenology is also a first-hand account of the participants' lived experiences. With this in mind, I desire to describe the prior experiences of the student-participants as well as their experiences during this study's intervention. In gathering these data, I reflect and receive feedback prior to the intervention and within each cycle of the intervention, which is characteristic of action research (Efron & Ravid, 2013). If I am able to adjust my instructional strategies during the intervention, I may see positive changes in my students' performances on assessments within the semester. Thus, action research aids in my professional development and empowers me to facilitate change within my professional environment (Efron & Ravid, 2013).

Conclusion

This phenomenological, action research study focuses on creating a social presence in a college electronics course to support student success. In establishing social presence, the instructor must exhibit and model the indicators of social presence to set the tone in the classroom. As a means to support this social presence, I selected reciprocal teaching as the intervention, based on the related literature. Research shows positive outcomes when students participate in collaborative learning activities. However, research also indicates the amount of time students experience collaborative learning activities is a factor in obtaining these positive outcomes. Additionally, students enjoy collaborative learning activities, but there may be no change in student achievement. Therefore, this chapter provides the basis to address the identified problem of practice. This chapter also discusses the theoretical perspectives and previous research findings related to the identified problem of practice and the research methodology followed in order to answer my research questions. In the next chapter, I will build on this discussion

of the problem, the theoretical framework, and the methodology by further describing the specific methods that were used in this study. These methods are aligned with the topics discussed in this chapter.

Chapter 3

Methodology

This action research study acknowledged the potential for students at two-year colleges to underperform and explored ways to improve student success. One factor in attaining student success at the post-secondary level is a campus environment that cultivates a sense of belonging through building relationships (Tinto, 1997). However, there are obstacles to building relationships at the two-year college. The majority of two-year colleges are nonresidential (Deil-Amen, 2011). Additionally, many students at two-year colleges have responsibilities that preclude them from participating in activities outside of the classroom (Tinto, 1997). Thus, in this study, I explored social interactions and their possible influence on student achievement in the classroom. In an effort to improve student achievement, I synthesized social presence from the community of inquiry (Garrison et al., 2000) framework and elements of culturally responsive teaching (Gay, 2010) with a focus on collaborative learning (Stump et al., 2011). In applying this theoretical framework, I implemented reciprocal teaching (Green, 2000), a collaborative learning strategy that has the potential to foster the development of social presence and is inherently culturally responsive. Thus, one research question guiding this study was: How did the student-participants describe and perceive their social interactions in a college electronics course? Once this question was answered, this study examined: How did strategies for developing student and instructor social presence in a college electronics courses promote student achievement? To answer these research questions, I

utilized a phenomenological, action research approach to understand the lived experience of the participants in the study. Thus, I collected qualitative data to learn about the student-participants' perceptions and perspectives toward the social interactions before, during, and after the study's intervention.

Overview of the Design

Action research is a cyclical, inquiry-based process that addresses a localized problem in an educational organization (Herr & Anderson, 2015). Practitioners of action research are viewed as generators of knowledge because they are professionals capable of making well-informed decisions about their own inquiries and are responsible for their own research-based actions (Efron & Ravid, 2013). Mertler (2017) presented the cyclical process of action research in four stages: the planning stage, the acting stage, the developing stage, and the reflection stage. During the planning stage, I reflected on my classroom experiences and thought about the actions of students who performed well in the course. In reflecting on my classroom experiences, I noted how the students who engaged socially with their classmates and with me performed well in my courses. Thus, I began to review literature on social interactions in the classroom. During this review, I learned about the importance of establishing a social presence within the community of inquiry framework for a successful experience in higher education (Garrison et al., 2000). Upon further review of the literature, I learned about culturally responsive teaching (Gay, 2010) and the positive outcomes for two-year college students (Aronson & Laughter, 2016; Flynn et al., 2017; Jett, 2013). Then, I continued my literature review and learned about instructional strategies that promote collaborative learning for two-year college students (Stump et al., 2011; Hennessy & Evans, 2006). In reviewing the community of

inquiry framework (Garrison et al., 2000), culturally responsive teaching (Gay, 2010), and collaborative learning (Stump et al., 2011), I recognized how I could integrate them into a theoretical framework to address my problem of practice.

After developing my theoretical framework to address my problem of practice, I selected an appropriate research design to collect and analyze data. For this study, the appropriate research design was phenomenology. A phenomenological research design focuses on one phenomenon and employs methods to understand the lived experiences of the participants (Creswell, 2018). My problem of practice is focused on one phenomenon: social interaction in the classroom. To learn about the students' social interactions in the classroom, I need to learn about and understand their lived experiences with the phenomenon. To learn about and understand these lived experiences, I need to hear directly from my students. In hearing directly from my students through interviews, I am able to describe the student-participants' common experience of participating in purposeful social interactions designed using the theoretical framework, an outcome of a phenomenological research design (Creswell & Poth, 2013). During the acting stage, I collected and analyzed qualitative data based on phenomenological methods. The data analysis procedures followed four steps delineated by Moustakas (1994). The first step is to develop a list of significant statements. Significant statements are descriptions or highlights of the lived experiences relevant to the phenomenon under investigation. Next, these significant statements are grouped into themes. Themes are extended phrases or sentences that identify what the data means (Saldaña, 2016). The themes are used to develop a textual description of what the participants experienced and a structural description of how the participants experienced the phenomenon in terms of conditions,

situations, and contexts. Then, the researcher develops a composite description of the experience.

Student-participants participated in pre-intervention interviews, enabling me to collect data on their previous social interactions in the classroom. These data were used to plan the implementation of reciprocal teaching during the intervention. Student-participants participated in post-intervention interviews that enabled me to collect data on their lived experiences during the intervention. I completed three cycles of the intervention. During each cycle of the implementation of reciprocal teaching, I observed the student-participants and wrote reflective notes on these classroom observations. These classroom observations and reflective notes determined how I would alter the next cycle of the intervention. The process of collecting data, followed by reflection with the anticipation of improving teaching and learning, is the core of action research (Mertler, 2017). In improving teaching and learning through reflection, I was able to use this new knowledge to become a better instructor.

Once the acting stage was completed, I moved into the developing stage and began to develop a plan of action based on my findings from the data collection. I facilitated a meeting and discussed the findings from the study with the student-participants and my colleagues in the STEM department. During this meeting, we developed a plan of action for the department based on my initial findings (Mertler, 2017). Thus, another purpose of action research was realized: educating the practitioner-researcher and the student-participants (Herr & Anderson, 2015). The plan of action included strategies to address my problem of practice and the individuals responsible for carrying out and monitoring the success or failure of the strategy (Mertler, 2017). Thus,

the results were relevant to my local setting and produced knowledge that was useful to my educational practice (Herr & Anderson, 2015). This plan of action also provided a list of action-oriented outcomes, which is a goal of action research (Herr & Anderson, 2015). Once the plan of action was created, the reflecting stage began. During the reflecting stage, I shared my findings and action plan with the other instructors at my college. The reflecting stage is also an opportunity for me to review the process and make plans for future studies (Mertler, 2017). Thus, the knowledge and experience gained from this study has led to new questions for me to investigate, ways to improve my intervention in the future, and the beginning of my next research cycle (Efron & Ravid, 2013). Therefore, the action research framework, combined with the phenomenological data collection and analysis, provided a sound and appropriate research methodology to address my problem of practice (Herr & Anderson, 2015). Figure 3.1 provides a visual for the steps of the research design for this study.

Description of the Context

The site for this study was a two-year college located in a small rural region in South Carolina. Students at the college enrolled in certificate and associate degree programs to obtain skills for employment or to transfer to four-year colleges and universities. Disciplines at the college included fields of study in the medical profession, human services, and technology. The college's open enrollment policy welcomed and provided all students with an opportunity to learn.

During the Fall 2017 semester, 2,479 students enrolled at the college (National Center for Education Statistics, 2018a). In the Fall of 2017, 64% of the student population was female and 34% was male (National Center for Education Statistics,

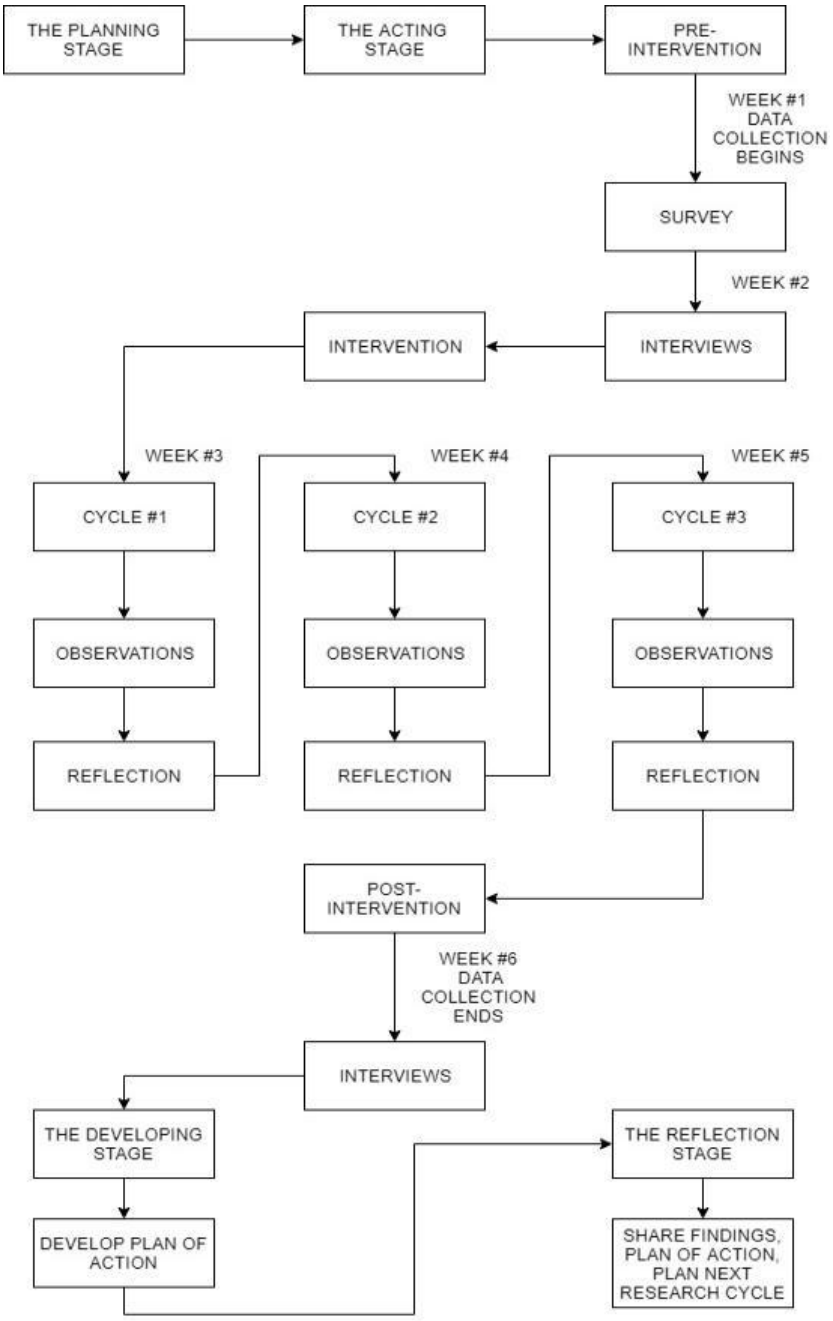

Figure 3.1. Phenomenological action research design diagram.

2018a). In addition, 64% of the student population was enrolled part-time, and 36% of the student population was enrolled full-time (National Center for Education Statistics, 2018a). The racial and ethnic composition of the student population was 54% Black or

African American, 40% White, 2% Hispanic or Latino, 1% Asian, and 1% American Indian and Alaskan Native (National Center for Education Statistics, 2018a). The majority of the student population was under 24 years of age at 69% (National Center for Education Statistics, 2018a).

Electrical Circuits, Electronic Circuits, and Digital Circuits were required courses to complete associate degrees offered in the department of engineering and advanced manufacturing. I instructed Electrical Circuits, a fall course, and Electronic Circuits, a spring course. Electrical Circuits was the prerequisite to enroll in Electronic Circuits. Electronic Circuits continued the study of fundamental theories of circuits and was the prerequisite to enroll in Digital Circuits, a summer course. Additionally, Electronic Circuits, a four-credit course, met three times a week for three hours of lecture and three hours for laboratory.

Role of the Researcher

I was involved in an in-depth experience with the student-participants and reflected on my role during this study. I had previous knowledge of the student-participants' academic performance because I taught them the semester prior to this study. Based on this knowledge, I had ideas about who would perform well in this electronics course and who would need scaffolding. Additionally, conducting research in the immediate work setting was convenient and, in some instances, led to an imbalance of power between researchers and participants (Creswell, 2018). However, as the researcher in my work setting, I assured the students that participation in this study had no bearing on their course grades. Furthermore, I demonstrated the accuracy of the data through

strategies of validation (Creswell & Poth, 2013). Other ethical issues and criteria for ensuring quality for this study are discussed later in this chapter.

In this phenomenological, action study, I also provided a description of the phenomenon studied. In providing this description, I set aside, or bracketed, my previous experience with the phenomenon and looked at the data with a fresh perspective (Moustakas, 1994). In addition, it was expected that my "beliefs, political stance, and cultural background (gender, race, class, socioeconomic status, educational background) were important variables that may affect the research process" (Bourke, 2014, p. 2).

Description of the Participants

In action research, the sample and population are identical (Fraenkel, Wallen, & Hyun, 2015). All students enrolled in Electronic Circuits agreed to participate in this study. The students enrolled in this course possessed the necessary information for me to learn about their classroom experiences (Efron & Ravid, 2013). Twenty-seven students were enrolled in the course, and there was one student enrolled with a part-time status. The majority of the student-participants (19) were electronics engineering majors with an instrumentation concentration. Mechatronics was the major for 6 student-participants, and 3 students were industrial electronics majors. The racial and ethnic composition of the student-participants was as follows: Black or African American (6), White (20), and Native American (2). The majority of the student population (69%) was under 24 years of age. The student-participants' ages were as follows: 23 students between the ages of 17 and 24 years old, 3 students between the ages of 25 and 34 years old, and 2 students between the ages of 35 and 44 years old.

The methodology for this study was based on qualitative methods and procedures. Fraenkel et al. (2015) recommended 1 to 24 participants in a qualitative study. In addition, Creswell (2018) recommended interviewing a minimum of three participants in a phenomenological study. Therefore, the number of 28 student-participants along with the 7 volunteers for interviews was sufficient to complete this study.

Implementation of the Intervention

The implementation of the intervention took place in two phases: the pre-intervention and the intervention. The following section details the actions completed for each phase. The pre-intervention phase included introducing the study to the student-participants and conducting interviews with the student-participants to prepare for the intervention. The intervention phase included the enactment of reciprocal teaching in the classroom for three cycles.

Pre-Intervention

The data collection process began by introducing and discussing this phenomenological, action research study with the students enrolled in Electronic Circuits. First, I discussed the problem of practice, purpose of the study, and the research questions guiding this study. During this class session, I discussed the ethical issues related directly to student-participants. I stressed that participation was voluntary and the option to withdraw from this study for any reason was available at any time (Fraenkel et al., 2015). I informed the students that nonparticipation did not have any effect on course grades. The students were given the procedures for the study, and I discussed how we were collaborators during this study (Fraenkel et al., 2015). In addition, I discussed privacy

issues and ensured the protection of all data collected (Bourke, 2014). The electronic storage devices and all printed documents were stored in a locked file drawer. I also discussed each section of the informed consent form (Appendix G). This form was based on Mertler's (2017) example. Lastly, I addressed any questions the participants had about the study and expressed there was an open-door policy for any other questions or issues the participants had pertaining to this study. Once all questions were answered, I invited the students to privately complete an electronic survey available through the course's learning management site. Once all surveys were completed, the student-participants reviewed and signed consent forms during the following lecture session. This lecture session also included a trial recording session to verify all USB recorders functioned properly.

Intervention—Reciprocal Teaching

The community of inquiry (CoI) framework emphasized the importance of establishing a social presence for a successful higher education experience (Garrison et al., 2000). Social presence opened and freed students in the classroom to communicate about course content (Garrison & Arbaugh, 2007). In addition, research supported the importance of the instructor's social presence setting the tone of the classroom (Shea et al., 2010). Thus, reciprocal teaching, a collaborative learning strategy, was the intervention selected to encourage discussion of course content. Discussion of concepts between peers and their instructor reinforced concepts and developed a deeper learning for the students (Emerson, English, & McGoldrick, 2015). Reciprocal teaching also facilitated social interactions within the classroom, and students learned from their peers and the increased attention from the instructors (Shadiev et al., 2014; Yang, 2010;

Muñoz-García, Moreda, Hernández-Sánchez, & Valiño, 2013). With the increased attention from the instructors during reciprocal teaching, instructors watched for clues within the groups to know when to help the groups, and student issues with learning concepts were easily identified (Shadiev et al., 2014; Yang, 2010). Think-pair-share-square (TPSS) and modified jigsaw were the two learning strategies implemented in the classroom to encourage and support reciprocal teaching (Green, 2000).

Think-pair-share-square. Frank Lyman (1981) developed think-pair-share (TPS), and as the name suggests, this learning strategy involved three steps. After a brief lecture on a topic, the instructor posed a problem for the students to solve. Students solved the problem individually for a designated amount of time. Once the time expired, students paired with a peer to discuss and compare their responses. After agreeing on an answer, the students shared their solution to the problem with the class. A modification of TPS, termed think-pair-square-share (TPSS), includes students consulting with another pair before sharing with the class (Green, 2000; Scanniello & Erra, 2014).

By reviewing the problem individually, the student-participants gain confidence in discussing their assigned problem with their group members (Hennessey & Evans, 2006). Thus, when the student-participants pair with each other, they share their thoughts and participate in open communication by exchanging ideas to solve the problem (Garrison, 2011). Once the four, or the square, share their thoughts, they continue to participate in open communication (Garrison, 2011). Finally, knowing they have to present the problem at the end of class provides the stimulus to complete the problems and commit to helping each other, which illustrates group cohesion (Garrison et al., 2000).

Modified jigsaw. Aronson, Blaney, Stephan, Sikes, and Snapp (1978) developed and implemented the jigsaw learning strategy. When implementing the jigsaw learning strategy, students were placed in a home group with four members. The instructor discussed a topic and divided the topic into subtopics. Each group member selected a subtopic to explore and teach to the home group. Then, students were placed in their jigsaw groups based on their particular subtopic. In these expert groups, the students discussed the topics and explanations to aid their peers learn the topic. Students, then, returned to their home groups and discussed their new knowledge within the home group. During this group discussion, students discussed and evaluated the material taught by the other group members. Barkley, Major, and Cross (2014) varied the jigsaw learning strategy by utilizing one group of four students. In this version, two students within the group became experts on one concept and taught the concept to the other two group members.

By reviewing the problem individually, the student-participants gain confidence in discussing their assigned problem with their group members (Hennessey & Evans, 2006). Next, the student-participants share their thoughts and solutions to their problems. This open communication leads to exchanging ideas and discussion about how to solve the problem (Garrison et al., 2000). In addition, open communication permits negotiations between the group members when the solution presented is incorrect (Garrison, 2011). Finally, knowing they had to present the problems at the end of class and an exam was scheduled the next week provides the stimuli to complete the problems and commit to helping each other, which illustrates group cohesion (Garrison et al., 2000).

Cycle 1—TPSS

During the first cycle of the intervention, I introduced the student-participants to TPSS. At the beginning of class, I recorded and completed a 15-minute lecture on the topic of transformers. The lesson plan is included in Appendix A. Following the lecture, I divided the class into seven groups of four. Once the student-participants formed their groups, I instructed them on how TPSS was executed. I provided each student with a problem sheet and a list of guiding questions to ensure each student was able to initiate discussion during the exercise. This illustrated my high expectations for the students and the opportunity to engage in open communication (Gay, 2010), an indicator of social presence (Garrison et al., 2000). Both documents are included in Appendix B. While the groups formed, I placed one USB recorder in the center of each group. Each USB was identified with a number to ensure I collected all recorders at the end of lecture. Once the student-participants were engaged in TPSS, I monitored and facilitated group progress and continued to observe the student-participants. As I facilitated the activity, I communicated with each group individually. By communicating with each group, I illustrated each indicator of social presence. I shared my personal and academic experiences with the student-participants. This aided in showing that I trusted the student-participants and understood their feelings about learning the content (Gay, 2010). Thus, these discussions led to respectful and reciprocal exchanges in learning more about me and the content (Gay, 2010). In addition, monitoring the student-participants' progress showed that I was committed to helping them learn the content and complete the task (Gay, 2010), which aided in developing group cohesion (Garrison et al., 2000). At the end of the lecture session, volunteers were selected to complete the problems for the class.

Immediately following the lecture session, I reflected on the field notes and completed observer's comments. Additionally, I listened to the audio recordings.

Cycle 2—TPSS

During the second week of the intervention, I continued implementing TPSS. At the beginning of class, I recorded and completed a 15-minute lecture on diodes. The lesson plan is included in Appendix C. Following the lecture, I divided the class into new groups of four based on the student-participants' requests and my initial analysis from the previous week of the intervention. As a culturally responsive educator, I care about my students and their classroom experiences (Gay, 2010). Thus, by reassigning the groups, I illustrated to the student-participants that I cared and valued their thoughts and feelings. Once the student-participants formed their groups, I reminded them of the procedure for TPSS. I provided each student with a problem sheet and a list of guiding questions to aid in problem solving. Both documents are included in Appendix D. While the new groups formed, I placed one USB recorder in the middle of each group. Once the student-participants were engaged in the collaborative activity, I monitored and facilitated group progress and continued to observe the student-participants. At the end of the lecture session, I collected all USB recorders. Immediately following the lecture session, I reflected on the field notes and completed observer's comments. Additionally, I listened to the audio recordings.

Cycle 3—Modified Jigsaw

During the third week of the intervention, I implemented a modified jigsaw activity. This activity included review problems to prepare the student-participants for an

exam. I recorded my introduction for the session's activity. Once the student-participants formed their groups, I instructed them on how modified jigsaw was executed. I provided each student with a problem sheet. The review problems are included in Appendix E. While the groups formed, I also placed one USB recorder in the middle of each group. Once the student-participants were engaged in the activity, I monitored and facilitated group progress and continued to observe the student-participants. As I facilitated the activity, I communicated with each group individually. At the end of the lecture session, I collected all USB recorders. Immediately following the lecture sessions, I reflected on the field notes and completed observer's comments. Additionally, I listened to the audio recordings. This third cycle concluded the intervention.

Ethical Considerations

When conducting this phenomenological, action research study, I considered ethics during the planning and throughout the process of this research. I ensured the participants were not harmed and confidentiality was not breached (Fraenkel et al., 2015). As recommended by Mertler (2017), I completed the training course offered by the National Institutes of Health (NIH) Office of Extramural Research, titled Protecting Human Research Participants. This training course provided a thorough history and overview of the ethical treatment of research participants, which I considered in the ethical practices for this study. Additionally, I followed procedures as outlined by the Institutional Review Boards of the University of South Carolina and my college to gain approval for this research before data collecting began.

Kaufman (2008) defined ethical practices as providing a benefit for society, and social justice benefits society by providing opportunities for minority and underserved

students of the educational system, who were served by this study's site. Hence, this phenomenological, action research study embodied the value of being active to promote social justice by students participating in this study to bring about change through individuals collectively working together (Smith, 2013). In discussing factors that affected student success, the participants in this study viewed themselves as stakeholders with a vested interest in the outcome of this study (Parsell et al., 2014). After sharing the results and the conclusions from the data collected during this study, developing a plan of action to address the identified problem of practice in this dissertation in practice with the participants further highlights their efforts (Mertler, 2017) and allowed them to see that their experiences provide an improved college experience for future students. Thus, witnessing the plan of action implemented and following the impact of the plan of action increases the confidence of the participants by knowing their contributions resulted in a change in practice at the college (Smith, 2013).

