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An Experimental Study of Research Self-Efficacy In Master's Students

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AN EXPERIMENTAL STUDY OF RESEARCH SELF-EFFICACY IN MASTER'S STUDENTS

by

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ABSTRACT

AN EXPERIMENTAL STUDY OF RESEARCH SELF-EFFICACY IN MASTER'S STUDENTS

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Old Dominion University, 2019
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Engaging master's counseling students in the research literature and facilitating an environment that strengthens their research identity development are necessities for counselor educators. This need is juxtaposed with over 20 years of research, which found that counseling students appeared to lack confidence and have low interest in this topic (Gelso, Baumann, Chui, & Savela, 2013; Phillips & Russell, 1994). Low research self-efficacy was presented as an important explanatory factor. Thus, this experimental study deployed a pedagogical intervention based on the work of Albert Bandura and his social learning theory. Two sections of the required research course in a southeastern university CACREP counseling program was taught at the same time and day by two instructors. One instructor facilitated the course curriculum to the intervention group based on an experimenter-created self-efficacy pedagogy. The other instructor taught the content to the comparison group using standard pedagogical methods. Students were assessed using two measures: a well-known research self-efficacy scale (RSE; Holden, Barker, Meenaghan, & Rosenberg, 1999) and a researcher-developed knowledge questionnaire. The researcher hypothesized that from pre- to post-test, the intervention would contribute to significantly increasing the research self-efficacy and knowledge scores of the experimental group over and above the scores of the comparison group. Group differences were tested using ANOVAs with repeated measures. Salient findings were: RSE was shown to be a reliable tool to measure research self-efficacy, a significant relationship existed between

students' research knowledge and self-efficacy, pedagogical techniques seemed to aid the process of students' knowledge acquisition and increased self-efficacy, research experiences outside of the classroom influenced research self-efficacy scores, and when in matriculation students take a research course appeared to influence research self-efficacy. The results offer counseling departments suggestions of how to prepare professional counselors that are skilled to act ethically (ACA, 2014), and enact the 20/20 vision (Kaplan & Gladding, 2011), as they relate to research. Implications for theory and practice are discussed in Chapter 5.

In accordance to the wise words in the poem *Our Deepest Fear* by Marianne Williamson, I dedicate this document to everyone in my life, to every tree, and to every blade of grass that reminded me that me playing small does not serve the world. Each time I was reminded that we are meant to shine I took one step forward to the space I dwell today. I could not be here without you.

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CHAPTER ONE

INTRODUCTION

The intent of chapter one is to introduce the conducted study. First, the research problem will be described, then a brief overview of the theoretical framework will be discussed. Next, the purpose of the study will be articulated, and then the significance of the study. Afterwards, the research questions will be listed, research design explained, the research caveats briefly detailed, and any relevant terminology identified.

The Problem

For those institutions that decide to acquire counseling accreditation, the Council for Accreditation of Counseling and Related Educational Programs (CACREP) standards are the framework by which a counseling program engages in counselor professional development (CPD). Although CPD is a profession-long process, which includes continued education and professional identity formation, the foundational elements of that process are completed in a master's program (Granello & Young, 2012). For those institutions with or seeking CACREP accreditation these standards guide many aspects of the environmental factors influencing CPD. In fact, within the 2016 CACREP standards (published in 2015), document a major component is a section titled "Professional Counseling Identity" (p. 9). Within this section exists eight content foci: (1) professional counseling orientation and ethical practice, (2) social and cultural diversity, (3) human growth and development, (4) career development, (5) counseling and helping relationships, (6) group counseling and group work, (7) assessment and testing, and (8) research and program evaluation. These standards are updated by an open discussion in the counseling field. During the last update, each of the foci related to CPD were expanded, generally by three stated expectations or less. The exceptions were the fifth focus, counseling and helping

relationships, which changed from seven stated expectation to fourteen; the seventh focus, assessment and testing, which changed from seven to thirteen stated expectations; and the eighth content area, research and program evaluation, which changed from having six stated expectations to ten (CACREP, 2009, 2015).