Data Collection and Analysis

The data collection methods selected for this study were based on my theoretical framework, action research, and phenomenology. In this study, I used surveys (Mertler, 2017), semi-structured interviews (Efron & Ravid, 2013), classroom observations (Mertler, 2017), and reflective notes (Efron & Ravid, 2013) to understand the impact of social interactions in the classrooms.

Surveys

Surveys collect a group of quantitative data that includes a set of questions or statements to sample a group of people (Mertler, 2017). I administered electronic

surveys because of their easy access through the internet and quick turnaround (Fraenkel et al., 2015), and I used Google forms to create the survey for this study. The survey items were structured with pre-selected options to which the student-participants could respond. The demographic items included: program of study, enrollment status, gender, and age range. The demographic items in the survey collected data aligned with the data collected and reported to the college's accrediting agency by the Office of Institutional Effectiveness. It was also essential to solicit student-participants who were open and willing to speak with me individually (Mills, 2014). Thus, the survey collected data on the willingness of the students to participate in a one-on-one interview discussing their social interactions on campus prior to the intervention and their social interactions following the intervention. As part of rigorous data collection, Creswell (2018) recommended piloting the developed survey. Once I created the survey, two of my colleagues piloted and reviewed the survey. The feedback from the piloting provided information to improve the survey. The survey is located in Appendix F.

During the first week of data collection, this electronic survey was made available to collect data. Each response by the student-participant was quantified by counting the number of student-participants who selected each option. The Google form calculated the responses of each item to report in this study. The completion of the survey confirmed the students' participation in the study. The survey link was available for four days, and the results were analyzed the day after the survey link closed.

Semi-Structured Interviews

Semi-structured interviews provide a focus for interviews and are based on questions that are prepared prior to the interview (Efron & Ravid, 2013). The questions

are open-ended and allow the student-participants to talk about their experience. Follow-up questions are also included for the participant to extend and think deeper about their experiences (Efron & Ravid, 2013). In this phenomenological, action research study, student-participants completed pre-intervention and post-intervention interviews. The questions for these interviews were adopted from Spaid-Ross' (2015) study on social interactions and collaborative classroom activities. At the end of each interview, I wrote notes to record the essence of the conversation (Mill, 2014). Notes also included a detailed description of the interviewee's background, socio-demographic information, physical appearance, body language, and tone of voice, which aided in understanding the participant's perspective (Efron & Ravid, 2013).

To plan for this study's intervention, I used pre-intervention interviews to gather data on the student-participants' prior social interactions with their peers and their instructors. These interviews illustrated that I care about my students' experiences and backgrounds and my willingness to implement classroom activities based on these prior experiences, which is characteristic of a culturally responsive educator (Gay, 2010). Pre-intervention interviews were conducted with seven student-participants. Each of these student-participants received a private invitation through Signup Genius to schedule an interview in my office based on availability. I conducted each interview one week prior to the implementation of the intervention. Each interview began with greetings, an overview of the topic, and thanking the student-participant for her time (Efron & Ravid, 2013). The student-participants also reviewed and signed the consent form. The consent form (Appendix J) was based on Mertler's (2017) example. The interview questions inquired about the students-participants' experiences socially interacting with their

classmates and other students on campus. In addition, these interview questions inquired about a typical day on campus and how they spent their time on campus. These pre-intervention interviews collected data on the student-participants' prior social interactions in classrooms at the college and outside of the classroom. I asked the student-participants to describe their typical day on campus. Next, I asked the student-participants to describe their interactions with peers on campus. To assist students with describing these interactions, the interview questions focused on obtaining data on how the student-participants socialized on campus, if they made any new friends on campus, and if they communicated with their classmates outside of class. Additionally, the interview questions focused on the student-participants' experiences working collaboratively. The interview questions aligned with collecting data on negative and positive outcomes from these experiences. There were also interview questions about how the student-participants felt communicating with their classmates and instructors about academic and social matters. Each interview lasted approximately 45 minutes and was recorded to ensure data accuracy (Creswell, 2018). At the conclusion of each interview, I played the recordings to verify the interview was indeed recorded. The pre-intervention questions are located in Appendix H.

At the end of the intervention, each student-participant who completed the pre-intervention interview received a private invitation through Signup Genius to schedule an interview in my office based on availability. These post-intervention interviews collected data on the student-participants' experiences during their collaborative classroom exercises. The interview questions were based on the student-participants' experiences during the intervention. I asked the student-participants to describe their experiences

during the intervention. To facilitate description of these interactions, the interview questions focused on obtaining data on if the student-participants enjoyed their experience, if they helped a classmate learn a concept, and if a classmate helped them learn a concept. Additionally, the interview questions focused on any changes the student-participants experienced in conversations with classmates and me during intervention. These interview questions asked about openness to communicate academically and personally and increased communication outside of the classroom. Each interview lasted approximately 45 minutes and was recorded to ensure data accuracy (Creswell, 2018). At the conclusion of each interview, I played the recordings to verify the interview recorded. The post-intervention interview questions are located in Appendix I.

Following each interview, I manually transcribed the data. I utilized the audio software Audacity to slow the speed of the recordings. Once I slowed the speed, I listened to the recordings. I used an external computer microphone to speak the words into a Word document using the Windows Speech Recognition software. After completing the initial transcript of the interviews, I listened to the recordings and corrected any errors found in the Word document. To protect the identities of the student-participants interviewed, I did not use any names in the transcripts or file names. In addition, the slower speed of the recordings distorted the voices. The student-participants reviewed the transcripts upon completion for accuracy.

The data analysis procedures followed the four steps delineated by Moustakas (1994).

1. After creating and printing Word documents for each interview, I read each interview. I continued to read each interview multiple times, and I highlighted significant statements related to the phenomenon of social interaction in the classroom. These significant statements were the meaning units of the experience. In identifying significant statements, I asked two questions: Is this a moment necessary for understanding the phenomenon? Is it possible to label this experience? Once I highlighted the significant statements, I copied these statements from the Word documents and pasted them into an Excel table. When creating this Excel table, any overlapping or repetitive statements were eliminated. The Excel table is included in Appendix K.
2. After I identified the significant statements, I read them slowly and carefully to identify themes describing the student-participants' experience. To validate these themes, I asked two questions: Are they expressed explicitly in the complete transcript? Are they compatible if not expressed explicitly? Once I added themes to each statement in the Excel table, I highlighted each theme with a different color and corresponding significant statement. Then, I used the filter function to sort the themes and significant statements based on colors. After sorting the themes, I printed each theme. Additionally, I consulted with a colleague to critique and add insight to the themes selected from the significant statements (Saldaña, 2016).
3. I wrote a textual description of the student-participants' experience based on these themes, or the "what" that happened during the intervention. This textual description included verbatim text from the transcribed interview, which honors

the voices of the student-participants (Saldaña, 2016). To create a structural description, or the "how" of the experience, I reflected on the textual description in terms of the setting and context in which the phenomenon was experienced.

4. After the textual and structural descriptions were written, I wrote one final description of the student-participants' experience representing the group as a whole. Thus, this final analysis discovered the meanings, essences, and structure of the phenomenon of social interaction in the electronics course.

Classroom Observations

Carefully observing the classroom allowed me to see things in the classroom setting that I may unconsciously miss (Efron & Ravid, 2013). As the practitioner-researcher of this study, I was completely involved in the intervention. During lecture, I completed my usual classroom observations. In addition, I collected data by audio recording each group. Semi-structured observations are designed to consciously look for particular patterns of behavior in the classroom (Efron & Ravid 2013). Following the completion of each observation, I reflected and noted any emerging patterns from my observations and the audio recordings (Creswell, 2018). The form to record the field notes was based on Mertler's (2017) document and is located in Appendix L. The focus of these semi-structured observations was based on the study's phenomenon, social interactions in the classroom, under investigation. During each cycle of the implementation of reciprocal teaching, I looked for meaningful interactions, which are an important part of social presence (Garrison et al., 2000) and an outcome of culturally responsive teaching (Gay, 2010). To ensure my observations were not completed at the expense of my teaching (Mertler, 2017), I audio recorded the lecture sessions to observe

what I could not see with my eyes in the classroom setting (Mertler, 2017). I listened to these audio recordings and added to my field notes completed during the lecture sessions. These field notes showed what happened in the classroom, and I utilized these field notes to write reflective notes on the meaning of what I observed (Efron & Ravid, 2013). These notes led to varying the next learning experience, which illustrated the immediate feedback obtained during action research (Efron & Ravid, 2013).

Reflective Notes

Reflective notes record insights and reflections on what happened in the classroom and my own experiences (Efron & Ravid, 2013). Reflective notes were completed at the end of each cycle of the intervention. These reflective notes included the meaning of what was observed, reflection on the procedures and materials used during the lecture session, reflection on problems encountered, and my own feelings, attitudes, and expectations (Efron & Ravid, 2013). In reflecting on my experiences, I was cognizant of the fact that I set the tone for social presence in the classroom and contemplated how I could positively impact the social presence of the student-participants (Shea et al., 2010). These data provided information for me to make informed decisions on the next cycle of the intervention.

Validity and Transferability

The validity of qualitative data in action research is concerned with the trustworthiness of the data (Mertler, 2017). Trustworthiness is established by four characteristics: credibility, transferability, dependability, and confirmability (Mertler, 2017). Credibility establishes that the results of the study are believable (Mertler, 2017)

and is demonstrated by performing member checks (Mills, 2014). In this study, the student-participants read and approved the text of their interviews. The student-participants' descriptions are detailed in Chapter 4. I also discussed my analytical thoughts and interpretations with the student-participants (Efron & Ravid, 2013). These reviews allowed the student-participants to ensure their experiences were not misrepresented (Creswell, 2018). By having the student-participants review their interview transcripts, my analytical thoughts, and interpretations, I was able to preserve the student-participants' voices, which aligns with phenomenology (Saldaña, 2016). Credibility is also established by peer review (Efron & Ravid, 2013). Peer review provides me with an additional set of eyes on my interpretation and accuracy of my findings (Efron & Ravid, 2013). This peer review was conducted by my department's dean. During this study, performing member checking illustrated the collaborative nature of action research (Mertler, 2017). Action research is done by educators with their students and colleagues (Mertler, 2017).

To ensure transferability, I collected descriptive data to ensure the setting was easily identifiable (Mertler, 2017). Action research is situational and aims to understand the unique context of the setting and the participants (Efron & Ravid, 2013). Thus, a detailed description of the context and setting are included in this chapter. In phenomenology, a heterogenous group must be identified and interviewed (Creswell & Poth, 2013). The detailed descriptions of the interviewees in Chapter 4 affirms a heterogenous group was interviewed for this study. In addition, instructors and other educators may find similarities in their environments and examine this study further (Efron & Ravid, 2013).

Dependability refers to the stability of the data and is executed in this study by collecting various types of data to compensate for weaknesses among the data collection (Mills, 2014). For example, data about the student-participants' perceptions of social interactions in the classroom were collected before, during, and after the intervention. These data collection methods included interviews, observations, and reflections. Using data points from various perspectives permitted the use of triangulation to ensure the validity of the data (Efron & Ravid, 2013). Triangulation is the practice of relying on more than one source of data to have varied perspectives on a phenomenon (Efron & Ravid, 2013). In this study, data collected from multiple interviews, observations, and observational reflections permitted me to cross check the accuracy of the data and clarified any meanings or misconceptions when analyzing the data (Efron & Ravid, 2013). Action research is intentional, thoughtfully planned, and systematic to produce meaningful results (Efron & Ravid, 2013). In addition, phenomenology supports multiple interviews to fully describe the lived experience of the student-participants (Creswell & Poth, 2013). Thus, planning for and completing triangulation aids in producing valid results for this study.

Lastly, confirmability, establishes the objectivity of the data (Mertler, 2017). Reflexivity acknowledges the researcher's perspectives and positions shape the research process (Efron & Ravid, 2013). Reflexivity requires commenting on two points: the researcher's past experiences with the phenomenon and how these past experiences may influence the study (Creswell, 2018). Being the principal instrument of data collection, I reflexively discussed my biases through the writing of my role as the researcher (Creswell, 2018). In addition, I wrote notes about what I learned, concerns about the data

collection process, and concerns about the student-participants during the process. In phenomenology, reflexivity aligns with the concept of bracketing. In order for the researcher to have a fresh perspective of the phenomenon, the researcher must bracket or set aside, as much as possible, her prejudgments and personal experience with the phenomenon under investigation (Moustakas, 1994). By setting aside my personal prejudgments and personal experience, I self-reflect to improve my educational practices and make informed decisions about my classroom, which illustrates tenets of action research (Mertler, 2017). Therefore, in completing these procedures to ensure quality and rigor, I produced a sound phenomenological, action research study that shapes my future decisions and actions as a practitioner-researcher (Efron & Ravid, 2013).

Development of the Plan of Action

I facilitated a reflection session with the student-participants and the STEM faculty to create a plan of action and discuss procedures to implement the plan of action (Mertler, 2017). During this session, the chart located in Appendix M guided the discussion. In presenting these data, I discussed my findings from the data analysis but did not impress my ideas on the other participants (Mills, 2014). While reflecting on the findings during the reflection session, I followed a set of guidelines to facilitate the discussion. First, it was important for all participants to openly disclose views without restraining other participants (Robinson, 2013). Thus, I managed the session by allowing the participants to speak uninterrupted and summarized their statements for my clarity and reporting (Mills, 2014).

Furthermore, it was necessary to be cognizant of the information found in the literature review to examine where the ideas during the reflection sessions fit into the

body of knowledge (Mertler, 2017), and having knowledge of the findings from scholars assists in providing possible solutions and new ideas linked to the problem of low academic performance (Fraenkel et al., 2015). After the plan of action was created and implemented, I electronically shared a formal report, including the study's results and the plan of action, with all participants in this action research study. Before the presentation to the college, the participants checked the report for accuracy (Creswell, 2018). After completion of the final report, I will reflect on this action research study, monitor the successes and shortcomings of the plan of action, and continually meet with the STEM department to improve the classroom experience at my college, which are procedures that illustrate the iterative process of continuous improvement in action research (Mertler, 2017).

Conclusion

Action research had an iterative cycle of continuous improvement within practitioner inquiry and was best suited to impact my problem of practice (Mertler, 2017). As an instructor, I was interested in improving the success of my students, so I implemented a collaborative learning strategy—reciprocal teaching—in an electronics course and collected data to create a plan of action for institutional change. The next chapter, Chapter 4, will present the data based on the three phases of implementation: the pre-intervention, the intervention, and the post-intervention. This data presentation includes the words of the student-participants and my observations and reflections to provide details of our experiences during this study. Once the data are presented, the findings are discussed and used to answer the research questions guiding this study.

Chapter 4

Findings

My experiences as an instructor at a small, technical college in the southeast United States have led me to consider the importance of social presence and social engagement in the academic success of my students. Over the past few years, I have noticed students enrolled in my electrical circuits course who seem unengaged, both socially and academically, often underperform despite having the interest and ability to succeed. In contrast, students who have been highly engaged socially and academically, both with their peers and with me as the instructor, have succeeded at a higher rate than students who are less socially engaged. Research in this area has demonstrated the positive impact of social presence and social engagement on student achievement (Deil-Amen, 2011; Tinto, 1997). Based on these experiences and my review of the literature, the design of this study was focused on better understanding the lived experiences of my students and how my efforts to intentionally develop opportunities for educative social engagement could build on and enhance the experiences of my students and lead to better academic outcomes.

In addition, many of the students I teach are members of disadvantaged and underserved populations. These students are typically not prepared academically for college, especially the rigorous mathematics in technical courses. Some are often enrolled in developmental courses and core courses at the same time. Thus, the students are

thrown into a learning environment they are not ready for and must find a way to survive academically. Therefore, I must create a learning environment that provides additional support for student achievement.

In my effort to improve student achievement in my electrical circuits course, I implemented reciprocal teaching (Green, 2000), a collaborative learning strategy (Stump et al., 2011) that has the potential to foster the development of social presence (Garrison et al., 2000), and is inherently culturally responsive (Gay, 2010). From this theoretical and practical perspective, I developed the following research questions that guided this study:

1. How did the student-participants describe and perceive their social interactions in a college electronics course?
2. How did strategies for developing student and instructor social presence in a college electronics course promote student achievement?

To answer these research questions, I utilized a phenomenological, action research approach to understand the lived experience of the participants in the study. I collected qualitative data focused on the student-participants' perceptions and perspectives toward the social interactions before, during, and after the study's intervention.

This chapter will focus on describing and reflecting on the phenomenon of social interactions as it relates to student achievement. I begin this chapter by describing the students, both as a group, based on the completed surveys, and as individuals, based on the semi-structured interviews I conducted with my participants. In these interviews, I was able to get to know my students better and learn more about their social interactions in the classroom. I then discuss how the findings from these interviews informed the

planning of the intervention. Next, I discuss my observations and reflections during the intervention. These observations describe how we interacted and related to each other during the intervention. To hear directly from the student-participants, I present the outcomes of the intervention using their words. In closing, I provide a reflection on my learning regarding my research questions.

Getting to Know My Students

To begin the data collection for this study, I needed the participation and consent of my students. Interested students completed a survey to participate in the study. The surveys collected data on the demographics of the students. These demographics included: sex, age, enrollment status, ethnicity, and discipline. The survey also asked the student-participants if they were interested in discussing their social interactions with classmates on campus and off campus.

All of the students enrolled in my electronic circuits course agreed to participate in the intervention. The number of full-time students enrolled in the course was 27, and there was 1 student enrolled with a part-time status. The majority of the student-participants, 19, were electronics engineering majors with an instrumentation concentration. Mechatronics was the major for 6 student-participants, and 3 student-participants were industrial electronics majors. The racial and ethnic composition of the student-participants was as follows: Black or African American (6), White (20), and Native American (2). The majority of the student population (69%) was under 24 years of age. The student-participants' ages were as follows: 23 students between the ages of 17 and 24 years old, 3 students between the ages of 25 and 34 years old, and 2 students between the ages of 35 and 44 years old.

To further develop my knowledge of the student-participants' background, I conducted pre-intervention semi-structured interviews to learn about the student-participants' prior social interactions in the classroom. Seven students agreed to participate in these interviews with me. The following section provides descriptions and background information on the student-participants who I interviewed.

Pseudonyms are used to protect the identities of the student-participants. Table 4.1 summarizes the demographics of the interviewees.

Table 4.1
Demographics of Interviewees

Student-Participant	Age	Gender	Race/Ethnicity	Enrollment Status	Major
Addison	35	female	African American	full-time	Mechatronics
Emery	19	male	African American	full-time	Instrumentation
Harper	29	male	African American	full-time	Instrumentation
Logan	18	male	Native American	full-time	Mechatronics
River	39	female	Native American	full-time	Instrumentation
Robin	18	male	African American	full-time	Mechatronics
Stacey	28	male	Caucasian	full-time	Instrumentation

Addison

My door was opened and Addison sat comfortably in the guest chair in my office. She was wearing a fitted t-shirt, jeans, and sneakers. Addison is a 35-year-old, African American single mother with two sons, one in elementary school and one in middle school. She discussed visiting them at school earlier in the day and proudly showed me photos of her sons. She enrolled as a full-time student in the mechatronics curriculum and

was also employed full-time. Addison attended classes and lab from 8:00 a.m. until 4:00 p.m. on Mondays, Tuesdays, and Wednesdays. She attended the college a few years earlier and was enrolled in the nursing program. Before completing the nursing program, she withdrew from the college to care for her young and growing family. She returned to college to advance her career in manufacturing. Addison stated, "You know … I came back to school 'cause I worked at Ford and I was tired of doing the same boring job. I want something better for me and my boys."

While attending college and being employed full-time, her mother and sister provided the support needed for her family. Her family and work schedule prohibited socializing with classmates outside of class time. She shook her head, sighed, and said,

> Me, personally, I don't talk to anyone. I don't have time … unless it's the phone. Not really. But I don't talk to anyone unless it's class. I never know when I'm getting off. Sometimes I don't get off 'til early in the morning. I try to juggle me, the boys, school, and work.

She felt comfortable communicating with her instructors and regularly visited them during office hours. However, she would never ask a question in front of the entire class. Addison laughed and said, "Now, Ms. Jackson, you know I be quiet in class. I'm really not an outspoken person like that … you know I want to try but you know I'm not speaking out front of everybody." After I wrapped up the interview, Addison grabbed her purse and noted she was on her way to work.

Emery

Emery is a 19-year-old, African American male enrolled full-time in the Electrical Engineering Technology—Instrumentation curriculum. Emery entered my office wearing

a basketball jersey, shorts, and sneakers. He seemed a little sad about his physics test earlier that day, so I asked him about it. He looked down and stated, "Yeah, that thing is hard bo, it's too many formulas." I encouraged him to talk to his physics instructor and offered my assistance. During the interview, I learned that he lives with his mother and is an only child. He completed developmental English and mathematics courses before entering the curriculum. He attended class and lab from 8:00 a.m. until 4:00 p.m. on Mondays and Wednesdays. On Tuesdays and Thursdays, he attended class from 8:00 a.m. until 12:00 p.m. Emery felt comfortable communicating with his instructors at the end of class and during their office hours. He stressed the importance of asking his instructors for help when necessary. Emery said,

> Now, Ms. Jackson … if I need help, I … um … will make sure I get help. You know I don't want to fail a test or anything. So I try and talk to them [his instructors] if … when I need help. Definitely ask you … my instructors for help… in class and out of class. I don't want to fail anything.

He studied with a few classmates between classes in the library and the student union. He also lifted weights and played recreational football with these classmates occasionally. Emery flexed his arm muscles and said, "Sometimes … you know … a few of us … like Mike and Kevin … we lift weights, workout together, and play football." However, the majority of Emery's friends attended the four-year colleges in the region, and he socialized with them in the evenings and on the weekends. "Some of them … like most of my friends … like it's a million probably went to like Brown and Scott colleges and we still hangout like almost every day." Emery also managed a part-time job at the local

grocery store. Before Emery left my office, he asked for help with a homework problem. Once we completed the problem, he packed his backpack and headed to his next class.

Harper

Harper is a 29-year-old, African American male. When he arrived for the interview, he was dressed in jeans and a button-up shirt. He sat casually in my guest chair with his legs crossed. Harper lives with his parents and is the youngest of six children. He has two brothers and three sisters. He attended the college in the Electrical Engineering Technology—Instrumentation program a few years prior to this study, but withdrew from the College and enlisted in the U.S. Marines. After he completed four years of service, he returned to college at his grandmother's request. He spoke sadly about his grandmother.

> My dad's mom has cancer and I was raised by her. She won't tell anyone how sick she really is. She told me she wants to see us doing better with our lives before she actually checks out. So … I think she's about to check out real fast. That's why I'm doing so well in school and came back. Once she's not here anymore … we have a tax business to run. We got a trucking and logging business. We have bookkeeping we need to learn. She's got a lot going on.

He enrolled full-time and attended classes from 8:00 a.m. until 4:00 p.m. on Mondays, Tuesdays, and Thursdays. He did not know any of his classmates before enrolling. However, he bonded quickly with his cohort. He and a few classmates met in the library before class times and ate lunch together sometimes. They discussed social topics as well as course content. Harper smiled while he spoke,

> Yeah, we meet in the library, hang out for a few minutes, talk with the guys and discuss what we missed in class or whatever and after that, it's either go get some lunch with the guys or go home.

Harper enjoyed sharing his life experiences and technical knowledge with his classmates. Harper confidently stated,

> Yeah, I don't mind explaining stuff or talking about my life. Being that I have a leg up on everybody else 'cause I've been here before and came back into school. I still remember everything … but everybody don't have someone like me.

He was open and comfortable communicating with his instructors during class and office visits. Outside of the school day, Harper spent most of his time with his family running their trucking company. Once I wrapped up the interview, Harper straightened the guest chair, grabbed his backpack, and said he would see me in the morning.