When a university counseling program submits itself to the process of achieving CACREP approval or renewal the standards are the benchmark used to determine if the program receives/retains this programmatic accreditation. Thus, as the standards change programs, assuming they desire to continue having CACREP accreditation, must alter to match the new standards. The alterations to the eighth content focus are no exception. As a program alters itself to meet the new standards, these changes also modify students' CPD. Since the eighth content focus is regarding research, the changes to this part of the standards impact counseling students' research identity development (RID). Therefore, the changes made from the 2009 to 2016 CACREP standards impact students' RID.

In addition to any RID adjustments due to the 2016 CACREP standard alterations, there are standing challenges scholars have asserted for over two decades regarding counseling students' RID. One such finding is that individuals attracted to the helping fields tend to lack confidence or even interest in research (Gelso, Baumann, Chui, & Savela, 2013; Kahn & Scott, 1997; Lambie & Vaccaro, 2011; Phillips & Russell, 1994; Steele & Rawls, 2015). This stands in direct contrast to the 2016 CACREP standards, which states that programs teach students the "importance of research in advancing the counseling profession including how to critique research to inform counseling practice" (2015, p. 12). These researchers studied students' reluctances related to research, ways to improve students' lack of confidence in research, otherwise termed low research self-efficacy, and how to increase students' interest in research.

However, these authors' tested interventions were enacted upon doctoral counseling students, and thus do not directly address the needs of master's counseling students.

According to Sink and Lemich (2018) a gap exists between CACREP standards and the research-based skills master's and doctoral students' graduate with. This study contributes to filling that gap by researching master's students' RID. Particularly, a pedagogical intervention was employed in one of two sections of the same course. Additionally, students' changes in research self-efficacy and content knowledge over the semester were compared across the two class sections. It is important to note that studying RID in this way is based on a fundamental assumption. This assumption, which is based on previous research of counseling doctoral students, is that a lack of engagement with research is based on competency rather than another variable (e.g., irrelevancy).

Overview of Theoretical Framework

The primary theoretical framework used is situated within motivation learning theories, specifically social cognitive theory (SCT). This collection of motivation theories shares in common their postulation that motivational processes influence both learning and performance (Schunk, Meece, & Pintrich, 2014). One of the most prominent and tested SCT is Bandura's (1977) theory on self-efficacy, which includes four parts–mastery experiences, vicarious experiences, verbal persuasion, and physiological responses. Mastery experiences were described as being particularly influential, because the person acted in a way that demonstrated task success. The four modes of induction described by Bandura (1977) were participant modeling, performance desensitization, performance exposure, and self-instructed performance. Essentially, when participants had a positive self-instructed performance, then their confidence in performing the task increased, thus increasing self-efficacy. To aid in this increase in

confidence and gaining of mastery experiences, vicarious experiences can be helpful.   In the classroom vicarious experiences could also be articulated as modeling, both by the teacher and through slightly more competent peers. It is important to note that vicarious experiences are less likely to stick and lead to increased confidence than mastery experiences. This is also true of verbal persuasion, which could be suggestion, exhortation, self-instruction, and interpretive treatments. These elements could be enacted by the teacher to the class, to individuals, but also by peers to one another, and the individual students internally, as they repeat to themselves the teacher's or peers' verbal persuasions. The fourth element, physiological responses, is a part of increasing self-efficacy indirectly. According to Bandura (1977), attunement to physiological responses is important because high arousal, for instance high anxiety, usually debilitates performance. Therefore, interventions that would decrease these heightened emotional states are likely to allow students to be more receptive to verbal persuasion and vicarious experiences, and thus more likely to permit them to have mastery experiences (Bandura, 1977). Limited relevant literature containing all four elements, but bent towards facilitating mastery experiences, along with the class' education level and objectives, formed the study's pedagogical intervention.