Logan

Logan entered my office in khaki shorts and a pink polo. He comfortably sat in the guest chair and began to ask me about my day. Logan is an 18-year-old, Native American male. Logan is a member of a two-parent household. He has two siblings, a high school-aged brother and a middle school-aged sister. Logan is also heavily involved in the Boy Scouts of America and has achieved the highest rank of Eagle Scout. During high school, he completed middle college courses. After high school graduation, he enrolled in the mechatronics and engineering graphics curricula. On Mondays and Wednesday, he attended class from 8:15 a.m. until 4:30 p.m. On Tuesdays, he attended class at 10:30 a.m. until 12:00 p.m. and was free in the afternoon. On Thursdays, he attended class from 10:30 a.m. until 4:00 p.m. He occasionally socialized with a few high

school friends, a couple of second-year students, and a friend from kindergarten. Logan stated,

> Yeah … I mean … I've got … I've got … you know Mark and Dallas. I talk to them when they work on their senior project. I got some buddies that I talk to in the morning before their classes. So … I mean I socialized pretty good. I've got a buddy of mine that I've known since like kindergarten. So, me and him. I call him my brother from another mother, and then, I've got friends that I met in my classes last semester.

He also communicated regularly with me via the Remind App. Logan excitedly discussed the Remind App.

> I really like that. I really do wish more teachers and instructors would do that 'cause like that day … I asked you about that … that project that we have for you. That Saturday I was able to get in touch with you when you were out. So I mean … it comes in real handy for stuff like that.

He also felt comfortable communicating with his other instructors in class and during office hours. He interned at the college and a local manufacturing facility. He completed his college-based intern hours in the mornings before classes started and completed his other intern hours in the evenings. In addition, he maintained his presidential scholar status. After I summarized Logan's comments and thanked him, he shook my hand and noted that he was headed to work at his campus internship.

River

River wore black leggings and an oversized gray t-shirt with sandals. She excitedly entered my office and greeted me. River is a 39-year-old divorced mother of

three children and of Native American descent. Her oldest child is a college student and her other children are middle schoolers. River enrolled full-time at the college in the Electronics Engineering Technology—Instrumentation curriculum. In preparation for the reading and mathematics needed for the curriculum, she completed two semesters of developmental courses. She attended class and lab from 8:00 a.m. until 4:00 p.m. on Mondays and Wednesdays. She huffed and said, "Okay, so, that's a very long day, but yeah and those days, you talk about interaction, there is none." On Tuesdays and Thursdays, she attended class from 8:00 a.m. until 12:00 p.m. River was comfortable communicating with her instructors during class, after class, and office hours. River happily discussed her relationships with her instructors.

> Oh, I love my instructors. I'll be honest. No seriously. No … okay … so like I have been this whole year and am blessed not lucky. I don't believe in luck. I've been very blessed with awesome instructors like it's really cool to talk to you guys. I get along really well with all of them and I have no problems going up and well you know asking about something I do not understand. It's a very good thing because if you don't get along well with your instructor that's really difficult.

If River had a break between classes, she spent this time at home. She occasionally ate lunch with a few of her classmates but rarely socialized with them outside of the normal school day. Outside of the normal school day, she socialized with her church members who attend the college: "Well, mostly [I socialize] at church, honestly. There's a lot of students there. That's pretty cool. Um, so, sometimes like we'll text each other." After I completed the interview, I helped River with a physics problem. She thanked me, picked up her backpack, and said she was headed home.

Robin

Robin is an 18-year-old, African American male and recent high school graduate. Robin lives in a two-parent home with a younger elementary school-aged brother. He completed middle college courses at the college and enrolled full-time in the mechatronics curriculum. He also enrolled in the presidential scholar seminar. Robin's school day began at 8:00 a.m. and concluded at 4:30 p.m. Robin stated, "So … we're covering like 8 o'clock every day. I'm pretty much in class all day and on campus all day." He ate lunch with friends from high school or returned home if time permitted.

> It depends on what my money is or not what I feel like doing some times [for lunch]. Sometimes, I bring something. Sometimes, I eat off campus with the bruhs. A lot of times, I just go back home to heat something up.

During the school day, he occasionally socialized with classmates. Robin was comfortable communicating with his instructors and asked for help from them when needed. He was an avid video gamer and played online with a few classmates. Robin said, "So … we all like talk to each other when we're gaming. That's the easiest way to talk to me off campus." After the interview, Robin waited for me to clear my desk, and we walked to lab together.

Stacey

Stacey entered my office in jeans and a camouflaged t-shirt. Stacey is a married, 28-year-old, Caucasian male with two elementary-aged children. He retired from the U.S. Air Force and found it difficult to transition to employment as a civilian. Even though he had the technical expertise from his military experience, he needed an associate degree. Stacey smoothed his beard as he discussed his transition from military to civilian life.

> I tried to get on with AW [a local company] when I got out. But it's just hard to translate what I did in the Air Force so that civilians can understand and I don't understand anything about what they're … you know … talking about for their equipment. I got experience already. I got 10 years experience now. I'm gonna have the degree to go behind it and you know I never got to mess with PLCs and stuff like that. A lot of people are looking for that. So I'll have that.

He also attended another regional technical college for a year but decided to change curriculum. "I mean … I got in there. Then, I just bailed. I got my gen eds and bailed. [Stacey rolled his eyes.] I totally hated Calculus. I sat in there and I had no idea what they were talking about." This was his second semester enrolled full-time in the Electrical Engineering—Instrumentation curriculum at the college. He attended class or lab from 8:00 a.m. until 4:00 p.m. each school day. He ate lunch off-campus during his break. He was comfortable communicating with his instructors during class and office hours. He communicated with me regularly via the Remind App and during office hours. Before Stacey left my office, he called his wife to let her know he could pick up the kids and said he would see me in the morning.

Learning About My Students

Phenomenological studies typically include semi-structured interviews to provide a thick, rich description of the experiences of the participants (Moustakas, 1994). Thus, the analysis of these pre-intervention interviews uncovered the perspectives of the student-participants regarding their prior experiences with social interactions in the classroom. To analyze these interviews, I followed the steps for coding delineated by Moustakas (1994). These steps were: (a) compile a list of significant statements, (b)

group these significant statements into themes, (c) develop a *textual description* using these themes and the student-participants' voices to describe what happened, (d) develop a *structural description* through a reflection on the context of the themes, and (e) develop a composite description of the entire experience.

Using Moustakas' (1994) steps for coding (Table 4.2), the initial list of significant statements (Step 1) indicated that the student-participants' perceptions fell into two broad themes (Step 2): positive and negative perceptions of social interactions in the classroom. In the following subsections, I will provide the textual and structural descriptions (Steps 3 & 4) associated with the theme, positive perceptions of social interactions in the classroom that were developed from the list of significant statements (Appendix N) for the themes. Then, using a similar pattern, I will present the textual and structural descriptions of the theme, negative perceptions of social interactions in the classroom. I will conclude this section with a composite description (Step 5) of the student-participants' prior experiences interacting socially in the classroom. Table 4.2 summarizes Moustakas' (1994) steps for coding.

Table 4.2
Moustakas' (1994) Steps for Coding

Step 1	Compile a list of significant statements
Step 2	Group these significant statements into themes
Step 3	Develop a *textual description* using these themes and the student-participants' voices to describe what happened
Step 4	Develop a *structural description* through a reflection on the context of the themes
Step 5	Develop a composite description of the entire experience.

Theme 1: Positive Perceptions Associated with Social Interactions.

Textual description. Using the words of the student-participants, this textural description discusses the positive perceptions of what happened when the student-participants interacted socially in the classroom and their feelings about collaboration. These positive perceptions included exchanging ideas and seeking information to learn the content (P1), encouragement from others to continue to learn the content (P2), and the importance of collaborating to learn and to prepare for the workforce (P3).

Exchanging ideas/seeking information. The student-participants found it helpful to discuss content with other students. Even when not grouped for an activity, Logan expressed that students helped each other in classes. Logan excitedly commented, "In my CAD classes, I'll ask people all around me all the time about stuff, so I mean it's really … uh … you know … I wouldn't say a group class, but we all help each other." Logan stopped for a moment, sighed, and began to discuss an issue he had while working in lab. Logan said, "I was thinking on this one problem for three days, and I couldn't figure it out. Sometimes, you just need another brain on it." Robin discussed completing a robotics project with a partner. Robin, glancing at his hands in his lap, said, "Um … we don't really work together on the regular. I have a partner in … um … robotics. When you're working together, we usually like … he builds it … and I help him with the program, and then, he also helps me with that [programming]." Robin also viewed groups as a means to review information and affirm his knowledge. Robin looked off into space, grabbed his chin, and stated, "When you help someone else it makes it clear in their mind, also, it helps you keep it in your mind—it makes you more comfortable talking about the stuff we learn in class." Emery also discussed his positive feelings about group work.

Emery shook his head, smiled, and said, "Group work is cool. 'Cause like sometimes … if I don't understand something at first, I might have group members who might know how to do it. I did more of that … um … in high school … um … than now [in college]." Additionally, River knew the value of communicating to learn from each other. River talked with her hands as she stated,

> I think it's really cool what you get out of communication. Because … so like … say that you're told to communicate, right, and you're doing it for a specific reason, and I think it's neat how it all works out. Because, in the end, you end up getting so much more out of it, and learning stuff from other people that you didn't think that you would ever learn. It happens in class sometimes … but … um … we normally do it ourselves.

In conclusion, the student-participants viewed exchanging ideas and information as a means to learn from each other.

***Encouragement from others*.** Socially interacting during class provided opportunities for encouragement and expressions of appreciation from others in the classroom. Stacey noted one of his classmates encouraged him when they work together. Stacey gratefully discussed his relationship with his classmate, Harper. Stacey said, "He [Harper] encourages me. He knows a lot of stuff. He's already got experience in it [engineering]." Harper also expressed that classmates have commented on his leadership abilities, and it made him feel good. Harper smiled shyly and said, "Emery was like … I commend you and I acknowledge you … that you know … you are a leader." Addison was often shy during group work. However, she found inspiration in knowing my story. Addison smiled at me as she commented,

> In a group, I'm not an outspoken person, okay, but I try. I just get nervous, even in small groups. It's kinda hard … being the only girl in classes sometimes. But … thinking about it and seeing you, Mrs. Jackson, and talking to you motivates me to do my work anyway.

When socially interacting in the classroom, the student-participants had the opportunity to interact with each other and me for encouragement to keep learning and feeling good about themselves.

***Importance of collaboration*.** Students understood the importance of collaboration in relation to their future goals and learning course content. Addison voiced the importance of collaboration based on her prior work experience. She looked at her nails and adjusted her rings as she commented, "I know in the workforce you have to work as a team, so I kind of see why y'all do make us do stuff together." Logan pushed his bangs out of his eyes and stated, "Working together will get us ready for the real world. I see people work in groups all the time at my internship." Harper also voiced the importance of collaboration. Harper leaned forward and rested on his elbows as he stated, "When you get to work you gonna have five, six, seven, eight other people you got to confer with just to answer one problem. Yeah, you're gonna have to give your opinion and express yourself." River discussed the importance of fostering two-way communication in the classroom. River pulled her long hair up into a bun as she stated,

> I think that interacting is important because how else you're supposed to get it. Yeah, like seriously, you just go to a class. Right? And listen to the teacher talk and that's supposed to work and you go about your day. Everyone in my physics class, right now, we would have an A. We would have an A, but it doesn't work.

> We need to interact. You need to because we don't understand something that you're saying and you don't say anything. It's not gonna work. Teachers need to know we don't understand.

These student-participants expressed the importance of collaboration in the workforce and in the classroom.

Structural description. This structural description discusses the context of the positive perceptions associated with social interactions. In reflecting on the positive perceptions of social interactions in the classroom, the student-participants initiated the social interactions. Thus, the student-participants used their own adaptive strategies to support their academic achievement. These adaptive strategies included the inclination to reflect and help others learn the content.

***Reflection*.** Reflection is students' thoughts about what they know or do not know about the subject matter. When students reflect, they think about their knowledge of a topic and identify their knowledge gaps. When students work collaboratively, they seek help from their peers to close their knowledge gaps. Logan noted, "I'll ask people all around me all the time about stuff, so I mean it's really uh you know I wouldn't say a group class, but we all help each other." In addition, Logan stated, "I was thinking on this one problem for three days, and I couldn't figure it out. Sometimes, you just need another brain on it." Thus, Logan reflected on his knowledge and asked for help when needed. Emery also reflected on his knowledge of topics and relied on his classmates for help. In addition, Emery's experience in high school aided him in learning about the need for reflection. Emery voiced, "Sometimes if I don't understand something at first, I might have group members who might know how to do it. I did more of that … um … in high

school … um … than now [in college].” When working collaboratively, Robin expressed how helping others provided an opportunity to reflect on his knowledge of the topic. Robin stated, “When you help someone else it makes it clear in their mind, also, it helps you keep it in your mind.” Therefore, reflection informed the students of their knowledge gaps and also confirmed their knowledge of the content.

Helping others. When students socially interact, they helped each other learn the content. In helping others learn the content, students seek guidance, offer guidance, and provide guidance to their peers. In seeking guidance, students feel their peers are willing to help and provide the needed answers to their questions. By providing guidance, students make sure their peers are learning and understanding the content. For example, in completing a programming project, Robin and his partner helped each other and worked together to succeed. Robin stated, “When you’re working together, we usually like, he builds it, and I help him with the program, and then, he also helps me with that [programming].” In offering guidance, students increase their confidence in the content and are willing to share their knowledge with their classmates.

In addition, peers complimenting and expressing appreciation for each other provided evidence of students uplifting each other. Harper was one student who encouraged his classmates. Stacey stated, “He [Harper] encourages me. He knows a lot of stuff. He’s already got experience in it [engineering].” Harper also said, “Emery was like … I commend you and I acknowledge you … that you know … you are a leader.” Thus, the student-participants committed to help each other by providing encouraging words. Furthermore, I must be cognizant of my role in contributing to student success. Addison noted, “It’s kinda hard … being the only girl in classes sometimes. But … thinking about

it and seeing you, Mrs. Jackson, and talking to you motivates me to do my work anyway." Therefore, my minority presence helps others persist in their studies.

Theme 2: Negative Perceptions Associated with Social Interactions

Textual description. Using the words of the student-participants, this textural description discusses the negative perceptions or what happened when the student-participants interacted socially in the classroom. These negative perceptions associated with social interactions in the classroom included: the group selection process (N1), untrusting feelings toward group members (N2), unequal participation when working collaboratively (N3), and the grading process (N4).

Group selection process. The student-participants reacted negatively to instructor-selected groups. River huffed and rolled her eyes as she discussed her frustration with the lack of agency in the group selection process by stating, "When I've been in class … and um … they want people working in groups. Can I wear my 'I hate people' t-shirt? I'm like, can we pick who we want please." Expressing a similar frustration, Stacey wrung his hands and shared,

> First, she [the instructor] was like just picking the groups randomly and I hated that. She eventually let us pick our own groups, and then, I just worked with Gregory. Okay, this is my boy. Yes, so we were good. I enjoy working with him.

Addison also preferred self-group selection but was apprehensive about selecting group members. Addison sighed and stated, "I don't like when teachers put us in groups. I like picking my own groups. I don't know my classmates too good. I'm always looking around like who to pick though." Thus, the student-participants expressed the preference to self-select their groups when working collaboratively.

Trust issues. The untrusting nature of other group members during collaborative learning presented itself during the pre-intervention interviews. Stacey rolled his eyes, looked at me, and said, "I mean people are not reliable." Stacey also provided an example of his frustration with unreliable group members. He discussed working with another student on an engineering design project.

> I mean … he [my partner] drove me crazy … [Stacey breathed deeply and shook his head] 'cause he just … we'd be putting something together on the project and he'd be … he would be so insistent on doing it his way even if it was wrong. I did not trust him to do anything. It made more work for me.

Harper discussed his concern about his group members completing assigned jobs when he was the project manager on an engineering design project.

> In my other engineering class, I can see when I'm the project manager. I know I gave you and all my group members a job. That person I gave the job might do their job and they might not. I may have to do that job if they don't do it. [Harper shrugged his shoulders.]

Harper expounded on these sentiments with an example.

> Hey, Imma try this right here. [Harper pointed at himself.] No bro, we're not trying that. We're gonna stick with this plan, right here. [Harper tapped his finger on my desk.] I'm making the decision to tell you no, but that's because I'm the project manager. [Harper positioned himself straight in the chair.] Other than that, you had your input along with three other people on one day, and we decided on this. Now, you can't go back on your word. Each time we try to go back and try to do new stuff on this project, you gonna push us further and further back.

Additionally, Addison expressed feelings of not being trusted but wanting to participate fully in the activity. She stated,

> I like it [group work] kinda sorta. [Addison shrugged her shoulders and shook her head.] You get different people opinions. Even though, I don't like people, say, well, one person doing everything. Sometimes that person just wants to do everything and don't want others to do it. Yeah, some people just want their way. [Addison shrugged her shoulders and crossed her legs.] No matter what others say. Like they don't trust you or something.

Therefore, the student-participants viewed untrusting relationships between group members as a challenge to working collaboratively.

***Unequal participation*.** The student-participants expressed concern about all members participating equally and fully during collaborative learning activities. Stacey thought group work produced more work for him than working independently. Stacey rolled his eyes and stated, "People are very unreliable, and so, it just made it mean I had to do that much more work. I had to jump through all the hoops and deal with people and still do all the work myself." In the past, Logan felt pressured from his groups to have all the answers. Logan stated, "So group work to me is fine … but hey … I feel like they rely on me a little bit too much sometimes." Logan then tilted his head and shrugged his shoulders. River's experiences were similar to Logan's. River rolled her eyes on several occasions as she stated,

> I am all for getting in a group, talking about everything, working stuff out together, but I'm not for everybody staring at me because they know I get good grades. Like what's the answer? What do we do? Yes … okay … like okay. So, in

> my one class that I had, I don't know, like one or two semesters ago. They were like, so what do we do. I'm like … you're in the same class that I'm in. But you're a smart one. I'm like … uh-huh … it's because I stay up until one, two o'clock in the morning studying after my kids go to bed. I worked my butt off for my grades. You could do the same thing. So, every time a teacher says get into groups. I'm like … seriously.

Harper also desired to see all of his group members participate equally. Harper commented, "I don't mind working in groups. [Harper tapped on my desk as he completed his statement.] Yeah, but I want the effort to be 25–25–25–25." Robin shared a similar point of view as Harper. Robin shrugged his shoulders and said, "Hey … I don't mind group work as long as I'm in a group where everyone is working." Addison shared that she desired group work to be equal among the members.

> I won't mind it [group work] to a certain degree, but when you work with some people, they don't want to hear nothing on what you got to say. I don't want to feel like I'm not contributing to anything. Even if you want to do everything, I just don't want to be like I'm not contributing to nothing. [Addison shrugged her shoulders and adjusted her rings.] One guy he was like missing days and the part he had to do, it was very beneficial to us, so that's when I had to step up and do his part. The other group member was like, should we even put his name of the project?

Thus, in the student-participants' past experiences, they voiced carrying a larger share of the workload than other group members when working collaboratively.

Grading process. The student-participants expressed concern about the grading process when completing collaborative assignments. Stacey disliked his grades depending on someone else's efforts. Stacey smoothed his beard with his hand and commented,

> I understand from a teacher perspective, because some things you just don't have time to grade one from everybody, but as far as the school is concerned … oh man … I feel like it's kind of like an ethics thing. Because you know people are paying money to come here, their grades are important. Yeah. But in some situations, they're being forced into some situations where they can't determine their grade on their own. Somebody else can impact their grade.

Robin also expressed grading is an issue when each group member is not participating in the collaborative activity. Robin thought for a moment, grabbed his chin, and commented, "I don't mind group work for a grade as long as I'm in a group where everyone is working. But if everyone is not working, grading is a problem." River commented that she didn't mind group work for homework or classwork. However, she did not like graded group projects. Robin crossed her legs and spoke with her hands,

> Look … if it's homework or going over stuff like classwork that's this one thing. But for my major grades. Look … I have my own little system. Your life is not my life. You have no idea what I do out of here and the few select people that do. They get it.

Harper expressed concern about how group projects are graded. Harper paused, leaned forward in his chair, and said,

> In the group, I know it's hard to grade. I'm pretty sure y'all know that stuff but it's the reason why y'all give us group evaluations to do. So, that'll be the only feedback you wanna get from us, but sometimes it's hard to do.

Harper then leaned back in his chair. Thus, the student-participants held negative feelings about the grading process.

Structural description of the negative perceptions of social interactions. This structural description discusses the context of the negative perceptions associated with social interactions. In reflecting on the student-participants' negative perceptions of social interactions in the classroom, I identified two concepts, sense of agency and interpersonal communication, that led to these negative experiences. Both of these concepts relate to the ability of the student-participants to act for themselves and express their feelings when socially interacting in the classroom.

***Sense of agency*.** A sense of agency is the ability of an individual to act for himself and express his power. During past collaborative activities, the student-participants had no freedom in selecting group members or in determining their grades. The student-participants had no control in selecting the members of their groups during collaborative activities. The student-participants expressed the desire to select their groups for collaborative activities. For example, River disliked the instructors selecting her group. When in class, River always hated instructors saying find a group. River stated, "I'm like, can we pick who we want please." Additionally, Stacey noted, "She [the instructor] was like just picking the group's randomly and I hated that." However, Stacey's experience was positive when he selected his group. "She eventually let us pick our own groups, and then, I just worked with Gregory. Okay, this is my boy. Yes, so we

were good. I enjoy working with him." Addison also expressed this sentiment. She stated, "I don't like when teachers put us in groups. I like picking my own groups." Furthermore, the student-participants expressed that working collaboratively lessened their control of their grades on assignments. Stacey noted, "In some situations, they're [students] being forced into some situations where they can't determine their grade on their own." Robin also stated, "I don't mind group work for a grade as long as I'm in a group where everyone is working. But if everyone is not working, grading is a problem." Thus, when working collaboratively, the student-participants expressed a need to exercise their freedoms.

***Interpersonal communication*.** Interpersonal communication is an exchange of information, feelings, and meanings through verbal and nonverbal actions between two or more people. The student-participants were unable to express their feelings to their group members. For example, Stacey did not communicate to his group member his thoughts on how to complete an engineering project. Instead of discussing his thoughts with his group member, Stacey re-did the work. Stacey said, "He [the group member] would be so insistent on doing it his way even if it was wrong. I did not trust him to do anything. It made more work for me." If Stacey expressed himself, he could have discussed his thoughts about the project with his group member and worked together. Addison was also unable to express that she desired a larger role in a group project. She felt as though she gave limited input on a project but wanted to participate fully. Addison stated, "I don't want to feel like I'm not contributing to anything. Even if you want to do everything, I just don't want to be like I'm not contributing to nothing." However, if she communicated her desire to contribute to the project, her learning experience could have

been positive. Conversely, Logan contributed too much when working collaboratively. Logan expressed, “I feel like they rely on me a little bit too much sometimes.” River also experienced similar situations when working collaboratively. River stated, “I’m not for everybody staring at me because they know I get good grades.” Logan and River needed to communicate and facilitate tasks to other group members to draw them into the learning process. Thus, the inability of the student-participants to communicate their feelings led to unfavorable experiences when working collaboratively.

Composite description of the experience. The student-participants expressed positive and negative perceptions of their social interactions in the classroom. The student-participants felt the group selection was key in determining how successful they felt when completing collaborative activities. When the student-participants did not trust their group members or felt there was unequal participation from their group members, the experience was stressful and unenjoyable. Although the student-participants held negative views of collaborative activities, they understood and practiced the positive outcomes associated with collaborative activities.

The student-participants interacted socially to exchange ideas and seek information. When the student-participants reflected on their knowledge of a topic, they assessed their ability to complete a task. When students reflected and realized they needed help, they were open to expressing themselves. In expressing their needs, a more knowledgeable student shared and provided information. In providing help, there is a respectful and reciprocal exchange between the students. These exchanges include engagement with the course content as well as complimenting and appreciating each other to show support. Therefore, the student-participants communicated with each other.