Purpose of the Study

This study can be placed under the broad topic of CPD within the master's instruction context. The focus within CPD relates to research competencies. Specifically, this project fills a gap regarding how counselor educators might increase master's students' research self-efficacy in order to meet the 2016 CACREP standards regarding research identity. This study's primary aim was to investigate if a self-efficacy designed intervention for the one research related class required of master's counseling students in a CACREP program would demonstrate a statistically significant improvement of students' research self-efficacy in comparison to the

same class that would receive the *Standard Teaching Method* (STM). A secondary aim was to determine if a measure never before used with the sample population was reliable, and could therefore be confidently used for future projects with the population the sample was drawn from.

At the southeastern university CACREP counseling program where this study was conducted the one required research-related class is taught within a separate department that instructs the research classes for multiple departments within the college. Thus, the study's population was master's students within the College of Education. Measurements of the effectiveness of the intervention were a research self-efficacy measurement scale (RSE; Holden, Barker, Meenaghan, & Rosenberg, 1999), and a questionnaire regarding participants' knowledge acquisition based on the class' objectives. Additionally to facilitate one of the intervention's techniques and to verify that the study was not unduly influenced by the possible confounding variable "exposure to research," a questionnaire enquired on participants' history with research outside of the class being investigated.

Significance of the Study

Through an experimental design this project investigated whether an intervention, based on cumulating pedagogical techniques shown to increase self-efficacy (i.e., Abaho et al., 2015; Dahlman, 2010; Epstein, 1987; McConnell, 2014; Montcalm, 1999; Susskind, 2005; Unrau & Grinnell, 2005; Wang, 2011; Yavorsky, 2017), will lead to higher master's students' research self-efficacy. This study not only offers to contribute to the literature regarding what is known about counseling master's students' research self-efficacy, it also examines how pedagogy might matter in increasing self-efficacy. Additionally, given that the RSE scale (Holden et al., 1999) has yet to be used with counseling master's students, this project offers to CACREP programs a potential means in which to measure their students' research self-efficacy. Furthermore, due to it

being an experimental design, it contains the potential to be generalizable, and thus useful to other CACREP departments desiring to increase their master's students' research self-efficacy.

Research Questions

Two research questions guided this project. Both asked the following: To what extent will introducing a self-efficacy pedagogical intervention into one of two "introduction to research" sections increase students' outcomes as measured by a

(1) self-report research self-efficacy scale (Holden et al., 1999; see Appendix B); and

(2) researcher-developed questionnaire regarding students' knowledge acquisition (see Appendix C)?

The corresponding null hypotheses were as follows: There will be no statistically significant:

(1) difference in research self-efficacy scores over time between students in the intervention and the STM groups; and

(2) difference in research knowledge scores over time between students in the intervention and the STM groups.

(3) interaction effects.

Research Design

Students voluntarily registered for one of the two sections of the "introductory to research" class offered in the 2018 Fall Semester. These sections have historically been offered at the same time and day of the week. The instructors vary from term to term. No alterations to the course prior to the start of the semester were made, with the exception of the following. The Associate Professor and Graduate Program Director of the department that offers the class de-

enroll both sections and then randomly re-assign students to a section. Additionally, she recommended which instructor would enact the teaching intervention (experimental group). By default the other instructor (non-experimental) taught the class as she had done in the past. Syllabi for both sections included identical objectives and assessments, as has been done previously. Thus, students received the same learning material and were graded similarly to how they would have without the study. The only alteration was the pedagogical approach (e.g., the intervention). Put succinctly, one group of participants received the teaching innovation (self-efficacy) and the comparison group of students received the STM.

Research Caveats

The intention of this project was to discover if the created intervention could increase master's students' research self-efficacy statistically significantly greater than the STM by the end of the semester. Even though the study was expected to contribute meaningfully to the counseling literature, its ability to do so is limited due to multiple variables, including the fact that the class manipulated was not taught within the counseling department. Nevertheless, the project can contribute to the literature in how pedagogical techniques can be used to increase master's students' research self-efficacy, test a measure for the field, and how departments can aid counseling students in increasing their research self-efficacy in a meaningful way. Given the limited literature in counseling education on the topic of master's research self-efficacy unknown confounding variables might have occurred. Furthermore, contributing something practically significant to clients would require additional research. The details of the study's limitations will be discussed in Chapter 5.