Adapting the Intervention to My Students' Prior Experiences

In considering the findings from the pre-intervention interviews, my literature review, and personal classroom experience with social interactions, I decided on reciprocal teaching (Green, 2000) as the learning strategy for my intervention. Reciprocal teaching begins with the instructor introducing a topic to the class and encourages small group discussions and interdependence (Green, 2000). To provide a meaningful experience for the student-participants, I provided instructions and modeled the expected behaviors. Thus, I set the tone of the activity and illustrated my high expectations. In the past, the student-participants experienced limited focus on social presence from the college's instructors. Because of this limited focus on social presence, the student-participants used their adaptive strategies of reflecting and helping others to learn the content. These strategies are incorporated into the reciprocal teaching strategy. Following the brief lecture, the students individually reflect on a problem, and then the students discuss and negotiate a solution with a partner. Once this pair has a solution, they share their solution with another pair of students. During this sharing, the students negotiate a solution to the problem. Thus, the student-participants interact socially and act as instructors by helping each other solve problems.

When working collaboratively, the student-participants expressed negative experiences with group members with whom they did not have relationships. Thus, having knowledge of the student-participants' abilities and their acquaintances, I grouped the student-participants with preferred group members (N1, N2). These groups provided an established level of comfort and familiarity, which made communication between the student-participants easier. By working in small groups, students also had the opportunity

to exchange ideas, seek information, and encourage each other (P1, P2). Furthermore, by implementing a brief lecture, I had more class time to personally interact with the students (P2). To address the concerns of unequal participation, I provided a list of guiding questions to aid in facilitating meaningful discussions for the student-participants, especially for those students who may be shy in leading discussions (N3). Furthermore, to address the concerns of grading, the intervention was a formative assessment (N4). Therefore, the students did not have the pressure of grading based on other student-participants' efforts.

Collaborating With My Students

I completed three cycles of reciprocal teaching in my classroom. During the first and second cycles, the student-participants and I participated in the reciprocal teaching strategy of think-pair-share-square (TPSS) (Green, 2000; Scanniello & Erra, 2014). For the third cycle, the student-participants and I participated in a modified jigsaw activity (Barkley, Major, & Cross, 2014). During each cycle of the intervention, I carefully observed the classroom and collected data by audio recording each group. Following the completion of each cycle, I reflected and noted any emerging patterns from my observations and the audio recordings.

Learning With My Students

Phenomenological studies include observations and reflective notes to learn about the experiences of the student-participants (Creswell & Poth, 2013; van Manen, 2016). The analysis of these data aided in learning about the student-participants' experiences during the intervention. Thus, the analysis of these observations and reflections

uncovered the experiences of the student-participants and me, as we socially interacted in the classroom to support academic achievement. To analyze these text-based data sets, I again followed the steps for coding (Table 4.2) delineated by Moustakas (1994). I identified a list of significant statements from my observational notes and reflections (Step 1). These significant statements were grouped into themes. Using these themes and statements, I described what happened during the intervention (Steps 2 & 3). Following my discussion on "what" happened, I reflect and discuss the "how" of the experience in terms of the context (Step 4). This section on the findings from my observations and reflections concludes with the composite description of the experience (Step 5), which represents the classroom as a whole.

Textual description of the intervention's social interactions. During each cycle of the intervention, there were seven groups. Each group was labeled Group A through G as I recorded my observations and reflections. Using the texts from these observations and reflections in this textural description, I discuss "what" happened when the student-participants interacted socially in the classroom. The social interactions in the classroom initiated by the intervention fell into two themes: building relationships and thoughtful discussions.

***Theme 3: Building relationships*.** The student-participants and I had a common bond of the course content, and by interacting socially, we showed signs of building relationships through communication. The social interactions initiated by the intervention led to discussions about personal matters with humorous tones. During Cycle 1, Groups A, C, D, E, F, and G engaged in personal conversations. For example, students in Group F conversed about their activities over the weekend, honor society invites, and discussion

on lunch plans for the day. At the end of the class, these student-participants also exchanged phone numbers. Conversely, Group B did not communicate well. However, each group member felt connected to me and privately expressed the need for a new group with preferred peers. Based on this feedback from the student-participants, I rearranged the groups for the next cycle of the intervention.

During Cycle 2, Group A discussed issues in physics and noticed their similar experiences. In the spirit of caring, one student-participant asked if another student-participant felt well. Additionally, Group B discussed requirements for the week's lab report and shared their physics grades. They also shared personal stories about events in their communities. Before leaving class, Group B discussed texting on their group chat later. In Group E, the older student-participants shared their work experience and work expectations with the younger student-participants. When I checked on Group E, they inquired about how my class work was going. In addition, one student-participant scheduled an appointment with me to discuss some issues with content covered earlier in the semester.

As the students entered class for the third cycle of the intervention, I enjoyed witnessing the comradery between the students. I felt more connected to them as well. One student-participant asked me what I listened to on my iPod. He shared that he wanted to ask me that last semester but did not feel comfortable enough to ask me. Another student wanted me to share a funny story about my sons. At the beginning of class, I also learned there was a physics exam the day before my planned date for the electronics exam. I was happy my students felt comfortable enough to tell me and ask me

to change the exam date. It was nice to know they saw that I wanted them to be successful in their courses.

During Cycle 3 of the intervention, Group A expressed an uneasiness about the upcoming exam. I provided an overview of the content covered on the exam and provided example exam problems to provide assurance that they were ready for the exam. Group B engaged in personal conversations about their grades and assignment due dates for this electronics course and other courses. In addition, Group C encouraged each other by saying "good job" when they agreed on a solution. In Group E, they discussed physics and studying together for their physics exam. At the end of class, the student-participants in Group F discussed vacation plans, car issues, and other courses.

In summary, I witnessed the importance of actively involving everyone in class. It brought to light the importance of building relationships in my classroom. The contents in the book were important but it was also important that I encouraged my students so they gain confidence in themselves and their abilities. Thus, the student-participants and I strengthened our relationships by sharing our personal stories, and therefore, we developed a level of comfort in our classroom.

***Theme 4: Thoughtful discussions*.** When working collaboratively, the student-participants had the opportunity to review problems with each other, reflect on what that know, where they need additional support, and request this support. If the student-participants were unsure of how to complete a problem, they sought assistance from their group members. By seeking help, the student-participants acknowledged that they did not know the content and were proactive in finding the answers to fill their knowledge gaps. The student-participants who had a better understanding of the course content supported

the other student-participants. In taking responsibility for helping others, student-participants offered and provided guidance to their peers. Thus, the student-participants took responsibility for ensuring the other student-participants learned the course content. If the student-participants needed further assistance, they asked me for guidance. When the student-participants asked me for guidance, I provided probing questions to guide the students to solve the problem. Therefore, by reflecting, seeking, and providing guidance, the student-participants engaged in thoughtful discussions.

During the intervention, the student-participants participated in thoughtful discussions about the course content. Each group shared, compared, and discussed problems collectively. During Cycle 1, Groups A and G used their guiding questions and notes to step through issues when they did not agree on an answer. In Group D, one student-participant provided an overview of the content covered by me. Group E used the guiding questions to review their answers at the end of the activity. The student-participants in Group F helped a neighboring group solve a problem. During Cycle 2, Group A reviewed their solutions with the neighboring Group D. Group B used their notes to discuss differences between group members' answers. Groups C, E, F, and G used their notes as well as the guiding questions to work through discrepancies with answers. In Group F, one student-participant repeated and discussed each answer for review. During Cycle 3, each group continued to share, compare, and discuss problems pertaining to the course content. After I helped Group B, one student-participant continued to help another student-participant understand the problem. Other student-participants in the group also provided explanations. Once Group D completed their assignment, they discussed their answers with a neighboring group.

During the intervention, I heard student-participants explaining to other student-participants how to work the problems. I observed the student-participants taking ownership of the course material and explaining things to each other. I heard increased confidence in their abilities and the content as we discussed problems. Thus, the intervention provided an opportunity to have thoughtful discussions about the course content.

Structural description of the intervention's social interactions. This structural description discusses how the collaborative learning strategy of reciprocal teaching contributed to building relationships and generating thoughtful discussions within my classroom.

***Context for building relationships*.** By having the student-participants collaborate in small groups, the classroom became a smaller, risk-free place to talk and get to know each other, which is conducive to building relationships. While participating in the intervention, the student-participants and I shared personal stories. In sharing our personal stories, we found commonalities in our experiences. For example, the student-participants exchanged stories about other courses and found they shared similar experiences. In learning about these similar experiences, the student-participants offered to help each other. As a graduate student, I, too, shared my recent college experiences and provided encouraging stories. In addition, personal conversations extended beyond the classrooms. Several groups discussed communicating outside of the classroom via text messaging and group chats. These offers of assistance to others, shared experiences, and communication avenues outside of the classroom also illustrated the responsibility my students and I felt to help others beyond the course work and outside of the classroom.

***Context for thoughtful discussions*.** By implementing reciprocal teaching, the student-participants worked collaboratively to complete a common goal. This common goal was to learn the content presented in class. During class, the student-participants completed problems associated with the lesson's objectives for the day. The student-participants also demonstrated this goal by presenting a problem at the end of class. The presentation of the problems at the end of class provided stimulus for the student-participants to focus on the common goal. Thus, in order to learn the content, the student-participants interacted socially by asking questions of their peers and me. During these social interactions, the student-participants used their guiding questions and notes to negotiate solutions to the lesson's problems. If the student-participants asked me for help or feedback, I asked probing questions to stimulate their thought process on solving the problem. Therefore, the guiding questions, notes, and my feedback provided the basis for the student-participants to engage in thoughtful discussions on the content.

Composite description of the experience. During the intervention, the student-participants and I continued to build relationships and participated in thoughtful discussions, which were outcomes of focusing on social presence in my classroom. The student-participants were comfortable in the learning environment. They shared many personal stories and common experiences in courses other than electronics. I, too, shared personal stories with the student-participants. In developing this comfort level, student-participants asked questions of their peers and me to help them learn. In developing this platform for open communication, the student-participants and I provided feedback and understanding of the content through thoughtful discussions. These thoughtful discussions also noted the shared responsibility for all members in the learning

community. By sharing socially and continuing to develop personal relationships, the classroom became a comfortable learning environment that encouraged thoughtful discussion about the content.

Learning About Our Collaborative Experiences

I conducted post-intervention interviews with the seven students who participated in the pre-intervention interviews. By completing these interviews, I learned about the student-participants' experiences during the intervention. The following sections present the analysis of and the findings from these interviews.

Learning About My Students' Experiences

Phenomenological studies typically include semi-structured interviews to provide a thick, rich description of the experiences of the participants (Moustakas, 1994). Thus, the analysis of these post-intervention interviews uncovered the perspectives of the student-participants regarding their experiences during the intervention. To analyze these interviews, I followed the steps for coding (Table 4.2) delineated by Moustakas (1994). Using Moustakas' (1994) steps for coding, I identified significant statements (Appendix O) and grouped them into themes (Steps 1 & 2). I learned that the student-participants positively described their experiences with reciprocal teaching. I discussed these positive experiences using the themes found from the significant statements (Step 3). Following developing the textual description, I reflected on the experience in terms of the context (Step 4). This section on the post-intervention interviews concludes with the composite description of the experience (Step 5), which represents the student-participants as a whole.

Textual description of the student-participant's intervention experience.

Using the words of the student-participants, this textural description discusses the positive perceptions of what happened when the student-participants participated in the intervention. These positive perceptions included an overall rewarding experience, the enjoyment of working with their group members, the ability to exchange ideas and information to learn the content, and the classroom resources available to help learn the content.

***Theme 5: Overall positive experience*.** The students positively responded to the intervention. During the intervention, Addison's grades improved, and she was more engaged in class. Addison excitedly stated, "The group thing is a good thing. The group work did really help. My quiz grades improved. I was struggling on my own but the group work helped me because I asked more questions than normally." Robin voiced how the activities helped him learn the course content. Robin nodded his head, smiled, and commented: "Just working with other people. It's just a good thing to do, and it actually helped me by if one doesn't understand and one reaffirms [what they know] by helping the other person understand." Harper also enjoyed his experience during the intervention and appreciated my increased availability during class time. Harper clapped his hands and stated,

> It was learning at its finest … because you gave us … you know … a chance to basically figure it out for ourselves and we did. I'm very proud of me, Landon, Casey, and Jerry. And then, I was listening to Harper's group a little bit … like … during class, they liked it. They even told me and Casey they liked it. It was good

> to be able to call you back there [to our group] when we feel as if we have the right answer but we feel that it might not be the right answer.

River's experience provided a new perspective on her earlier negative feelings about working collaboratively. River stated,

> From the beginning to now, like whenever you would say group, I was like … oh God. [River rolled her eyes] Now, I'm just like, let's go, let's do it. [River snapped her fingers.] Yeah, like, we're supposed to be able to be in close proximity to each other and you work all together. I like it, yeah, it was really good. You changed my mind. I can tell you that most definitely. I've hated groups my whole life. Okay … seriously … hated them because everybody would be looking at me for the answer. What I liked about the guys you set me up with … we all do our work. We don't look to one or another to be like … [Angel rolled her eyes.] … do it for me. Before I would dread it, and now, I don't. So, thank you for that. Now, I get it you're supposed to go and work together and help each other out. That's how you're going to grow.

Additionally, River did not like having a fixed time to work on problems. However, she used it as a catalyst to improve her performance when solving problems. River hesitantly stated,

> I don't like being timed but that's just because I know that I'm gonna take a longer time. I started, every since you started saying, "Hey, set your timer." I started doing that at home 'cause I want to be faster doing the problems.

Furthermore, Logan enjoyed the activities during the intervention but noted the need for purposeful, challenging activities. Logan sternly stated,

> I like the group work we did in class, but make sure it's something worthwhile for a group. If there's something I can get on my own, and it kind of slows me down, and then it starts making me second-guess, or I might have this wrong. It's just sometimes, it's good, and then, sometimes it's not. Because sometimes, I just like to work alone, especially when it's something easy.

Logan also mentioned the noise level during class. Logan cautiously commented,

> I was trying to work that one problem, and I was thinking, and there was a whole bunch of talking that I could hear, and this just caused me to jump off track and all that. Yeah, I mean that's a downside.

Overall, the student-participants voiced positive experiences during the intervention.

Theme 6: Exchange of ideas/information. Reciprocal teaching permitted students to discuss course content with one another during class. Emery provided an example of his group member helping him understand a new concept.

> I do like … I like how we get to like help each other out or something. Like … when one of us do know something, the other one can like explain it better, or help us out more with it. Somebody helped me this last Thursday. When we was doing step up and step down. Like I was kinda lost and David or Corey, one of them, they was explaining to me. Like how if the first number is higher than the second, it would be like step down [transformer] and if the first number is lower than second, it's going to be a step up. Yeah, my group was cool.

Robin provided an example of him helping a group member. Robin straightened his eyeglasses and stated, "I helped Chris remember like the process for resonant frequency. I remembered and told him what to do."

Harper expressed that working collaboratively provided the opportunity to ask others for help. In the past, he has not stopped the lecture to ask a question. Harper crossed his legs and stated,

> Well, I understand where Max and Jacob are coming from when they want to be sure about everything. Man, so you do lean over and ask a question or two. It made it easier when you don't know something. You kinda just go with the flow anyway. [When] you have a group, it's kinda easy to be like, hey, what was she talking about?

Stacey also expressed he helped a classmate recall a concept from a lesson. Stacey rubbed his beard and commented,

> I'm not very talkative and you know most of time when we got started or whatever we would all just be quiet or just be kind of messing and then if one of us had a question or something or someone would answer it. Corey didn't remember like the process for resonant frequency some and I remembered and told him. Yeah, we're able to talk to each other and help each other figure things out.

Logan noted that he helped a classmate and a classmate helped him.

> I like doing that group work. There's stuff like on some of those problems I had. I needed a refresher on, and then, it helped to have other members in the group know. There was one question on that, I don't have a paper with me, but it had to do with if you put DC on the primary side, then, you get AC. I forget exactly what the question was, but [it was] about putting DC on the primary and I stopped at that comma. Because I know that DC doesn't work on the primary. I explained it

> to her [my group member]. She's like, I do remember Ms. Jackson saying, if you put DC on the primary it doesn't work. It only works with AC. She's like, oh, I get it. But she finally got it. And stuff like, sometimes, I help out like that. And then, sometimes other people help out.

In addition, Logan commented on seeing a different perspective when working collaboratively,

> You [the researcher] showing us, and then, putting us in a group, and working it. It's helped me see how other people do it, and see what works, and then, see how I can see if their ways work with me. And it's just, it helps give you a different perspective. Like I said, sometimes it's better to get more heads on one problem. Sometimes, some people see stuff that you didn't see, or you see stuff that people other people don't see.

Harper noted how he compared answers with a partner. Harper said, "I actually tell Corey. Okay, how'd you get that again. I got this right here. Now how'd you get that, and you, okay, this is what you do right here. Now, I understand." Harper further expressed how his group completed a problem.

> The concept is the stuff you [the researcher] wrote on the board. All you [the student] do is copy it down and apply it to the paper. Even like, one time we did some stuff that we hadn't gone over with the diode, but most of us figured it out together without even you telling us how to do it. So I mean, that's challenging you and oh, you [the researcher] don't want to make it so hard that people don't want to do it either. I will give up myself.

Furthermore, River expressed the importance of working collaboratively. River commented, "You get to learn how other people think. 'Cause like, hello, we're all in the same class. I might not understand something that someone else does and vice-versa. So that's cool." Thus, the student-participants were able to interact with the course content and each other to learn.

Theme 7: Group assignments. The student-participants indicated positive feedback about their final groups. Stacey enjoyed working with his group. He smooth his beard and excitedly stated,

> You kind of hook me up, so you got me. I got a good group. You didn't change me and that's what I want. If I'm going to do group stuff, that's cool right there. If I knew I was gonna get a group like that with good people every time, you know, if that was gonna be my group every time I had the group work anywhere that would be cool. I mean, I wish everybody would put me in a good group, and then I'd take that group everywhere.

Addison indicated that she cautiously participated with her group members. Addison said,

> Gotta make sure the group is right, and make sure everybody wanted to be in the group. I did want to talk to you about him [one of my group members]. I try to follow you. How you break stuff down. But how he break stuff down, he be losing me. I don't know if he try to do his own way or the shortcut, but I just don't understand him sometimes. I like working in a group, but when I get behind sometimes I don't like to ask him to slow down. That's just my personality, but I don't mind asking you later.

Additionally, Harper stated, “Well, me and Corey, we have that lab with you, so yeah, we work together anyway. Then, last semester, me and London worked real good together in Ms. Hall’s class. My group was on point.” These statements indicated the groups were able to function satisfactorily during the intervention.

Theme 8: Resources. The student-participants provided positive feedback on the guiding questions distributed during the intervention. The guiding questions provided Robin with the process to solve problems. Robin straightened up in his chair and stated, “They [guiding questions] help get a better picture of what’s going on. It gave me like an order of operation to help solve the problems.” Additionally, Logan’s group used them during the intervention. Logan confidently stated,

> We asked them [guiding questions], and we can answer just about every one of them, and then, because most of time we were done pretty early, because 99% of the time we got the problems done pretty quick. I had a good working group. I think we worked well together I guess you could say.

Harper discussed the guiding questions as well. Harper crossed his legs, folded his arms, and said,

> I know you always like to connect with us, so we call you back there, when we feel as if it might not be the right answer. While we wait on you, we go back okay read those questions you gave us. Check this number right here, and take that number right there, and then you come up with the right thing. That day, you [the researcher] said, “See I’m proud of y’all.” When I yelled the answer out to the other group that day. It was just, it made me feel good actually knowing what I was talking about.

River's group used the questions collectively during the intervention. River stated,

> We really like those questions you did. It helps you because when we're out there working we're not going to have you, and sometimes, that's nerve-racking. [River rolled her eyes.] When we all got the questions, it was so cool because we took turns reading them out and answering them, and after we answered it. Like, did you get this? Yeah, [River nodded her head to say yes.] okay, yes, and one time, Martin didn't get what me and DeVoe got, so we helped him to understand.

Addison also used the guiding questions to understand the course content. Addison confidently stated, "That list of questions helped me study for my test. I kept answering them, over and over and over again." The guiding questions was a resource used to help the students learn the content and aided with problem solving.

Structural description of the student-participants' intervention experience. This structural description discusses the context of the positive experiences of the student-participants during the intervention. The student-participants' experiences were positive because the learning environment was supportive and inclusive. In addition, the student-participants also engaged with the course content and felt confident in their abilities to learn the content, contributing to this positive learning experience. Thus, the following sections further details each contributing factor to this positive experience.

Supportive. While participating in the intervention, the student-participants helped their group members understand the course content. Students expressed their willingness to communicate with their classmates, share their knowledge, and negotiate a plausible solution to a problem. In addition, River and Stacey voiced the need to work together and help each learn the content. River stated, "We don't look to one or another

to be like do it for me. Before I would dread it, and now, I don't … Now, I get it you're supposed to go and work together and help each other out." Stacey noted that he helped a group member recall a concept. Stacey said, "Corey didn't remember like the process for resonant frequency some and I remembered and told him. Yeah, we're able to talk to each other and help each other figure things out." Logan felt supported by his group members. Logan stated, "There's stuff like on some of those problems I had. I needed a refresher on, and then, it helped to have other members in the group know." Although Addison was unable to follow one of her group members, she felt I was able to provide needed support. Addison said, "I like working in a group, but when I get behind sometimes I don't like to ask him to slow down. That's just my personality, but I don't mind asking you later." Thus, during the intervention, the student-participants relied on their peers and me to provide support for an understanding of the lesson's content.

Inclusive. Inclusive means accepting and welcoming all participants in the classroom. The student-participants described an inclusiveness within their groups that extended into the classroom in general. During the interviews, the student-participants repeatedly used pronouns that signify inclusiveness. These pronouns are "we," "us," and "my." For example, Emery enjoyed working with his group members. Emery commented, "Yeah, my group was cool." Harper noted he worked with two of his group members in other classes and said "my group." Harper stated, "Well, me and Corey, we have that lab with you, so yeah, we work together anyway. Then, last semester, me and London worked real good together in Ms. Hall's class. My group was on point." Stacey also expressed he enjoyed working with his group members and would work with the same peers for each class. He stated, "If that was gonna be my group every time I had the

group work anywhere that would be cool. I mean, I wish everybody would put me in a good group, and then I'd take that group everywhere." River explained that her group used the guiding questions to make sure each member understood the content and participated. If a member did not get the same answer, another group member explained their answers. She also used the collective we when describing what happened. River stated, "When we all got the [guiding] questions, it was so cool because we took turns reading them out and answering them, and after we answered it. Like, did you get this? Yeah, okay, yes, and one time, Martin didn't get what me and DeVoe got, so we helped him to understand." In addition, Logan discussed his group using the term we. Logan said,

> We asked them [guiding questions], and we can answer just about every one of them, and then, because most of time we were done pretty early, because 99% of the time we got the problems done pretty quick. I had a good working group.

Thus, an inclusive experience ensured the student-participants helped each other learn.

Engagement with the course content. During the post-intervention interviews, the student-participants expressed that they were involved in learning the course content. Students were also able to see how other students thought about solving problems and learning the content. Logan commented on seeing a different perspective when working collaboratively,

> You [the researcher] showing us, and then, putting us in a group, and working it. It's helped me see how other people do it, and see what works, and then, see how I can see if their ways work with me. And it's just, it helps give you a different perspective. Like I said, sometimes it's better to get more heads on one problem.

> Sometimes, some people see stuff that you didn't see, or you see stuff that people other people don't see.

River expressed the same feelings. River commented, "You get to learn how other people think. 'Cause like, hello, we're all in the same class. I might not understand something that someone else does and vice-versa. So that's cool." Harper also enjoyed his experience during the intervention and appreciated my increased availability during class time. Harper stated, "It was good to be able to call you back there [to our group] when we feel as if we have the right answer but we feel that it might not be the right answer." Harper and his group were able to complete a challenging problem without my assistance. Harper stated, "Even like, one time we did some stuff that we hadn't gone over with the diode, but most of us figured it out together without even you telling us how to do it."

Additionally, the activities completed in the classroom expanded to the home. River stated,

> I don't like being timed but that's just because I know that I'm gonna take a longer time. I started, every since you started saying, "Hey, set your timer." I started doing that at home 'cause I want to be faster doing the problems.

Addison stated, "That list of questions helped me study for my test. I kept answering them, over and over and over again." Thus, the student-participants engaged with the course content during the intervention.

Confidence in learning. By having confidence in learning the course content, the student-participants believed that they had the ability to do the work, and they trusted their peers and me to help them do the work. Emery noted that he liked being able to get help from his peers. Emery stated, "I like how we get to like help each other out or

something. Like when one of us do know something, the other one can like explain it better, or help us out more with it." By working collaboratively, the student-participants who understood the content better were able to help their group members without my assistance. In helping others, students gain confidence in the course content themselves. Robin expressed how helping classmates reinforced what he knew. Robin stated, "Just working with other people. It's just a good thing to do, and it actually helped me by if one doesn't understand and one reaffirms [what they know] by helping the other person understand." Additionally, Harper appreciated working problems that I did not explicitly review with the class. These problems provided an opportunity for discussion and critical thinking. Harper said,

> It was learning at its finest, because you gave us, you know, a chance to basically figure it out for ourselves and we did. I'm very proud of me, Landon, Casey, and Jerry. That day, you said, 'See I'm proud of y'all.' When I yelled the answer out to the other group that day. It was just, it made me feel good actually knowing what I was talking about.

Thus, Harper expressed confidence in learning the content through discussion with his peers and encouraging words from me. Furthermore, River noted that the guiding questions helped her group gain confidence in learning the concepts. River stated, "We really like those questions you did. It helps you because when we're out there working we're not going to have you." Thus, the social interactions in the classroom provided an atmosphere for the student-participants to become confident in learning the course content and their abilities through discussions and encouragement.

Composite description of experience. The student-participants expressed that their overall experience during the intervention was positive. The student-participants enjoyed working with their peers in small groups. In these small groups, the student-participants exchanged ideas and information with their peers. These exchanges between the student-participants helped them to understand the concepts and also showed different perspectives on solving problems. In using these small groups, the students were comfortable and open to communication, and the classroom environment became supportive and inclusive. In addition, these small groups made it possible for the groups to call me for assistance. Furthermore, the student-participants used the guiding questions to facilitate thoughtful discussions about the content and help them learn the content. These guiding questions also actively engaged the student-participants in the lessons. By discussing the content with their peers and me, the student-participants felt confident in their abilities to learn the content because they knew someone was always there to help them achieve.

Conclusion

By learning about the lived experiences of my students and their social interactions in the classroom, I understand how my students feel about their experiences and use this knowledge to plan for learning in my classroom. Thus, I reflect on the findings of this study to address the research questions guiding this phenomenological, action research study. Table 4.3 summarizes the themes found before (Learning About My Students), during (Collaborating With My Students), and after (Learning About Our Collaborative Experiences) the implementing reciprocal teaching in my classroom.

Table 4.3
Themes from Each Data Collection Phase

Pre-Intervention: Themes from Learning About My Students	
Theme 1	Positive Perceptions About Social Interactions
	• Exchanging Ideas/Seeking Information (P1)
	• Encouragement from Others (P2)
	• Importance of Collaboration (P3)
Theme 2	Negative Perceptions About Social Interactions
	• Group Selection Process (N1)
	• Trust Issues (N2)
	• Unequal Participation (N3)
	• Grading Process (N4)
Intervention: Themes from Collaborating With My Students	
Theme 3	Building Relationships
Theme 4	Thoughtful Discussions
Post-Intervention: Themes from Learning About Our Collaborative Experiences	
Theme 5	Overall Positive Experience
Theme 6	Exchange of Ideas/Information
Theme 7	Group Assignments
Theme 8	Resources

In reflecting on the first research question—How did the student-participants describe and perceive their social interactions in a college electronics course?—I found that the student-participants described their experiences as supportive and inclusive. While interacting socially in the classroom, there was always someone, a student or me, there to help another student if they needed assistance. By helping each other, there were

opportunities to compliment and encourage each other. The student-participants and I shared personal stories with each other and identified how we are alike, creating a welcoming classroom environment. Thus, the student-participants felt supported when interacting during the intervention, whether helping each other learn the content or sharing personal stories. In addition, the student-participants described their social interactions as inclusive. When the student-participants discussed their experiences, they consistently used the pronouns "we," "my," and "us," which indicates an inclusiveness. This inclusiveness also indicated the student-participants felt responsible for helping others learn, including all student-participants in the learning process. Therefore, the student-participants held positive views on socially interacting in my classroom.

In reflecting on Research Question 2—How did strategies for developing student and instructor social presence in a college electronics promote student achievement?—I found that student achievement was supported by building relationships and thoughtful discussions. By working in small groups, the student-participants shared personal stories to aid in building relationships. Sharing these personal stories increased the level of comfort within the classroom. This comfort level led to an easy transition to have thoughtful discussion about the content. In addition, the thoughtful discussions included reflection and helping others, both strengths of the student-participants. By reflecting on the content individually, the student-participants assessed their knowledge of the topic. Once student-participants reflected, they shared with their classmates and helped each other understand. The student-participants used the guiding questions to engage during class time. They also engaged beyond the classroom by using the guiding questions as study guides and the time limit associated with reciprocal teaching. Furthermore, these

discussions helped the students develop confidence in their learning. Therefore, the strategies for developing social presence in the classroom promoted student achievement.

In Chapter 5, I reflect on my experience and discuss how I plan to use these findings to implement changes in my classroom and at my colleges to improve student learning. I also discuss how the findings from this study are transferable to other settings that enroll students with characteristics similar to my students.

Chapter 5

Discussion, Conclusions, and Recommendations

This action research study acknowledged the potential for students at two-year colleges to underperform and explored how to improve student achievement. Research (Deil-Amen, 2011; Tinto, 1997) indicated students performed well academically when they were socially integrated into the college environment. Thus, I explored social interactions and their possible influence on student achievement in my classroom. In the effort to improve student achievement, I synthesized social presence from the community of inquiry (CoI) framework (Garrison et al., 2000) and elements of culturally responsive teaching (Gay, 2010) with a focus on collaborative learning (Stump et al., 2011). In applying this theoretical framework, I implemented reciprocal teaching (Green, 2000), a collaborative learning strategy that has the potential to foster the development of social presence and is inherently culturally responsive. Thus, one research question guiding this study was: How did the student-participants describe and perceive their social interactions in a college electronics course? This study also examined: How did strategies for developing student and instructor social presence in a college electronics courses promote student achievement? To answer these research questions, I used a phenomenological, action research approach to understand the lived experience of my students participating in the study.

I collected qualitative data in three phases: pre-intervention, intervention, and post-intervention. Each phase of data collection provided insight into the phenomenon under investigation. During the pre-intervention phase, I conducted one-on-one interviews to learn about the student-participants' perceptions and perspectives toward social interactions in their college courses prior to the intervention. From these pre-intervention interviews, I learned the student-participants' did not always have favorable experiences with collaborative activities because they had no voice. The lack of control in initiating the activity and predicting the outcome based on their peers' actions led to negative experiences. In addition, the student-participants did not express their feelings when working collaboratively. Thus, the lack of interpersonal communication limited their personal expressions within their groups when executing activities collaboratively. Although the student-participants had some negative perceptions working collaboratively, they expressed value in such activities. Working collaboratively provided an opportunity for them to help their peers learn the course content and prepare them for the workforce.

During the intervention, I implemented three cycles of reciprocal teaching in my classroom. During the first and second cycles, the student-participants and I engaged in the reciprocal teaching strategy of think-pair-share-square (TPSS). For the third cycle, the student-participants and I participated in a modified jigsaw activity. I collected data by observing the classroom and writing personal reflections. In analyzing these data, I learned that the student-participants and I continued to develop relationships with each other in the classroom. The data showed personal conversations among the student-participants and with me. Many of these conversations included discussion about

activities outside of the classroom as well as commonalities between the student-participants and the student-participants and me. This increasing familiarity and comfort in the classroom resulted in an openness to interact with each other and the course content.

Following the intervention, I interviewed the student-participants who participated in the pre-intervention interviews. During these post-intervention interviews, the student-participants positively described their experiences participating in the intervention as supportive and inclusive. This supportive and inclusive learning environment was a result of the student-participants being actively engaged with the course content and being confident in their learning. This engagement with the course content also extended beyond the classroom. The student-participants utilized resources and the timing associated with the intervention outside of the classroom to improve their academic skills. In addition, this engagement led to gaining confidence in the course content. Moreover, the student-participants took ownership of their learning and solved problems without my assistance and felt confident doing so. This chapter will further discusses these findings and their implications for my personal practice. I also discuss these findings in relation to the existing literature. Furthermore, I discuss other settings that may benefit from the findings of this action research study.

Reflection and Implications

This section includes a synthesis of my reflective thoughts during the study and my immediate thoughts at the conclusion of the study. I then discuss the implications for my personal practice, how I plan to share my research findings, and my future research plans based on the findings for this study.

Reflection

I completed reflective notes during the three cycles of the intervention. During the first cycle of the intervention, the student-participants and I engaged in the reciprocal teaching strategy of think-pair-share-square (TPSS). In observing the student-participants, I heard them *correctly* explaining to other group members how to work the problems. I heard student-participants using the guiding questions to solve the problems from the assignment. I noticed some of the student-participants wrote answers to these questions. At the end of class, a few of the student-participants asked me to check their answers. In addition, I felt a sense of urgency from the student-participants to complete the problems when they learned about presenting one of the problems at the end of the activity. Overall, the student-participants highly engaged in the TPSS activity. However, I recognized one group completed the problems independently and another group consistently relied on me, instead of communicating with each other. Furthermore, a few student-participants privately expressed the need for a new group with preferred peers. Based on my observations and feedback from the student-participants, I rearranged the groups for the next cycle.

After I rearranged the groups for the second cycle of the intervention, I noticed all of the student-participants actively engaged in the collaborative assignment. As I walked around the classroom, I heard the student-participants *correctly* explaining to other group members how to work the problems. I observed the student-participants taking ownership of the course material and explaining concepts to each other. I heard increased confidence in the student-participants' abilities and the content as we discussed problems. In addition, I received positive feedback on using time to get the student-participants to pace

themselves with the work. The student-participants also expressed that they enjoyed collecting their thoughts before discussing the problem in the group. In order to keep the lecture hour from being monotonous, I planned a group activity using the modified jigsaw collaborative strategy for the next cycle.

As the student-participants entered the classroom for the third cycle of the intervention, I enjoyed witnessing the comradery between the students. I felt more connected to them as well. One student asked me what I listened to on my iPod. He shared that he wanted to ask me that last semester but did not feel comfortable enough to ask me. Another student wanted me to share a funny story about my sons. At the beginning of class, I learned there was a physics test the day before my planned date. I was glad that the student-participants felt comfortable enough to tell me and ask me to change the test date. It felt nice to know they saw that I want them to be successful. In addition, I witnessed the importance of actively involving everyone in class. It brought to light for me the importance of two-way communication in learning. The contents in the book were important but it was also important to encourage my students so that they gained confidence in themselves and their abilities.

As the leader in the classroom, I must set the tone for the learning environment (Gay, 2010). I arrived at the classroom before the start of class to ensure there was no wait time to enter the classroom. This way, I greeted the student-participants as they entered the classroom. This also allowed time for the student-participants and I to socialize before class began. As I socialized more with the student-participants, I became comfortable and willing to share details about my personal life. In the past, I rarely shared personal details about my life with my students. However, this study changed that

for me. I witnessed firsthand the importance of sharing my story to find a commonality with the student-participants so that the student-participants and I could get to know each other and feel comfortable with each other. This also showed the student-participants that I cared about them and their well-being. In reflection, I have similarities to my students and stories to tell to encourage them. I grew up in an economically depressed rural area in the southeastern U.S. and saw a career in the field of STEM as a means to increase my social capital. I definitely can share my classroom experiences as a student in STEM and how I became successful in the field.

In addition, with my students who are parents, I am able to relate to them because I am a mother. I must show compassion for my student if he misses class because his child is sick. One of my students missed class because he helped care for his younger siblings. Instead of berating him, I told him I grew up in a household with one parent and the eldest of four siblings so I understood his situation. This study definitely taught me to be relatable and share my stories to set the tone for a comfortable learning environment.

Implications

Personal practice. As a result of the completion of this action research study, I will continue to improve my actions in the classroom to develop an effective learning community, a group of students and instructors who participate in collaborative activities that are designed to foster academic and social interactions and improve student learning (Lenning & Ebbers, 1999). Developing an effective learning community requires the development of interpersonal relationships and a meaningful learning experience (Tinto, 1997). In order for my students to develop interpersonal relationships, I must focus on developing social presence in my classroom. Thus, I will focus on actively exercising

culturally responsive teaching practices in my classroom to develop this learning community. The implementation plan for continuing my focus on social presence from the CoI (Garrison et al., 2000), culturally responsiveness (Gay, 2010), and collaborative learning (Stump et al., 2011) will be detailed later in this chapter.

Sharing my research. In sharing my research results with others, I take a lead role in suggesting educational improvements at the local, state, and national levels (Mertler, 2017). In my area of immediate influence, I will provide guidance to my fellow colleagues to improve their personal practices. In addition, I will conduct a professional development session for facility at my college's convocation. At the state level, I will present a poster presentation at the annual meeting for the two-year college association. Lastly, I will submit my manuscript to a refereed journal dedicated to two-year colleges.

***Faculty community of practice*.** Each academic year, my college has a cohort of faculty members who work together to improve their instructional practices. Each member of the community is paired with another faculty member, and each pair is also assigned a coach. The faculty members select one course to review during the semester. Each week, a lesson, course materials, and reflections are posted to a discussion forum in the learning management system. The paired faculty members comment on each other's post. Once the partners comment on the post, the coach evaluates the posts and provides additional comments. I serve as a coach for this faculty community of practice. In my role as coach, I will be able to share my findings from this study and future iterations of this study.

Professional development session at convocation. My college has convocations at the beginning of the fall and spring semesters. During convocation, the faculty and

staff assemble, and each department provides an overview of their roles on campus and new policies and procedures that will affect the operation of the college. Following this assembly of the faculty and staff, breakout sessions for professional development are available for faculty and staff. I plan to offer a professional development session at fall convocation. This session will include a discussion of this study and best practices I have implemented based on this study. I will also offer assistance to the instructors who have interest in action research.

***Presentation for the two-year college association*.** The two-year college association is an organization comprised of the state's two-year college system's faculty and staff and supporters of the two-year college system. The two-year college association has an annual conference that includes professional development sessions and poster presentations. I will submit a proposal for the next annual conference. This will be an ideal conference for a presentation because representatives from all of the two-year colleges in the state attend.

***Scholarly publication*.** In sharing this action research on the national level, I will submit a manuscript to the Community College Review (CCR). The CCR has led the nation in peer-reviewed research and commentary on two-year colleges since 1973. This journal provides a forum for community colleges to discuss thoughts on community colleges, the students who attend these institutions, and for the instructors and administrators of these colleges. The CCR accepts manuscripts on administration policies and educational practices. This journal also has an audience of faculty, administrators, researchers, and policy makers in higher education. The articles published in the journal focus on the synthesis of theory and practice. Thus, the CCR is an appropriate journal

selection because the audience includes those who have an interest in two-year colleges, the setting for this study.

Future research plans. The knowledge and experience gained from this action research study led to new questions for me to investigate, ways to improve my intervention in the future, and the beginning of my next research cycle (Efron & Ravid, 2013). In reflecting on this action research study, its findings, and the action plan meeting, my next research inquiries are: implementing reciprocal teaching with a large class size, adjusting the group selection process from this study, and collecting data over an extended timeframe.

Implement with large class. Swap and Walter (2015) found success with large-enrollment STEM college courses. This action research study was conducted during a spring semester when I had a smaller class size than my fall semester class. I plan to conduct this study during the fall semester with a large class size of approximately 50 students. With this larger class size, I believe it will be a challenge to monitor each group's progress. Thus, I will include a system to monitor each group. Tharp (2015) suggests using colored cups for group management. Each group receives three cups: one green, one yellow, and one red. Green means the group is working. Yellow means the group needs assistant. Red means the group has completed the task.

Group selection process. The group selection process was instrumental in providing a favorable experience for the student-participants. I also learned during this study that the student-participants desired to exercise their power in selecting their group members. To provide students with this freedom, Gay (2010) suggests providing cycles

of evaluation to determine if the groups are meeting performance criteria. Thus, students will exercise their freedom but will be evaluated to ensure the group is functioning.

Time. Time is essential in developing social presence in the classroom. Akyol, Vaughan, and Garrison (2011) found that group cohesion developed in a short-term course but long-term courses were best suited to develop affective communication. Affective communication is crucial to get to know each other on a personal level and be able to breakdown stereotypes. I teach the same students for three consecutive semester. I believe it would be interesting to learn about my students' connections with each other and me over time and how these connections may improve their academic performance.

Findings Related to Existing Literature

The findings from this study confirms the existing literature related to social interactions and student achievement in the classroom. I discuss the findings from each data collection phase and relate these findings to my literature review from Chapter 2 that informed this study. Table 5.1 summarizes the themes found during each phase of the study.

Pre-Intervention: Themes from Learning About My Students

Theme 1: Positive Perceptions About Social Interactions

The student-participants expressed positive perceptions about socially interacting in the classroom. These positive perceptions included exchanging ideas and seeking information to learn the content (P1), encouragement from others to continue to learn the content (P2), and the importance of collaborating to learn and to prepare for the workforce (P3).

Table 5.1
Themes from Each Data Collection Phase

Pre-Intervention: Themes from Learning About My Students	
Theme 1	Positive Perceptions About Social Interactions
	• Exchanging Ideas/Seeking Information (P1)
	• Encouragement from Others (P2)
	• Importance of Collaboration (P3)
Theme 2	Negative Perceptions About Social Interactions
	• Group Selection Process (N1)
	• Trust Issues (N2)
	• Unequal Participation (N3)
	• Grading Process (N4)
Intervention: Themes from Collaborating With My Students	
Theme 3	Building Relationships
Theme 4	Thoughtful Discussions
Post-Intervention: Themes from Learning About Our Collaborative Experiences	
Theme 5	Overall Positive Experience
Theme 6	Exchange of Ideas/Information
Theme 7	Group Assignments
Theme 8	Resources

Exchanging ideas/seeking information. The student-participants found it helpful to exchange ideas and seek information from other student-participants in learning the course content. When working independently, the student-participants asked other students in their classes for help when learning a course's content. Exchanging ideas was also a means to confirm what the student knew. If a student explained to another student

how to do something, it showed the student who provided the help that she is knowledgeable about the topic. This confirmation also created a comfort for the student when discussing technical concepts. Thus, the student-participants viewed exchanging ideas and seeking information as a means to learn from each other.

Encouragement from others. During class time, social interactions between the student-participants provided opportunities for encouragement and expressions of appreciation from others in the classroom. The student-participants complimented each other about their talents and abilities. These compliments and words of encouragement resulted in the student-participants feeling good about themselves. In addition, knowing about my work experience and academic success as an African American woman in the field encouraged other students who identified with me to remain committed to their coursework.

Importance of collaboration. The student-participants understood the importance of collaborating in relation to their future goals and learning the course content. The student-participants with prior work experiences knew working in teams was a requirement in the workforce. In addition, the student-participants noted the need for two-way communication for learning in the classroom. Thus, the student-participants understood the importance of working collaboratively and how these skills transferred to the work environment.

Relationship of Positive Perceptions About Social Interactions to the Literature

In discussing the theme: exchanging ideas/seeking information, the student-participants' prior experiences interacting in the classroom included the students

communicating with each other. Within a CoI, a group of students and instructors engage in purposeful and meaningful interactions for an optimal educational experience (Garrison et al., 2000). This optimal educational experience includes students and instructors. However, the student-participants' prior experiences highlighted support from their peers. The student-participants did not mention reaching out to their instructors for help. This suggested limited interactions between instructors and students. Because of these limited interactions, the student-participants did not encounter an optimal learning experience.

In the CoI framework, social presence fosters social interactions and peer-to-peer support (Garrison & Arbaugh, 2007). The theme: exchanging ideas/seeking information provided evidence of social presence in the classroom. The student-participants supported each other to learn the course content. They asked each other for help when they needed it. In addition, Ochner and Robinson (2017) found that dialogues between students increased their confidence in themselves and the course content. Similarly, as the student-participants exchanged ideas, these exchanges helped the student-participants become confident in discussing the course content. As the student-participants explained concepts to each other, these discussions confirmed for the student-participants that they understood the concepts. Moreover, this peer-to-peer support manifested itself when the student-participants complimented and encouraged each other, which builds confidence in the students' abilities (Shea & Bidjerno, 2010).

Moreover, Jett (2013) found that students who perform well academically interact and communicate with their peers. In like manner, the student-participants expressing the importance of collaborating indicated an understanding for the need to socially interact to

perform well academically. The student-participants also bridged the connection of interacting socially in class to the workforce. In summary, the student-participants' positive perceptions of social interactions in the classroom illustrated that the student-participants independently developed a support system with their peers to learn and achieve academically.

Theme 2: Negative Perceptions Associated with Social Interactions

The student-participants expressed negative perceptions about social interactions in the classroom. These negative perceptions associated with social interactions in the classroom included: the group selection process (N1), untrusting feelings toward group members (N2), unequal participation when working collaboratively (N3), and the grading process (N4). In their classes, the student-participants experienced limited emphasis on developing social presence in the classroom. Thus, for the student-participants to support their academic achievement, they instinctively used their inclination to reflect and help others to learn the content. In reflecting on the content, student-participants acknowledged where they needed help in learning the content and sought guidance from their peers to help them. In asking their peers, a peer with a better understanding explained the concepts, or they figured things out together.

Group selection process. The student-participants disliked when the instructors selected groups for collaborative activities, especially randomly selected groups. The student-participants also expressed a strong preference for selecting their group and working with peers with whom they had established relationships.

Trust issues. When working collaboratively, the student-participants felt as though they could not trust their group members. This untrusting nature within in the

groups led to extra work for group members to complete activities. The student-participants who did not trust their group members would complete the work independently. In addition, the student-participants anticipated doing extra work because they did not trust other group members to do their assigned activities. Morever, one student-participant also desired to participate fully in the collaborative activity but one group member monopolized the assignment. Thus, the group member who desired to participate felt as though the group member who monopolized the activity did not trust them. Therefore, I found that trust issues negatively affected the student-participants' experiences working collaboratively.

Unequal participation. The student-participants expressed concern about all group members participating fully and equally during collaborative activities. They felt as though other students did not contribute, and they worked on the activities independently. The student-participants also expressed they carried too much of the workload. In their prior experiences, other members relied heavily on the more knowledgeable group member. Thus, I learned that the student-participants desired everyone in their groups to contribute equally to the collaborative assignments.

Grading process. The student-participants held negative perceptions about the grading processes for collaborative assignments. They disliked their grades depending on the performance of another classmate. The student-participants wanted to ensure all group members participated if all group members received the same grade. In addition, the student-participants did not want collaborative activities that were major course grades. Thus, the grading process added to the negative perceptions on social interactions in the classroom.

Relationship of Negative Perceptions About Social Interactions to the Literature

Social presence performs a critical role in favorable learning outcomes (Garrison & Arbaugh, 2007). The student-participants' negative perceptions about social interactions resulted from the absence of this social presence in the classroom. In discussing the group selection process, the student-participants voiced negative experiences with random, instructor-selected groups. One indicator of social presence, the expression of emotion, is the ability of the participants to express their feelings in the learning environment and express their feelings confidently (Garrison & Arbaugh, 2007). When the student-participants worked with their peers assigned by instructors, they felt uneasy and uncomfortable, which led to limited self-disclosure. Because there was limited self-disclosure, the expression of emotion is absent from the group (Garrison et al., 2000). It is also important to note that the expression of emotion helps develop trust (Garrison et al., 2000). Therefore, if there is no expression of emotion, there is no trust. This explains the theme of trust issues expressed by the student-participants. The student-participants did not fully engage with their group members because of the absence of the expression of emotion and did not develop trust within their groups.