Relevant Terminology

1. Accreditation standards: Expectations set by the institution that evaluates a program to determine if it has met the expectations detailed out in its documents

2. American Counseling Association (ACA): A U.S.-based professional organization of counselors

3. Council for Accreditation of Counseling and Related Educational Programs (CACREP): Programmatic accrediting body loosely associated with the American Counseling Association (ACA)

4. Counselor Professional Development (CPD): Professional life long growth process that begins as an entering master's student counselor

5. Insight: An understanding of the motivational forces behind one's actions, thoughts, or behavior

6. Mastery experiences: Live action events that imparts to an individual a sense of ability to complete the task again in the future

7. Novice counselor: A counselor in the beginning stages of CPD

8. Physiological responses: Emotional reactions that are felt by an individual in their body in some way

9. Professional identity development (PID): Process by which novice counselors internalize the professional standards and make them a part of their identity

10. Reflective: Active, persistent, and careful consideration of a belief or supposed form of knowledge, of the grounds that support that knowledge, and the further conclusions to which that knowledge leads

11. Reflectiveness: The ability to step back from one's discourse and ponder it, recognizing that it is what it is–a construction

12. Relativism: Intellectual position that asserts that knowledge construction tends to be pluralistic and context-sensitive

13. Research identity development (RID): Process by which novice counselors internalize the professional standards related to research and make them a part of their identity

14. Research self-efficacy: Confidence in the ability to complete a research-related task

15. Self-awareness: Being aware of different aspects of the self, including traits, behaviors, and feelings

16. Self-efficacy: Confidence in the ability to complete a task

17. Social cognitive theory (SCT): Constellation of related approaches to human motivation that contain environmental as well as cognitive elements

18. Standard Teaching Method (STM): The standard pedagogical method and the material taught

19. Vicarious experiences: Live action events that a person observes. These events are usually task mastery that other individuals are enacting.

20. Verbal persuasion: Words used to encourage and influence a person in a manner intended for the person to believe in the individual's capacity to have a mastery experience.

CHAPTER TWO

LITERATURE REVIEW

This chapter begins by providing an overview of the literature related to counselor professional development, including personal identity development and research identity development. Next, the standards of counseling field will be discussed. Following, the concept of self-efficacy is examined, and then critiqued. Afterwards, research self-efficacy will be outlined.   The chapter will end with an outline of the intervention and the project's rationale.

Counselor Professional Development

CPD contains many elements, especially during the educational years, as it is the time when the process of professional identity development (PID), becoming a reflective counselor, and research identity development (RID) begins. The field of counseling is often described as containing elements of art and science (Granello & Young, 2012). There is the learning, the acquisition of knowledge, and then there are the application elements, the practical parts where a counselor must take information and apply it wisely. Each student counselor discovering how to amalgamate these two elements is one of the formational processes of CPD and often referred to as professional identity development (PID). PID begins in a counselor's master's program and continues after graduation. Even though there have been evaluation studies regarding PID (e.g., PID with Hispanic student interns [Nelson & Jackson, 2003], PID with school counselors [Brott & Myers, 1999], the impact Chi Sigma Iota has on a member's PID [Luke & Goodrich, 2010], exploring PID through sandtray [Felton, 2016], or how gender influences PID [Healey & Hays, 2012]), recent articulation of a theory encompassing all counselors experience with the PID process is minimal.

In one grounded theory study, Gibson, Dollarhide, and Moss (2010) investigated the tasks that are required for PID when a student counselor stage and found that participants described: (1) finding a personal definition of counseling, (2) internalizing responsibility for professional growth, and (3) developing a systemic identity. They found that each task simultaneously manifested as students progressed from a focus on expert opinions to self-validation. These movements transpired over time as students transitioned from first entering a master's program to graduation (Gibson et al., 2010). Auxier, Hughes, and Kline's (2003) grounded theory study on PID focused on identity formation. They found that students engaged in what they termed a "recycling identity process," with three constituent processes: conceptual learning, experiential learning, and external evaluation. One of the common denominators in both studies was the necessity of the student to be reflective, including self-reflective (i.e., personalizing the information received and discovering how to integrate information, practice, and self into a workable construct). Thus, it could be argued that being reflective is one of the crucial ingredients for a novice counselor to possess in order to successfully navigate PID, and thereby have a flourishing counseling career, defined as one that meets all industry standards, and is longer than five year.