The student-participants also expressed that they did not appreciate unequal participation of their group members during collaborative activities. This unequal participation illustrated the absence of open communication, the second indicator of social presence. Open communication, is respectful and reciprocal exchanges between the participants (Garrison et al., 2000). The student-participants did not communicate their desires to distribute the workload evenly for the assignment. This inability of the student-participants to express themselves was a result of the absence of open communication. In

addition, the student-participants expressed displeasure with the grading process for collaborative assignments but did not communicate these feelings to their instructors. This provided another example of the absence of open communication in the classroom.

Overall, these negative perceptions highlighted the absence of a focus on instructor social presence. Social presence develops because of instructor social presence (Shea et al., 2010). The instructor social presence sets the tone for the learning environment, and no instructor social presence leads to negative student learning experiences (Shea et al., 2010). Therefore, the absence of a focus on social presence by instructors in the classroom resulted in negative experiences for the student-participants.

Intervention: Themes from Collaborating With My Students

Theme 3: Building Relationships

The student-participants and I had a common bond of the course content, and by interacting socially, we showed signs of building relationships through communication. The social interactions initiated by the intervention led to discussions about personal matters with humorous tones. The student-participants shared numerous personal stories and common experiences in courses other than electronics. I, too, shared personal stories with the student-participants. In developing this comfort level by socially sharing, student-participants asked questions of their peers and me to help them learn. In developing this open communication, the student-participants and I provided formative feedback and understanding through thoughtful discussions. These thoughtful discussions also noted the shared responsibility for all members in the learning community, a characteristic of culturally responsive teaching practices (Gay, 2010). By sharing socially and continuing to develop interpersonal relationships, the classroom became a

comfortable learning environment that encouraged thoughtful discussion about the content.

Theme 4: Thoughtful Discussions

When working collaboratively, the student-participants reviewed problems with each other, reflected on what that knew, where they needed additional support, and requested this support. When the student-participants were unsure of how to complete a problem, they sought assistance from their group members. If the group members needed further assistance, they asked me for guidance. In providing guidance to the student-participants, I provided feedback to each group. By seeking help, the student-participants acknowledged that they did not know the content and actively found the answers to fill their knowledge gaps. The student-participants who had a better understanding of the course content supported the other student-participants. Thus, the student-participants accepted responsibility for ensuring the other student-participants learned the course content. In taking responsibility for helping others, student-participants offered and provided guidance to their peers within and outside of their groups. Therefore, by reflecting, seeking, and providing guidance the student-participants engaged in thoughtful discussions.

Relationship of Intervention Themes to the Literature

Based on the themes of building relationships and thoughtful discussions, there was evidence of social presence in the classroom. One indicator of social presence, the expression of emotion, is the ability of the participants to express their feelings in the learning environment and express their feelings confidently (Garrison & Arbaugh, 2007).

Two contributing factors to the expression of emotion are self-disclosure and humor (Garrison et al., 2000), and both of these factors were seen in this study. By building relationships in the classroom, the student-participants and I connected with each other and showed our personalities. During the intervention, the student-participants and I shared personal stories about ourselves and engaged in witty conversations about everyday life. Thus, we developed the expression of emotion. By developing this expression of emotion, the student-participants and I shared our feelings with each other and developed support and trust within the classroom (Garrison et al., 2000). As a result of developing the expression of emotion, the student-participants became comfortable and open to interacting with their peers and me in the classroom, which corresponds with an outcome of culturally responsive teaching practices (Gay, 2010).

The second indicator of social presence, open communication, involves respectful and reciprocal exchanges between participants (Garrison et al., 2000). The theme of thoughtful discussions illustrates open communication. Open communication encourages dialogues and thoughtful expressions between students and between students and instructors. During the study, the student-participants participated in thoughtful discussions. These thoughtful discussions included hearing another perspective on a problem, asking questions when a topic is unclear, processing the information after asking questions, and asking more questions to understand the information. These thoughtful discussions led to the student-participants understanding the content (Garrison & Arbaugh, 2007) and filling in the knowledge gaps on the content (Hajra & Das, 2015).

The final indicator, group cohesion, builds and sustains commitment to the group and the educational process (Garrison et al., 2000). When students serve as both students

and instructors, they become interdependent and committed to helping their peers (Swap & Walter, 2015). During this study, the student-participants helped each other learn the course content. When one student asked a question, another student would answer the question. The student-participants felt responsible for helping their peers understand. Thus, the student-participants ensured no one in their group was excluded from the learning process, which promoted the welfare of the group (Gay, 2010).

Thus, social presence supported academic achievement by developing a comfortable learning environment where the student-participants felt comfortable by building relationships in the classroom. When students build relationships with their peers and instructors, they are open to communicating and asking for help from their peers and instructors (Garrison & Arbaugh, 2007). If students ask for help, thoughtful discussions begin and they commit to helping each other (Hajra & Das, 2015).

Post-Intervention: Themes from Learning About Our Collaborative Experiences

The student-participants expressed an overall positive experience participating in the collaborative learning strategy of reciprocal teaching. The student-participants engaged with each other, engaged with me, and engaged with the course content. The student-participants enjoyed working in their respective groups. The student-participants utilized resources provided during the intervention to stimulate conversations about the group assignments. The student-participants welcomed all group members and supported each other in learning the content. Thus, the following themes were identified from the post-intervention: overall positive experience, exchange of ideas/information, group assignments, and resources.

Theme 5: Overall Positive Experience

The student-participants expressed positive feedback on participating in the learning strategy of reciprocal teaching. The student-participants described their interactions as supportive. The student-participants labored on their own at times but felt comfortable seeking information from their peers and me. The student-participants also appreciated my immediate availability during class time. In addition, the student-participants used elements of reciprocal teaching outside of the classroom to improve their performance inside the classroom. For example, one student-participant used the time constraints for reflection from reciprocal teaching to increase her speed working problems in class.

Theme 6: Exchange of Ideas/Information

Reciprocal teaching permitted time for the student-participants to discuss course content during class. The student-participants asked other classmates and me for help when they did not understand a concept. When a student understood a concept, he willingly explained the concept to his classmate. During these exchanges, student-participants found it helpful to see a different perspective on a problem and learned how another student solved the same problem. By exchanging ideas and information, the student-participants interacted with each other and the course content to learn new information.

Theme 7: Assigned Groups

The student-participants expressed positive feedback on working with their assigned group members. I grouped the student-participants with individuals they knew,

and the student-participants expressed desire to continue to work with the same group members on other collaborative assignments.

Theme 8: Resources

I provided guiding questions for the student-participants to stimulate meaningful conversations about the course topics, especially for shy student-participants who may have difficulty participating in group conversations. The student-participants provided positive feedback on the guiding questions distributed during the intervention. The student-participants viewed the guiding questions as a template for solving problems. The student-participants also used the guiding questions collectively to verify their solutions. In addition, the student-participants used the guiding questions as study aids to prepare for exams. Thus, the guiding questions stimulated conversations and student thinking about the course content.

Relationship of Post-Intervention Themes to Literature

Focusing on social presence in the classroom provides a positive learning experience for students (Garrison & Arbaugh, 2007). Similarly, in this study, I focused on developing social presence, and the student-participants expressed a positive learning experience. In developing social presence, the classroom becomes welcoming and comfortable (Gay, 2010). I provided a catalyst for this welcoming environment by grouping the student-participants with preferred peers. In a welcoming and comfortable learning environment, students are open to participating in collaborative discourse (Garrison, 2010). In this study, the collaborative discourse was demonstrated by the theme: exchange of ideas/information. By exchanging ideas and information, the student-

participants engaged with each other, the content, and me. In exchanging ideas and information, the student-participants filled their gaps of knowledge by reflecting on what they knew and asking questions to resolve issues. In this study, the student-participants also actively engaged in meaningful discussions and used their guiding questions to stimulate these discussions.

Table 5.2
Data Collection Timeline—Pre-Intervention

Week 1	
Tuesday	Introduce study Discuss consent form Discuss survey
Thursday	Remind students to complete survey
Saturday	Review survey results Select and email students requesting interviews
Week 2	
Tuesday	Confirm interviewees Schedule appointments - Complete interviews by end of Week 3 Prepare interview consent form Review interview form Begin to listen to and transcribe interviews
Thursday	Trial recording session Continue listening to and transcribing interviews
Week 3	
	Continue listening to and transcribing interviews Prepare lesson for intervention

Implementation Plan

Because the student-participants had positive experiences during the intervention, I decided to implement reciprocal teaching in another course. I implemented this study in the spring semester. However, the enrollment and student dropout rate are higher during

the fall semesters. Consequently, I believe it is necessary to implement this study with a larger class size and help build an effective learning community during my students first semester in the program. In addition, another instructor, who teaches second-year students expressed interest in this study and will conduct a study using reciprocal teaching as well. Table 5.3 shows the timeline for the data collection before the intervention begins. I based this timeline on a class that meets twice a week on Tuesdays and Thursdays. Once the pre-intervention phase is completed, I will consult with my colleague and see if he has any questions or issues.

Table 5.3
Data Collection Timeline—Intervention

Week 4	
Tuesday	Execute Lesson #1 Record presentation and student groups Make notes/Reflect on notes Listen to recordings
Thursday	Continue reflection on data Continue listening to data If necessary, adjust next lesson based on data
Week 5	
Tuesday	Execute Lesson #2 Record presentation and student groups Make note/Reflect on notes Listen to recordings
Thursday	Continue reflection on data Continue listening to data If necessary, adjust next lesson based on data
Week 6	
Tuesday	Execute Lesson #3 Record presentation and student groups Make note/Reflect on notes Listen to recordings
Thursday	Continue reflection on data Continue listening to data Review post-intervention interview form

Once the intervention is completed, I will ask my colleague if he has any questions before he begins the post-intervention interviews. Table 5.4 shows the data collection timeline for the post-intervention interviews.

Table 5.4
Data Collection Timeline—Post-Intervention

Week 7	
Monday	Conduct post-intervention interviews Continue listening to and transcribing data
Tuesday	Conduct post-intervention interviews Continue listening to and transcribing data
Wednesday	Conduct post-intervention interviews Continue listening to and transcribing data
Week 8	
Tuesday	Continue reflection on data Continue listening to and transcribing data
Thursday	Continue reflection on data Continue listening to and transcribing data
Week 9	
Tuesday	Continue reflection on data Continue listening to and transcribing data
Thursday	Continue reflection on data Continue listening to and transcribing data
Week 10	
Thursday	Action Plan Meeting

Once data collection is completed, my colleague and I will reflect on the findings and our experiences and plan our next cycle of action research.

Action Research and Validity of Qualitative Data

This section discusses the purposes and goals of action research and how I followed Mertler's (2017) model of action research for this study. Following this discussion on action research, I describe the methods used to ensure the validity of this qualitative study.

Action Research

Action research is a cyclical, inquiry-based process that addresses a localized problem in an educational organization (Herr & Anderson, 2015). Practitioners of action research are viewed as generators of knowledge because they are professionals capable of making well-informed decisions about their own inquiries and are responsible for their own research-based actions (Efron & Ravid, 2013). Mertler (2017) presented the cyclical process of action research in four stages: the planning stage, the acting stage, the developing stage, and the reflection stage. During the planning stage, I reflected on my classroom experiences and noted that my students who engaged socially with their peers and me performed well academically. Thus, I reviewed the literature on social interactions in the classroom. During this review, I learned about the importance of establishing a social presence within the CoI framework for a successful experience in higher education (Garrison et al., 2000). Upon further review of the literature, I learned about culturally responsive teaching and the positive outcomes for two-year college students (Aronson & Laughter, 2016; Flynn et al., 2017; Jett, 2013) Then, I learned about instructional strategies that promote collaborative learning for two-year college students (Hennessy & Evans, 2006; Stump et al., 2011). In learning about the CoI, culturally

responsive teaching, and collaborative learning, I integrated them into a theoretical framework to address my problem of practice.

After developing my theoretical framework to address my problem of practice, I selected a phenomenological research design to learn about the student-participants' social interactions in the classroom in relationship to academic achievement. The student-participants participated in pre-intervention interviews for me to get to know them and learn about their previous social interactions in the classroom. I used these data to plan the implementation of reciprocal teaching during the intervention. Student-participants participated in post-intervention interviews for me to learn about their lived experiences during the intervention.

I completed three cycles of the intervention with the student-participants. During each cycle of the implementation of reciprocal teaching, I observed the student-participants and wrote reflective notes on these classroom observations. These classroom observations and reflective notes determined changes for the next cycle of the intervention. This process of collecting data followed by reflection with the anticipation of improving teaching and learning is the core of action research (Mertler, 2017). In improving teaching and learning through reflection, each cycle of the intervention helps me become a better instructor.

Once the acting stage was completed, I moved into the developing stage and developed a plan of action based on my findings from the data. I facilitated a meeting and discussed the findings from the study with the student-participants and my colleagues in the STEM department. During this meeting, we developed a plan of action for the department based on the findings (Mertler, 2017). Thus, another purpose of

action research was realized, which is educating the practitioner-researcher and the student-participants (Herr & Anderson, 2015). The plan of action included strategies to address my problem of practice and the individuals responsible for carrying out and monitoring the success or failure of the strategy (Mertler, 2017). Thus, the results were relevant to my local setting and produced knowledge that was useful to my educational practice (Herr & Anderson, 2015). This plan of action also provided a list of action-oriented outcomes, which is a goal of action research (Herr & Anderson, 2015). Once the plan of action was created, I began the reflecting stage. During the reflecting stage, I shared my findings and action plan with the other instructors at my college. The reflecting stage was also an opportunity for me to review the process and make plans for future studies (Mertler, 2017). Thus, the knowledge and experience gained from this study led to new questions for me to investigate, ways to improve my intervention in the future, and the beginning of my next research cycle (Efron & Ravid, 2013).

Validity of Qualitative Data

The validity of qualitative data in action research is concerned with the trustworthiness of the data (Mertler, 2017). Trustworthiness is established by four characteristics: credibility, dependability, confirmability, and transferability (Mertler, 2017). Credibility establishes that the results of the study are believable (Mertler, 2017) and was demonstrated by performing member checks (Mills, 2014). In this study, the student-participants read and approved the text of their interviews, and the student-participants' descriptions are detailed in Chapter 4. I also discussed my analytical thoughts and interpretations with the student-participants (Efron & Ravid, 2013). These reviews allowed the student-participants to ensure their experiences were not

misrepresented (Creswell, 2018). By having the student-participants review their interview transcripts, my analytical thoughts, and interpretations, I was able to preserve the student-participants' voices, which aligns with phenomenology (Saldaña, 2016). Credibility is also established by peer review (Efron & Ravid, 2013). Peer review provided me with an additional set of eyes on my interpretation and accuracy of my findings (Efron & Ravid, 2013). This peer review was conducted by my department's dean. During this study, performing member checking illustrated the collaborative nature of action research (Mertler, 2017). Educators do action research with their students and colleagues (Mertler, 2017).

Dependability refers to the stability of the data and is executed in this study by collecting various types of data to compensate for weaknesses among the data collection (Mills, 2014). For this study, these data collection methods included interviews, observations, and reflections. Using data points from various perspectives permitted the use of triangulation to ensure the validity of the data (Efron & Ravid, 2013). Triangulation is the practice of relying on more than one source of data to have varied perspectives on a phenomenon (Efron & Ravid, 2013). Action research is intentional, thoughtfully planned, and systematic to produce meaningful results (Efron & Ravid, 2013). In addition, phenomenology supports multiple interviews to fully describe the lived experience of the student-participants (Creswell & Poth, 2013). Thus, planning for and completing triangulation aids in producing valid results for this study.

Confirmability, establishes the objectivity of the data (Mertler, 2017). Reflexivity acknowledges the researcher's perspectives and positions shape the research process (Efron & Ravid, 2013). Reflexivity requires commenting on two points: the researcher's

past experiences with the phenomenon and how these past experiences influence the study (Creswell, 2018). Being the principal instrument of data collection, I reflexively discussed my biases through the writing of my role as the researcher (Creswell, 2018). In addition, I wrote notes about what I learned, concerns about the data collection process, and concerns about the student-participants during the process. In phenomenology, reflexivity aligns with the concept of bracketing. In order for the researcher to have a fresh perspective of the phenomenon, the researcher must bracket or set aside, as much as possible, her prejudgments and personal experience with the phenomenon under investigation (Moustakas, 1994). By setting aside my personal prejudgments and personal experience, I self-reflected to improve my educational practices and made informed decisions about my classroom, which illustrates tenets of action research (Mertler, 2017).

Lastly, to ensure transferability, I collected descriptive data to ensure the setting was easily identifiable (Mertler, 2017). Action research is situational and aims to understand the unique context of the setting and the participants (Efron & Ravid, 2013). Thus, a detailed description of the context and setting were included. In phenomenology, a heterogenous group must be identified and interviewed (Creswell & Poth, 2013). The following section discusses the context of this study and the transferability of this study to other educational settings. I also provide recommendations for these educational settings.

Transferability

Based on the context and setting of this study, I believe other institutions and programs serve the same demographic of students and have similar goals and admission policies. Thus, the findings from this study may be beneficial for the students who attend

these institutions and programs to reach their educational goals. These institutions include other technical colleges, adult education, and historically black colleges and universities (HBCUs). In this section, I discuss how these institutions are similar to my context and setting and provide instructional recommendations for instructors and professors at these institutions based on the findings from this study.

Description of the context. The site for this study was a two-year college located in a small rural region in South Carolina. Students at the college enrolled in certificate and associate degree programs to obtain skills for employment or to transfer to four-year colleges and universities. Disciplines at the college included fields of study in the medical profession, human services, and technology. The college's open enrollment policy welcomed and provided all students with an opportunity to learn. During the Fall 2017 semester, 2,479 students enrolled at the college (National Center for Education Statistics, 2018a). In the Fall of 2017, 64% of the student population was female and 34% was male (2018a). In addition, 64% of the student population was enrolled part-time, and 36% of the student population was enrolled full-time (National Center for Education Statistics, 2018a). The racial and ethnic composition of the student population was 54% Black or African American, 40% White, 2% Hispanic or Latino, 1% Asian, and 1% American Indian and Alaskan Native (National Center for Education Statistics, 2018a). The majority of the student population was under 24 years of age at 69% (National Center for Education Statistics, 2018a). Table 5.5 shows the demographics of the student-participants who were interviewed in this study.

Table 5.5
Demographics of Interviewees

Student-Participant	Age	Gender	Race/Ethnicity	Enrollment Status	Major
Addison	35	female	African American	full-time	Mechatronics
Emery	19	male	African American	full-time	Instrumentation
Harper	29	male	African American	full-time	Instrumentation
Logan	18	male	Native American	full-time	Mechatronics
River	39	female	Native American	full-time	Instrumentation
Robin	18	male	African American	full-time	Mechatronics
Stacey	28	male	Caucasian	full-time	Instrumentation

Other technical colleges. The two-year college prides itself on being affordable, local, and open to everyone (Bragg, 2013). These characteristics provide an educational institution that is easily accessible to the college's local community members who desire an affordable education and a viable career. The state's technical college system serves a high proportion of students who are female and members of racial and ethnic minority groups (SC Technical College System, 2019). These demographics also mirror two-year colleges on the national level (Flynn et al., 2017). Similarly, my college has a high proportion of students who are female and members of racial and ethnic minority groups. Complementary to this, the student-participants who I interviewed for this study included females and a majority of racially and ethnically diverse individuals. Therefore, by getting to know the student-participants with the same backgrounds as the majority of other students who are enrolled in technical colleges, these findings from this study may be beneficial to students enrolled at other technical colleges.

Adult education. Adult education programs provide instruction for basic English and numeracy skills, preparation for high school equivalency exams, and college and career readiness (SC Department of Education, 2019). In addition, the students in these programs are typically underprepared academically and need additional scaffolding (American Institutes for Research, 2018).The students who enroll in adult education programs are typically members of minority ethnic and racial groups (American Institutes for Research, 2018). In comparison, the majority of the students enrolled at my college are minority students. Similarly, I interviewed individuals who are members of minority ethnic and racial groups. Therefore, recommendations based on the findings from this study may also apply to students who are enrolled in adult education programs.

Historically Black colleges and universities (HBCUs). Traditionally, HBCUs educate the Black community (National Center for Education Statistics, 2019). In the Fall of 2017, 75% of the students enrolled at HBCUs were Black, and 61% of the student population was female (National Center for Education Statistics, 2019). The students who attend HBCUs are typically economically disadvantaged and underserved minorities (Jett, 2013). To prepare these students for post-secondary course work, HBCUs provide developmental courses and other student services (National Center for Education Statistics, 2019). Similarly, my college provides developmental courses and other student services to prepare students for the demands of post-secondary education. In addition, I interviewed students who completed developmental courses and are members of underserved minority populations. Thus, this study may resonate with professors who teach at HBCUs.

Recommendations

After discussing the similarities of the context of this study to other technical colleges, adult education programs, and HBCUs, I conclude the main connection between these educational institutions and my college is the demographics of the students served. Each institution and program discussed serve a high proportion of female and racially and ethnically diverse groups. In addition, I interviewed two females and a majority of racially and ethnically diverse individuals. During these interviews, I learned the student-participants had positive experiences participating in the intervention. Thus, the recommendations based on these findings may be suitable to improve learning for the students who are enrolled in these various institutions and programs.

Focus on developing social presence. Social presence is the ability of participants in the classroom to project their personal characteristics and present themselves as real people (Garrison & Arbaugh, 2007). By focusing on social presence in this study, the student-participants become comfortable in the learning environment. Being comfortable in the learning environment made it possible for the students to discuss course topics together and help each other learn. Therefore, I recommend focusing on developing social presence to promote discussions in the classroom.

Implement culturally responsive teaching practices. Culturally responsive teaching practices are effective for diverse groups (Gay, 2010). Culturally responsive educators show their students that they care about them (Gay, 2010). It is not enough to say one cares. Actions show care for students (Gay, 2010). In order for instructors to show care for their students, I recommend getting to know the students. In getting to know the students, instructors begin to create a welcoming environment. To create a

welcoming environment, instructors may also greet their students as they enter the classroom. Instructors can be warm, personable, understanding, and enthusiastic when addressing students. I also recommend that instructors set high expectations for their courses and let students know they can accomplish the courses' objectives. In addition, instructors can set the example and model the expected behavior in the classroom. As instructors get to know students and build relationships with them, learning experiences can be made meaningful and relevant to them. Furthermore, I recommend that instructors self-monitor and self-reflect on their classroom performance. It is also helpful to solicit feedback from the students to learn what they think about what is going on in the classroom. Thus, culturally responsive teaching practices provide a space that welcomes and includes all students. Considering class time is crucial in developing relationships, I found it essential to incorporate collaborative learning strategies in the classroom to execute these culturally responsive teaching practices.

Implement collaborative learning strategies. As found in this study, my students discussed positive experiences participating in the collaborative learning teaching strategy of reciprocal teaching. Thus, I recommend implementing collaborative learning strategies. These strategies are beneficial for the culturally responsive educator because it is an opportunity to work in small groups and become comfortable with each other. In implementing collaborative learning strategies, it is important to incorporate freedoms during these activities. My students voiced that they did not appreciate instructor-selected groups, especially when the groups are randomly selected. One way to incorporate freedom for the students is to allow students to self-select groups and provide evaluations to ensure the groups are working for the students. In addition, students and

instructors can create rubrics for assignments together. Equally important to incorporating freedom is having meaningful, purposeful discussions during these collaborative activities. To ensure the discussions are meaningful, I recommend modeling the collaborative learning strategy and providing guiding or discussion questions to stimulate students' thoughts and conversations. Moreover, I recommend for instructors to provide formative feedback, shape the discussion, not dominate the discussion, and be open to negotiating solutions. Furthermore, it is important to hear from the students about their experiences. Thus, I recommend speaking with students to learn about their likes and dislikes about their prior classroom experiences. Then, I recommend instructors creating instructional activities based on their students' prior experiences. By implementing collaborative learning strategies, students actively engage in the learning process, and students and instructors get to know each other.

Conclusion

Action research is a cyclical, inquiry-based process that addresses a localized problem (Mertler, 2017). In this study, I looked to improve student performance in my college electronics course. I reflected on my classroom experiences and realized that my students who interacted socially performed well. Thus, I began to research social interactions in a college classroom. I learned that students who are socially and academically integrated into campus life perform well in college (Tinto, 1993). It is also important to note that my college is two-year and nonresidential, so the classroom is the best place for social interactions (Deil-Amen, 2011). As I continued to review the literature, I identified the CoI framework (Garrison et al., 2000) and learned about the importance of social presence in the college classroom. Thus, I synthesized social

presence from the CoI (Garrison et al., 2000) and elements of culturally responsive teaching practices (Gay, 2010) with a focus on collaborative learning (Stump et al., 2011) to address my problem of practice. In applying this framework, I implemented reciprocal teaching (Green, 2000), that has the potential to foster social presence and is inherently culturally responsive.

Before I implemented reciprocal teaching, I interviewed the student-participants to get to know them and to learn about their prior experiences socially interacting in the classroom. After interviewing the student-participants, I planned the intervention based on my knowledge of their prior experiences and tailored the implementation specifically to them. Due to the cyclical nature of action research (Mertler, 2017), I was also able to respond to the student-participants' needs during the intervention. Overall, the student-participants positively described their experiences participating in reciprocal teaching.

In completing this action research study, I plan to share my research with my colleagues on campus, with other educational institutions, and in a national publication. Furthermore, my colleague and I plan to implement reciprocal teaching during the fall semester. Moreover, I am empowered to make changes and help my students become successful. In the future, I will continue to reflect on my classroom practices, get to know my students, and make the necessary adjustments to create an effective learning environment for my students.

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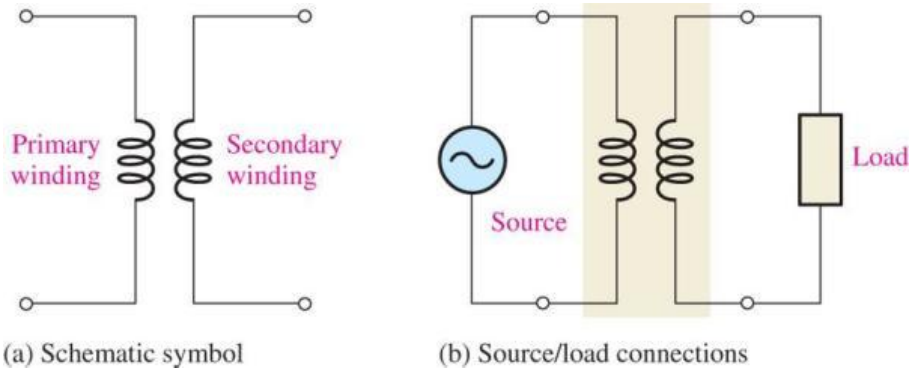
Appendix A

Cycle 1: Lesson Plan—The Basic Transformer

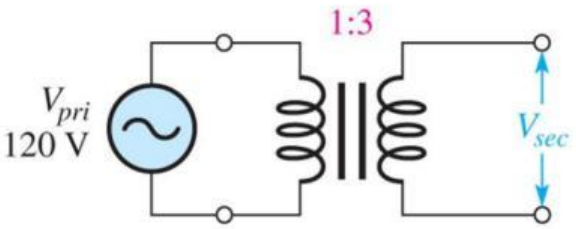
1. Objectives:
    a. Describe how a transformer is constructed and how it works.
    b. Describe how transformers increase and decrease voltage.
    c. Describe practical transformer ratings.

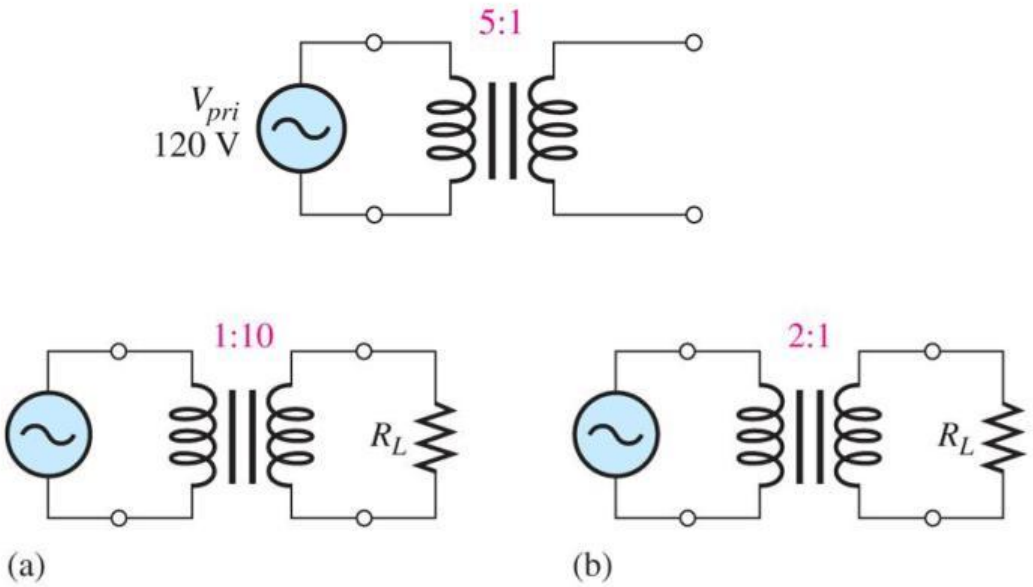
2. Discussion diagrams below (Floyd & Buchla, 2010):



(a) Schematic symbol (b) Source/load connections

3. Example problems below (Floyd & Buchla, 2010):




5:1
V_{pri}
120 V
1:10
R_L
(a)
2:1
R_L
(b)

Appendix B

Transformer Problems and Guiding Questions

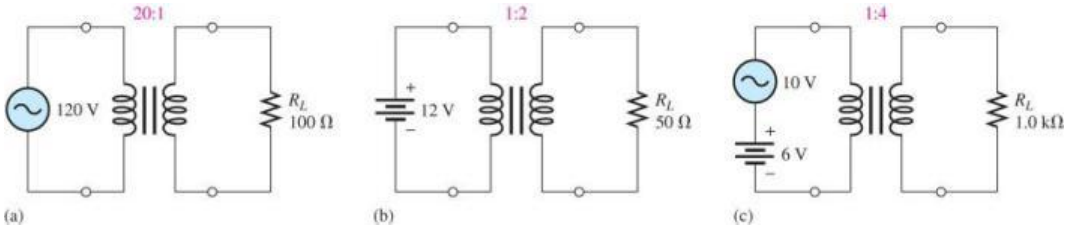
I adapted the problems from Buchla and Floyd (2010).

1. What is the turns ratio of a transformer having 120 turns in its primary winding and 240 turns in its secondary winding? Is this a step-up or a step-down transformer?

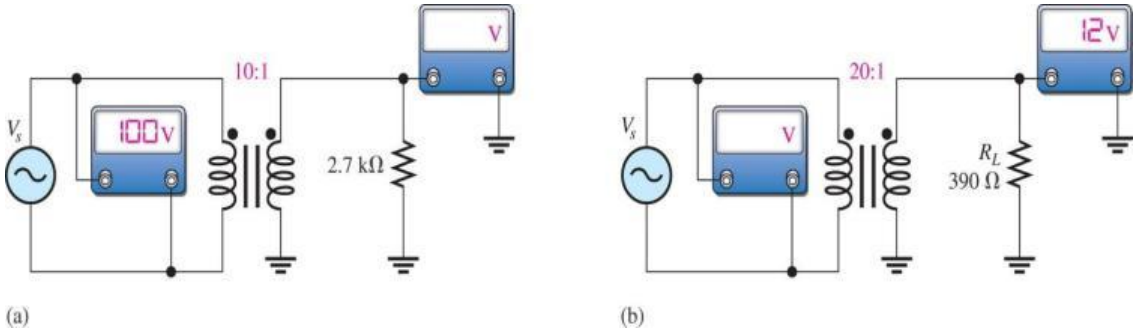
2. What is the turns ratio of a transformer having 500 turns in its primary winding and 1000 turns in its secondary winding? Is this a step-up or a step-down transformer?

3. What is the turns ratio of a transformer having 400 turns in its primary windings and 200 turns in its secondary winding? Is this a step-up or a step-down transformer?

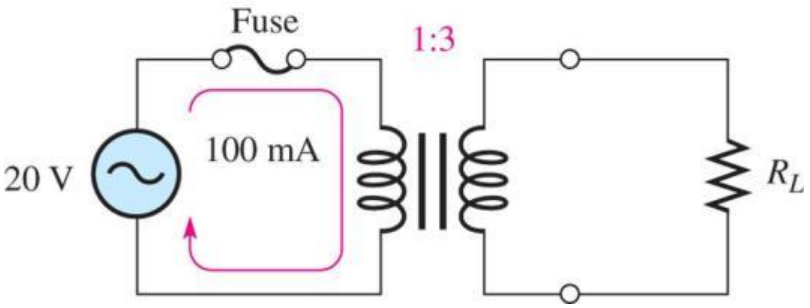
4. What is the voltage across and the current through each load? Is it a step-up or a step-down transformer?



5. What is the secondary voltage? Is this a step-up or a step-down transformer?



6. Find I_L and R_L. Is this a step-up or a step-down transformer?



Questions to guide discussion on transformers:

What is the turns ratio?

What are primary windings?

What are secondary windings?

What is a step-down transformer? How do you know if it is a step-down transformer?

What happens to the voltage with a step-down transformer?

What happens to the current in a step-down transformer?

What is a step-up transformer?

What happens to the voltage with a step-up transformer?

What happens to the current in a step-up transformer?

How do you know if it a step-up transformer?

How do you use the turns ratio to calculate voltage across the load (R_L)?

How do you use the turns ratio to calculate current on the primary side?

How do you use the turns ratio to calculate current on the secondary side?

How do you use the turns ratio to calculate voltage on the primary side?

How do you use the turns ratio to calculate voltage on the secondary side?

How do you use Ohm's law to find the value of the load resistance (R_L)?

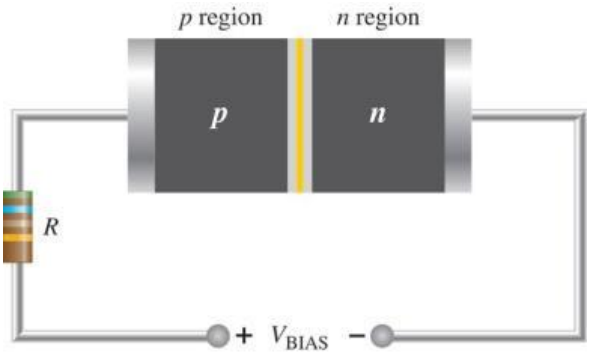
How does a DC power applied to the primary side effect transformer operation?

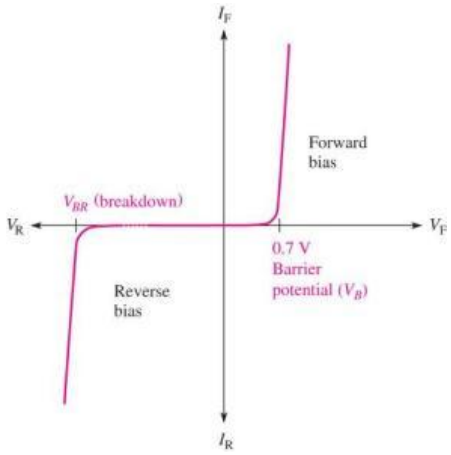
Appendix C

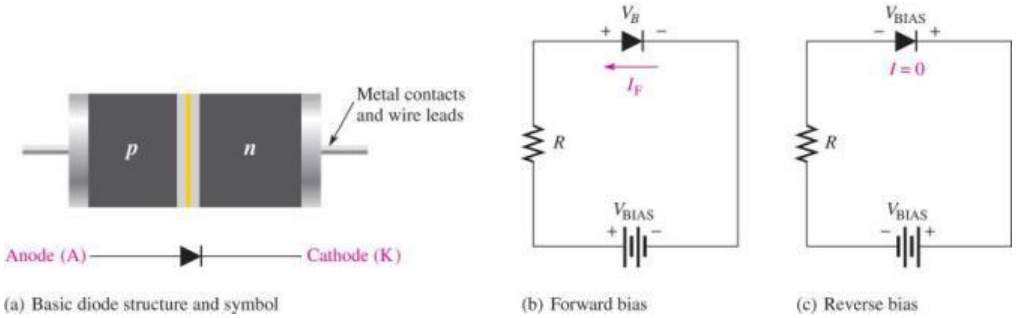
Cycle 2: Lesson Plan—Diodes

1. Objectives
    a. Describe the characteristics and biasing of a diode.
    b. Describe the basic diode characteristics.

2. The following diagrams were discussed (Floyd & Buchla, 2010).

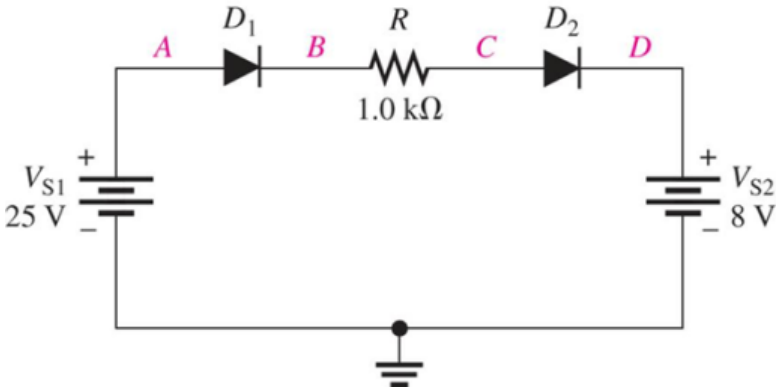






(a) Basic diode structure and symbol (b) Forward bias (c) Reverse bias

3. Example: Determine whether the silicon diode is forward-biased or reverse-biased, and determine the voltage at each point (Floyd & Buchla, 2010).

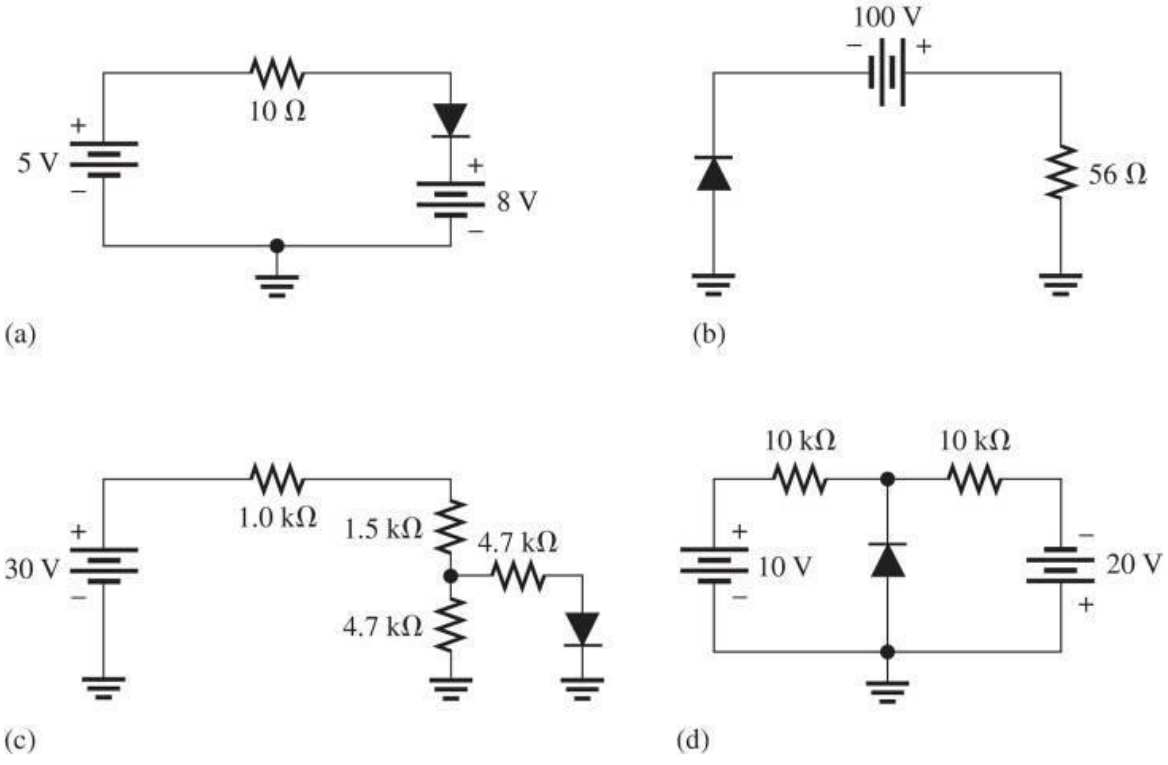


Appendix D

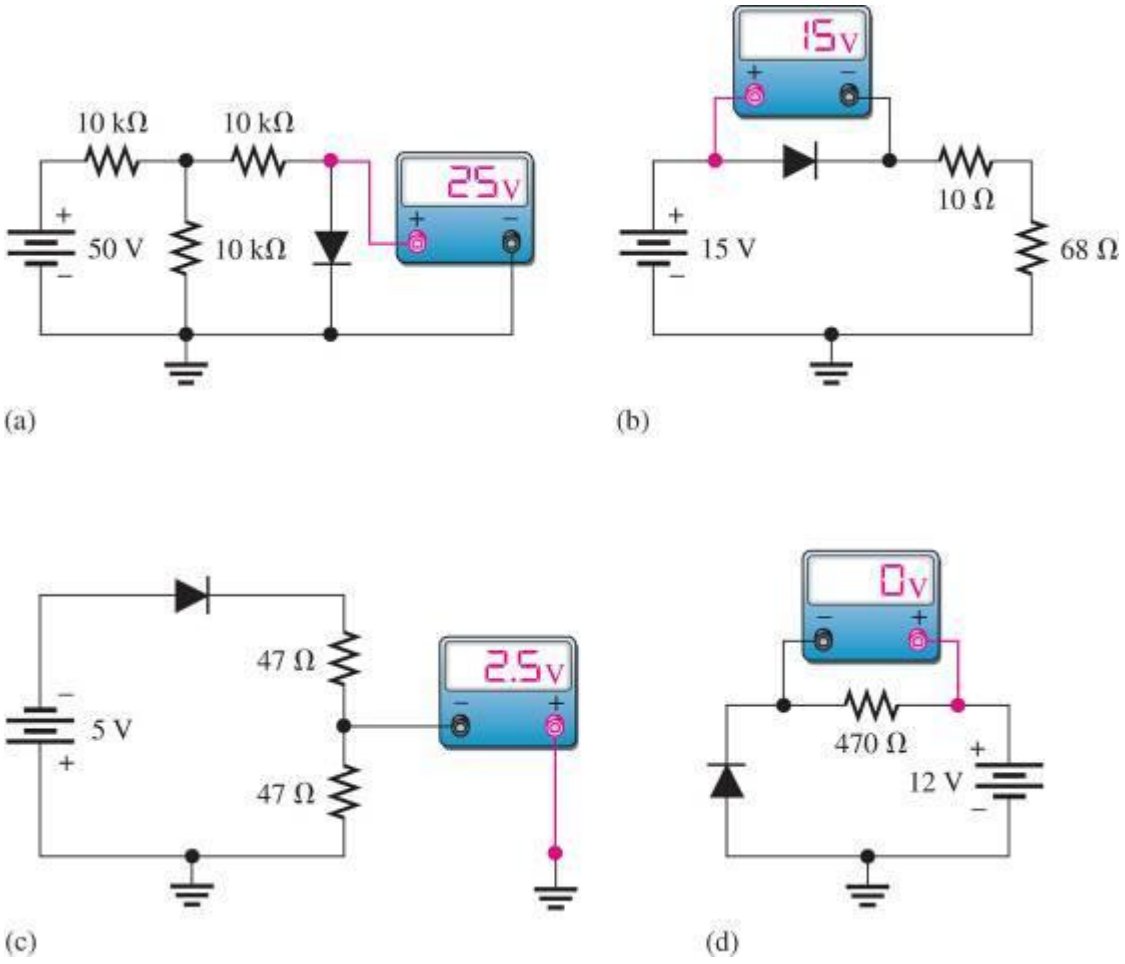
Diode Problems and Guiding Questions

I adapted the problems from Floyd and Buchla (2010).

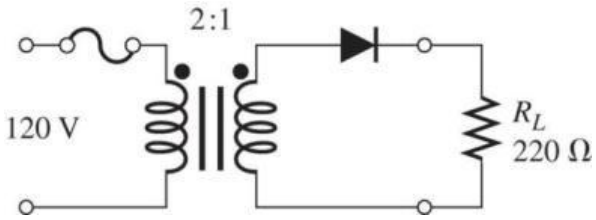
1. Determine whether the silicon diode is forward-biased or reverse-biased, and determine the voltage across each diode.



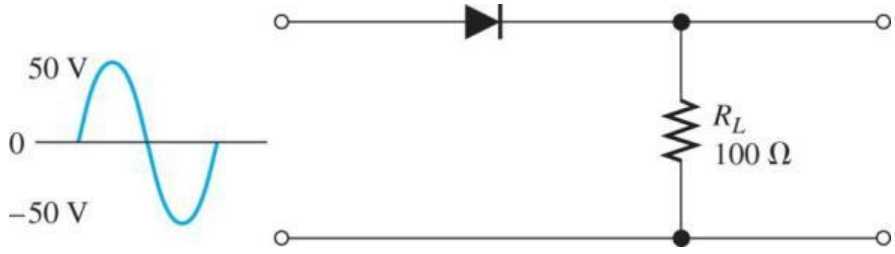
2. Determine whether the silicon diode is forward-biased or reverse-biased and if it is functioning properly.



3. Determine the output voltage and the current through R_L.



4. Find V_{out} and I_L, and draw the output waveform.



Questions to guide your discussions:

How does a diode act?

What does biased mean?

How do you know if the diode is forward-biased?

How do you know if the diode is reverse-biased?

Which is the positive side of the diode?

Which is the negative side of the diode?

Which is the positive side of the power supply?

Which is the negative side of the power supply?

Does the positive side of the diode correspond to positive side of the power supply?

If so, what does that mean?

Does the positive side of the diode correspond to the negative side of the power supply?

If so, what does that mean?

Does the negative side of the diode correspond to the positive side of the power supply?

If so, what does that mean?

Does the negative side of the diode correspond to the negative side of the power supply?

If so, what does that mean?

What is the voltage across a forward-biased diode?

What is the voltage across a reverse-biased?

If the diode is forward-biased, is there a current? If so, what is the current?

If the diode is reversed-biased, is there a current? If so, what is the current?

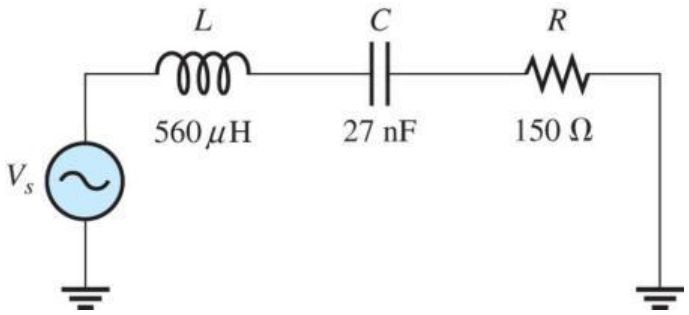
How do you use Ohm's Law to calculate current?