Like other aspects related to PID, becoming a reflective professional counselor is complex and multifaceted. According to McAuliffe and Lovell (2006), the indicators of this process, in addition to empathy, are expressions of self-awareness, insight, and reflectiveness. Additionally, students who most closely matched these qualities were those who were most able to engage in relativism. The term relativism comes from research into the cognitive development of college students and is defined as a "diversity of options, values, and judgments derived from coherent sources, evidence, logics, systems, and patterns allowing for analysis and

comparison" (Perry, 1981, p. 52).   Although assisting students in building these mental skills is done throughout a master's program, this more scientific than artistic aspect of being a counselor is particularly focused upon when instructors discuss the importance of research for the field, and even more predominantly when students learn about the process of research creation. Consequently, the development of students' RID contributes in a meaningful way to their development as reflective counselors, and thus their PID. As such, investigating students' RID is a critical piece to understanding students' overall CPD.

An investigation into RID found that although the learning environment and external messages were important, what seemed most salient was how student counselors interpreted the information and internalized it (Jorgensen & Duncan, 2015). These conclusions support the importance of being a reflective professional counselor, as found by McAuliffe and Lovell (2006). When these conclusions are combined with field standards related to research, it could be articulated that the reflective professional counselor is not simply a wise consumer of mental health research, but a professional that is able to intelligently and prudently evaluate research for application. This includes that reflective professional counselors graduating from a CACREP program, in their actions as practitioners, manifest the thinking of a social scientist. This type of counseling professional is able to analyze the information presented, create a working hypothesis of the client's issues, seek out additional evidence, support or reject their hypothesis, and then act on the conclusions in the best interests of the client. To accomplish these tasks requires the metacognitive capacities described prior as relativism (i.e., being able to critically evaluate the process of hypothesis formation and conclusion, acknowledge internal biases, be attentive to diversities that exist in the clinical room, be aware of the presence of powers and the lack thereof, and accurately assess when outside resources are needed). According to Gibson et al.'s

(2010) model, the foundational pieces for these PID tasks are formed in students' master's programs. Additionally, within CACREP programs, much of the basis for these skills, thereby meeting accreditation expectations, is usually accomplished, excluding clinical placements and supervision, through a class that introduces students to research methods. Consequently, the class that introduces students' to research methods is one of the critical pieces in a students' RID, thereby PID, becoming a reflective counselor, and ultimately CPD.

<div align="center">**Standards**</div>

As mentioned previously, PID is shaped by students' process of becoming a reflective counselor. Although this is, in part, done solely by each individual student, it is also "influenced by the identity of [the professional's] preparation programs" (Mascari & Webber, 2013, p. 16). According to Urofsky (2013), accreditation standards when adopted "are the framework by which higher education accreditation agencies evaluate the quality of curricula, resources, and services provided by institutions or programs" (p. 9). They also "serve as the reference points for evaluation and comparison" (p. 9). In this way they create expectations surrounding professional identity requirements (Urofsky, 2013). In the counseling field CACREP, the accrediting body associated with the ACA, evaluates programs based on the expectations articulated in their standards.

CACREP's standards are most applicable while counselors-in-training are in school, thus are the ones most relevant to this study. That is not to say that these standards are the only ones in the counseling field. The standards most appropriate for counselors after graduation are presently the 2014 ACA Code of Ethics. Then there is the ACA's 20/20 vision (Kaplan & Gladding, 2011), which encompasses these two codifications plus offers additional delineations. Both contain references to the importance of research and of professionals in the field

understanding research literature. For this study's purposes the value of the 2014 ACA Code of Ethics and 20/20 vision is in the support it lends to the possible long-term merit of the intervention's success. Thus, this section will discuss CACREP standards, and specifically how they relate to RID.