Appendix E

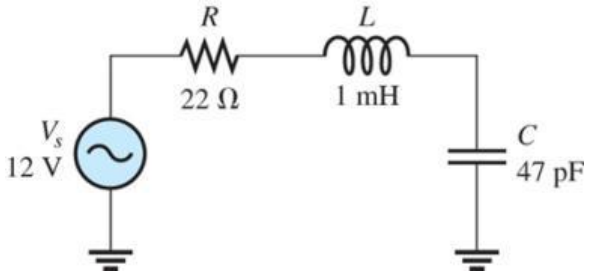
Cycle 3: Review Problems

I adapted these problems from Floyd and Buchla (2010).

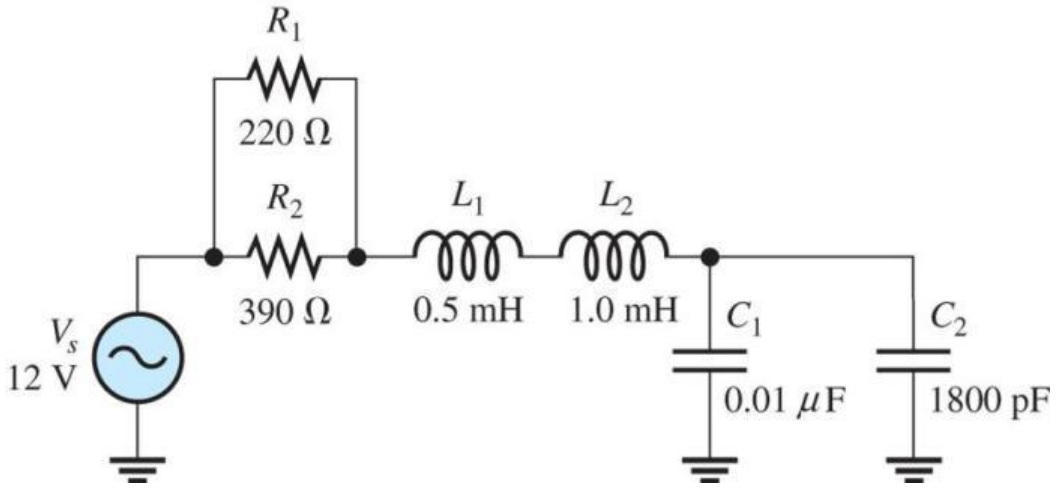
1. Find the current and the voltages across each component. Given V_s is 10V.



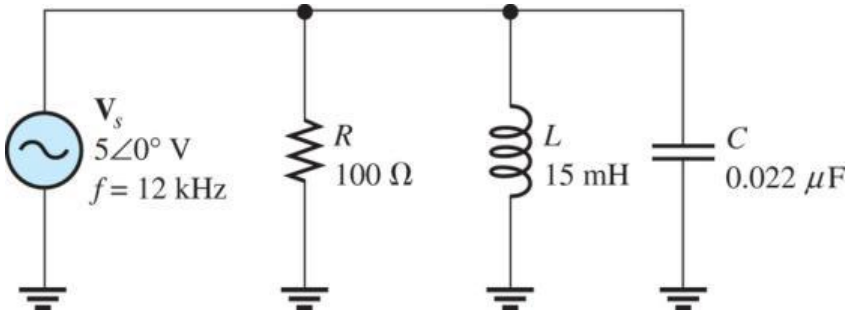
2. Find X_L, X_C, Z, and I at resonant frequency. Express each quantity with magnitude only.



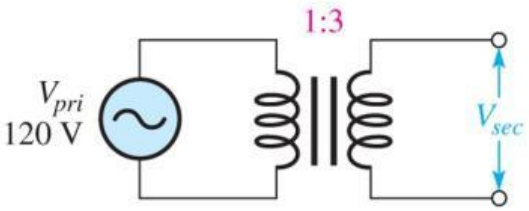
3. Given the frequency is 10MHz, find the voltage across each component.



4. Find the voltages and currents for each branch.

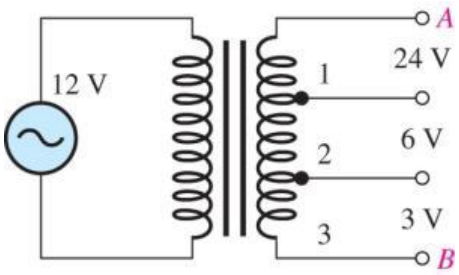


5. Find V_{sec}.



6. What kVA rating is required for a transformer that must handle a maximum load current of 10A with a secondary voltage of 2.5kV?

7. Determine the turns ratio of each tapped section of the secondary winding to the primary winding.



8. Determine whether the silicon diode is forward-biased or reverse-biased and if it is functioning properly. Write an explanation for your answer.

9. Calculate the peak voltage across each half of a center-tapped transformer used in a full-wave rectifier that has an average output voltage of 120V.

Appendix F

Survey

Hi Everyone!

As discussed earlier, I am collecting data for my action research study. By completing this survey, you agree to participate in the study. Select one response for each item. This survey should take approximately 5 minutes to complete. Thank you for your participation!

Name:

Demographic Items

What is your program of study?

- Industrial Electronics Technology
- Industrial Maintenance Technology
- Electronics Engineering Technology – Computer
- Electronics Engineering Technology – Instrumentation
- Mechatronics

What is your enrollment status?

- Part-time
- Full-time

What is your gender?

- Female
- Male
- Non-binary/third gender

How do you identify?

- Asian
- Black or African American
- Hispanic or Latino
- Native American or American Indian
- White
- Other

What is your age?

17- 24 years old
25- 34 years old
35- 44 years old
45- 54 years old
55 years old or older

Interview Item

I am willing to discuss my college experience in an interview with Mrs. Jackson

Yes
No

Appendix G

Informed Consent Form

Project Title: Focusing on Social Presence in an Electronics Course at a Two-Year College: An Action Research Study

Researcher's Name: Sherisse Jackson, Doctoral Student at the University of South Carolina

Research Site: Chapman County Technical College

You are invited to participate with no obligation in this study. The purpose of this study is to examine the impact of social interaction on student achievement. Your participation is confidential and voluntary.

This study involves the audio recording of lecture sessions with the researcher. Neither your name nor any other identifying information will be associated with the audio recording or the transcript. Only the researcher will be able to listen to the recordings.

The audio recordings will be reviewed and transcribed by the researcher and erased once the transcriptions are checked for accuracy. Transcripts of your discussions may be reproduced in whole or in part for use in presentations or written products that result from this study. Neither your name nor any other identifying information (such as your voice or picture) will be used in presentations or in written products resulting from the study.

By signing this form, I agree to participate in the study and allow the researcher to audio record me as part of this research study.

Participant's Name (please print):_____Date:_____
Participant's Signature: _____

Appendix H

Pre-Intervention Interview Form

Date:

Time:

Place:

Interviewer:

Interviewee:

Questions:

Tell me about a typical day on campus for you. What hours are you in class?

Please describe your interactions with peers on campus.

Do you socialize on campus? If so, where? When?

Have you made any new friends on campus?

Do you communicate with your classmates outside of class? If so, when? Where? How? About what?

Did you know any of your classmates before coming to school here? If so, what is the connection?

What is your experience with group work?

Have you worked in groups in your other classes?

Do you recall any positive outcomes from working in a group?

Do you recall any negative outcomes from working in a group?

How do you feel about working in a group?

How do you feel about solving a problem and explaining what you did to others?

How do you feel about leading discussions with your classmates?

How do you feel about interacting socially with your classmates in my class?

How does this interaction compare with other classes on campus.

Please describe your interactions with your instructors.

How do you feel about talking to your instructors in class?

How do you feel about talking to your instructors outside of class?

Appendix I

Post-Intervention Interview Form

Date:
Time:
Place:
Interviewer:
Interviewee:

Questions:

Please describe your experience working in your group.

Did you enjoy working in a group? If yes, why? If no, why not?

Were you able to help your classmates understand any concepts? If yes, can you provide an example? If no, why not?

Were your classmates able to help you understand any concepts? If yes, can you provide an example? If no, why not?

Did you find the guiding questions helpful? If yes, why? If no, why not?

Did you feel like you could ask me for help? If yes, why? If no, why not?

Did you feel open to having any personal or social conversations in your group? If so, can you provide an example of a conversation?

Did you find yourself talking to your classmates or me outside of class? If so, were the conversations social or academic? Can you give me an example?

Do you have anything else you want to share about our recent group activities?

Appendix J

Interview Consent Form

Project Title: Focusing on Social Presence in an Electronics Course at a Two-Year College: An Action Research Study

Researcher's Name: Sherisse Jackson, Doctoral Student at the University of South Carolina

Research Site: Chapman County Technical College

The purpose of this study is to examine the impact of social interaction on student achievement. Your participation is confidential and voluntary.

This study involves the audio recording of interviews with the researcher. Neither your name nor any other identifying information will be associated with the audio recording or the transcript. Only the researcher will be able to listen to the recordings.

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The audio recordings will be transcribed by the researcher and erased once the transcriptions are checked for accuracy. Transcripts of your interviews may be reproduced in whole or in part for use in presentations or written products that result from this study. Neither your name nor any other identifying information (such as your voice or picture) will be used in presentations or in written products resulting from the study.

By signing this form, I agree to participate in the interview and allow the researcher to audio record me as part of this research study.

Participant's Name (please print):_____Date:_____
Participant's Signature: _____

Appendix K

Data Analysis Form

Significant Statement	Reflection	Theme

Appendix L

Observational Form

	Observations	Observer's Reflections
Date: Time:		
Place:		

Appendix M

Plan of Action Form

Research Questions and Summary of Findings	Recommended Action Targeted to Findings	Who is Responsible for the Action?	Who needs to be Consulted or Informed?	Who will Monitor/Collect Data?	Timeline	Resources

Appendix N

Pre-Intervention Interviews—Initial List of Significant Statements

Stacey
first she was like just picking the group's randomly and I hated that
I mean people are not reliable people are very unreliable and so it just made it mean I had to do that much more work
but I had to jump through all the hoops and deal with people and still do all the work myself
now after that first project we were kind of trying to coax her but she eventually let us pick our own groups and then I just worked with D okay this is my boy yes so we were good. He encourages me. he knows alot of stuff he's already got experience in it
he drugged me freakin insane in the engineering class yeah I mean he drove me crazy cuz he just he talked like it was like you know cuz we'd be putting something together and he'd be he would be so insistent on doing it his way even if it was wrong
I understand from a teacher perspective because some things you just don't have time to grade one from everybody or whatever or have you know time for one each individual person to finish something you know there were more people would get done faster but as far as the school is concerned oh man I feel like it's kind of like an ethics thing because you know people are paying money to come here their grades are important yeah but in some situations they're being forced into they're being forced into some situations where they can't determine their grade by them on their own somebody else can impact their grade
Harper
so group work to me is it's fine but hey I feel like they rely on me a little bit too much sometimes
You're very approachable (instructor)
in your class group work is fine but in other classes because I can see I'm the project manager I gave you a job you if that person is I'll do I gave that person the job be one person might do their job and they might not but me and L or somebody like that we go fully committed me and him and everybody else okay you can go do this that day and you can go do that that day but being him we're gonna collaborate together so almost like you got to motivate yourself
J was like I commend you

and I acknowledge you that you know you are leader and he was like oh because when it was some some days say that uh hey imma try this right here no bro we're not trying that we're gonna stick with this plan, right here as a group, as a group it's not my decision I'm making the decision to tell you no but that's because I'm the project manager other than that you had your input along with other three people on one day and we decided on this now you can't go back on your word each time we try to go back and try to do new stuff on this project you gonna push us further and further back
I don't mind working in groups yeah but I the effort to be 25 25 25 25
I think group group discussion is important. cuz really when you get to work you gonna have five six seven eight other people you got to confer with just to answer one problem done yeah man you're gonna you're gonna have to express your opinions
Logan
Sometimes the way I think I'm like I'm like sometimes I do better by myself because I can work at my own pace and then sometimes like on some newer stuff that we're learning now I like the working groups like everybody else's opinion and see how they do it versus how I do it and then I kind of kind of learn from it
well I'm not really good at explaining stuff but I could do my best at it
now in my CAD classes I'll ask people all around me all the time about stuff like that so I mean it's really uh you know I wouldn't say a group class but we all help each other
I was thinking on this one problem for three days and I couldn't figure it out sometimes you just need another brain on it
Robin
well when you help someone else it makes it clear in their mind also it helps you keep it in your mind – it makes you more comfortable talking about the stuff we learn in class
When you're working together we usually like he builds it and I help him with the program and then he also me with that (programming)
Emery
group work is cool cuz like sometimes like if I don't understand something at first I might have group members they might know how to do it
If I need help I um definitely ask my instructors for help. I don't want to fail anything
I don't mind group work for a grade as long as I'm in a group where everyone is working
Addison
I like it (group work) kinda sorta. you get different people opinions even though I don't like people say well one person doing everything sometimes that person just wants to do everything and don't want others to do it yeah some people just want their way
I won't mind it to a certain degree but when you work with some people they don't want to hear nothing on what you got to say

I don't want to feel like I'm not contributing to anything even if you want to do everything I just don't want to be like I'm not contributing to nothing
in a group I'm not an outspoken person okay but I try I just get nervous even in small groups
It's kinda hard being the only girl in classes sometimes. But thinking about it and seeing you motivates me being that I am
I know in the workforce you have to work as a team so I kind of see why y'all do make us do stuff together
One guy he was like missing days and the part he had to do it was very beneficial to us so that's when I had to step up and do his part, The other group member was like….should we even put his name of the project?
your load can be lighter when you produce something in common
River
okay I am all for getting in a group talking about everything working stuff out together, but I'm not for everybody staring at me because they know I get good grades like what's the answer. what do we do?
yes okay like okay. so in my one class that I had, I don't know three or four semesters ago. they were like, so what do we do. I'm like you're in the same class that I'm in. but you're a smart one. I'm like uh-huh it's because I stay up until one, two o'clock in the morning studying after my kids go to bed okay I worked my butt off for my grades. You could do the same thing. So, every time a teacher says get into groups. I'm like seriously.
every single class I've been in, they want people working in groups. Can I wear my I hate people t-shirt?
I'm like can we pick who we want please.
participating not slacking just or looking at other people's work and just copying it and stuff. you're in college not high school
yeah I don't mind helping you but give me something to work with right
I tried once to study in a group. Now, if it's homework or going over stuff like classwork that's this one thing. but for my test look I have my own little system. Your life is not my life. you have no idea what I do out of here and the few select people that do they get it. you know. I tried to study once with someone and I'm just like this is not helping this is supposed to be helpful and it's not. so we're never doing this again okay. goodbye. now good luck with your stuff
I think that interacting is important because how else you're supposed to get it. yeah like seriously you just go to a class right. huh and listen to the teacher talk and that's supposed to work and you go about your day. Everyone in my physics class right now we would have an A. We would have an A, but it doesn't work. We need to interact. you need to because we don't understand something that you're saying and you don't say anything. it's not gonna work.
it's I think it's really cool what you get out of communication. because so okay so like say that you're told to communicate right and you're doing it

for a specific reason and I think it's neat how it all works out because in the end because you end up getting so much more out of it and learning stuff from other people that you didn't think that you would ever learn
I feel good about that (leading discussions)yeah yeah I'm very expressive in class even when I'm really wrong and it was operator error issues oh boy
oh I love my instructors. I'll be honest no seriously no okay so like I have been this whole year and a half blessed not lucky I don't believe in luck I've been very blessed with awesome instructors like it's really cool

Appendix O

Post-Intervention Interviews—Initial List of Significant Statements

Addison
The group work did really did help. My quiz grades improved. I was struggling on my own but the group work helped me because I asked more questions than normally
The group thing is a good thing. Just gotta make sure the group is right and make sure everybody wanted to be in the group and some didn't some days. Cause sometimes you end up working by yourself anyway I did want to talk to you about him. I try to follow you. How you break stuff down. But how he break stuff down he be losing me. I don't I don't know if he try to do his own way or the shortcut but I just don't understand him sometimes
I like working in a group but when I get behind sometimes I don't like to ask them to slow down. That's just my personality but I don't mind asking you later
Emery
yeah I do like I like how we get like help each other out or something like when one of us do know something the other one can like explain it better or help us out more with it
somebody help me uh was this I think this last Thursday when we was doing step up and step down like I was kinda lost and D or C. one of them they was explaining to me like how if the number is high if the first number is higher than the second It would be like step down and if the first number is lower than second it's going to be a step step up yeah. My group was cool.
oh yeah yeah like you know like sometimes you know and like sometimes you don't know stuff and you kind of just go with the flow anyway when you have a group it is kind of easily be like hey what what was she talking about
Logan
you kind of hook me up so you got me I got a good group you didn't change me and that and that's the—that's what I want if I'm going to group stuff that's cool right there it's like changing and because when you change groups and you don't know people yeah then especially if it's like an actual group assignment or something then you don't know who's flaky and who's not
If I knew I was gonna get a group like like good people every time you know if that was gonna be my group every time I had the group work anywhere that would be cool I mean I wish it everybody put me in a good group and then I'd take that group everywhere

I'm not very talkative and you know most of time when we got started or whatever we would all just be quiet or just be kind of messing and then if one of us had a question or something or someone would answer it.
Robin
It man just working with other people just a good thing to do and actually helped me by if one doesn't understand and one reaffirms by helping the other person understand
C didn't remember like the process for resonant frequency some and I remembered and told him
they (guiding questions) will help them get a better picture of what's going on. It gave me like an order of operation to help solve the problems
I talked to C more since we worked in this group but we already knew each other from high school
Logan
I like doing that group or there's stuff like that like that on some of those problems I had and I needed a refresher on and then it helped to have other members in the group know
and then sometimes if there's something I can get on my own and it kind of slows me down and then it starts making me second-guess or I might have this wrong it's just sometimes it's good and then sometimes it's not because sometimes I just like to work alone especially if when it's something easy
there was one question on that I don't have a paper with me but it had to do with if you put DC on the primary side then you get a AC use something I forget what the question was but about putting DC on the primary and I stopped at that comma and because I know that DC doesn't work at primary to see what we had to do with the problem and she's like I do remember Ms. Jackson saying if you put DC on the primary it doesn't work it only works with AC you know it only works the AC circuits and she's like oh I get it but she finally got it and stuff like
sometimes I help out like that and then sometimes other people help out
we asked them (guiding questions) and we can answer just about every one of them and then because most of time we were done pretty early because 99% of the time we got the problems done pretty quick yeah I had a good working group I think work we work together it was we we worked well together I guess you could say
you showing us and then putting us in a group and working it it's helped me see how other people do it and see what works and then see how I can see if they their ways work with me and it's just it helps give you a different perspective like I said sometimes this better get more heads on one problem she's knows sometimes some people see stuff that you didn't see or you see stuff that people other people don't see
like today I was trying to work that problem and I was thinking and there was a whole bunch of talking that I could hear and this just caused me to jump off track and all that yeah I mean that's the only downside
if you show me something it doesn't register until I actually go and do it like the diodes thing I didn't get it until we worked problems and we did the lab

Harper
Ok you take no.1 you take number two and I'm taking number 3 and we collaborate okay so yeah I kind of like divide and conquer basically if you say if you finish your question first you actually want to try to do my question see if we even came up with the same thing so basically we as a group we took the first three questions and then next three questions and the next three but like I said if you finished early before me or L or C would work the problems
well me and C we have that lab with you so yeah we work together anyway okay and then last semester me Lester work real good together in Ms. H's class.
he was like man hey man we gotta take this class. I need you cuz he was kinda upset that I wasn't in Physics I know you always like to connect with us so we call you back there when we feel as if we we have the right answer but we feel that it might not be the right answer While we wait on you we go back okay check this number right here and take that number right there and then you come up with the right thing I enjoy class. I don't see why people complain so much about things let's say like this right here when you stop going from a book and just basically telling what and all this you know this that works best people start complaining because I need to actually go back to the book and do that I mean you can do it but then I actually look in the book myself but it's confusing I can't understand that. I prefer to wait on and ask Ms. J and see how she's gonna do it.
You can't make people try or talk. There was one person, he wasn't in our group. He wouldn't say nothing. We asked him a question. He didn't answer but he was working
I actually tell K okay how'd you get that again I got this right here now how'd you get that and you okay this is what you do right here now I understand
yeah we talk about y'all half of the time hey did you understand what Miss J said yeah why are you asking me ask her sometimes I mean are you scared of her
the concept is the stuff you wrote on the board all you do is copy it down and apply it to the paper even like one time I did some stuff that we hadn't gone over with the diode but most of us figured it out without even you telling us how to do it and don't make it so hard that people don't want to do it either I will give up myself
now it was pretty rough sometimes but the way y'all teach you and Miss H and Mr. P and some other teachers or anyother with your class that groups groups are good things
It was learning at its finest because you gave us you know a chance to basically figure it out for ourselves and we did I'm very I'm very proud of me, L, C, and J. like and then I was listening to A's group a little bit they even liked it
well I understand where M and J are coming from they want to be sure about everything man so you do lean over and ask a question or two

like okay how do we find the Vs or the Rl something you were and you said see I'm proud of y'all when I yelled the answer out to the other group that day that day it was just it made me feel good actually knowing what I was talking about
River
I didn't like the timing thing but hello you really need to just know your stuff and it kinda gets you thinking on your own and then talk to each other You don't have time to do what I do at home which is second guess yourself in everything
when we did one question for the X of T mm-hmm D didn't do it but me and M did then we had to explain to him why we had to do that the current you had to take the voltage and do X of T. He was like why aren't we doing it through the resistance I'm like alright no you got do it this way so good yeah
M also helped me with Physics. it's good though but because we we all do it in both classes you know it's not just solely um done here
We're more open to talking to each other now okay all of us since we've been doing group work okay I would say about 95 percent of that class okay yeah cuz I've heard other people talking really it's good
like us doing it this way okay it tests what we might know and then it's good to do it that way I think because first of all it helps us think instead of just following a formula or memorizing the formula
We have been communicating and studying more because I know I've studied more because we were doing group work I know I'll message to L and then he'll message me and sometimes I'll get a hold of M or sometimes I'll go and I'll email what's his name J because I'm just what I think right now like in this time for especially me being the only girl in the class for like this whole time on from now til the very beginning that's the difference it's like you're one of the guys now
I remember when I first started and I knew what to expect but even though you know where to expect you really don't know what to expect until you go through it um but like they had no clue what the heck to even think like why's that girl in here I said around here this could be interesting I love them even M had that look on his face I'm just like we're the same now it's okay I'm good now because the crap that I've had to overcome like confidence wise I'm good no I'm just like oh my god these guys are gonna be like you don't belong here you need to leave
we all did our stuff separate and then compared and helped each other with whoever didn't know what you know it was it was good like I definitely didn't feel like I was the only one doing all the work
now I get it you're supposed to go and work together and help each other out that's how you're going to grow
we really like those questions you did it a lot okay it helps you because but when we're out there working we're not going to have you and sometimes that's nerve-racking
when we all got the questions it was so cool because Matt or like actually we took turns reading them out and answer it and after we answered it like did you get this

yeah okay yes and one time Matt didn't get what me and Davis got so we helped him to understand
From the beginning to now like whenever you would say group from like that meme was I sent you was perfect me I was like oh God now I'm just like let's go let's do it
yeah like we're supposed to be able to be in close proximity to each other and you work all together I like it yeah it was really good
you get to learn how other people think - cuz like hello we're all in the same class mm-hmm okay I might not understand something that someone else does and vice-versa so that's cool
I was thinking about that this morning in court like dang I wonder what we're gonna do tomorrow wonder what kind of notes matt has I know D got some notes so it's cool cuz we'll compared cuz it's just interesting
you changed my mind I can tell you that most definitely changed I've hated groups my whole life okay seriously hated them because everybody would be looking at me for the answer that what I like about the guys you set me up with we all do our work we don't look to one or another to be like do it for me before I would dread it and now I don't so thank you for that
I don't like being timed but that's just I don't I don't like being because I know that I'm gonna take a longer time so but I started ever since you started saying hey set your timer I started doing that at home cuz I want to be faster like doing the problem so it's it's a good thing