Present 2016 CACREP standards are divided into six sections (1) the learning environment, (2) professional counseling identity, (3) professional practice, (4) evaluation in the program, (5) specialty areas, and (6) doctoral standards. Within section two are standards detailing the sections' purpose and include counseling curriculum standards. Within the counseling curriculum standards are eight content foci: (1) professional counseling orientation and ethical practice, (2) social and cultural diversity, (3) human growth and development, (4) career development, (5) counseling and helping relationships, (6) group counseling and group work, (7) assessment and testing, and (8) research and program evaluation.

Each of the six sections and eight content focuses plays a role in PID. Simultaneously, as stated previously, many of the skills needed for a student counselor to develop into a reflective professional counselor are connected to the students' RID. Therefore, examining the eighth focus, research and program evaluation, is central to overall PID. One standard with the eighth focus states that students will graduate knowing, as part of their professional counseling identity, "the importance of research in advancing the counseling profession, including how to critique research to inform counseling practice" (CACREP, 2015, p. 12). Additional expectations in this area include that students will be knowledgeable of quantitative as well as qualitative research methods and will have the ability to use research to evaluate counseling practices, including counseling programs (Sink & Lemich, 2018).

Added to these research-focused CACREP standards, a counseling graduate that is a practitioner and a member of the ACA would need to adhere to the 2014 Code of Ethics. Broadly stated, "counselors maintain their competence in the skills they use, are open to new procedures, and remain informed regarding best practices for working with diverse populations" (p. 9), as well as, "counselors use techniques/procedures/modalities that are grounded in theory and/or have an empirical or scientific foundation" (p. 10). These two statements, along with others, require that practitioners stay current with research, know how to critically engage with research, and are skilled on how to effectively implement the latest research in clinical practice. As previously stated, the foundational skills of how to adhere to these expectations would be developed during the master's program, as specified in the described CACREP research standards.

Lastly, the ACA's 20/20 vision statement delineates the essential nature of research for the field (Kaplan & Gladding, 2011). Since this is a vision statement, the details of meeting the outlined expectations are described in other documents, namely the 2014 ACA Code of Ethics and 2016 CACREP standards. CACREP standards, the ACA Code of Ethics, and the ACA's 20/20 vision statement each address different parts of PID, while also combined to convey the importance of RID across the span of a professional counselor's career.

Accreditation standards are largely created by non-governmental professional bodies (like CACREP), and then are enacted by higher education institutions. Thus, there are multiple institutions that influence the creation of counseling students' learning environment. In the midst of these systemic facilitators, students must do the work of internalization. It is through students' engagement with the reflective steps described previously that a standard becomes an aspect of their PID. To be able to complete a task, or in this case meet a standard, requires

multiple elements. A few of these were examined and described in the before mentioned study by McAuliffe and Lovell (2006). One quality that would be of assistance in completing those reflective steps and also the stages found by Gibson et al. (2010) as well as Moss et al. (2013) is a belief or confidence in one's own capacity to accomplish a task, also termed self-efficacy (Bandura, 1977). The aspect of PID related to research identity, or otherwise termed RID, is no exception.

Self-Efficacy

In Bandura's (1977) seminal article regarding self-efficacy, he described the concept as "the strength of people's convictions in their own effectiveness" (p. 193). This self-conviction of effectiveness was an important factor in Bandura's work of understanding the mechanism in overcoming phobias. He argued, "Efficacy expectations determine how much effort people will expend and how long they were persist in the face of obstacles and aversive experiences" (Bandura, 1977, p. 194). Bandura discovered that four elements could be used to increase participants' self-efficacy in relation to completing a chosen task. These four elements were labeled mastery experiences, vicarious experiences, verbal persuasion, and physiological responses. Out of the four, mastery experiences (occasionally termed positive self-instructed performances) were described as being particularly influential. The term "mastery experiences" was used for any outcome acted by participants where they successfully completed the task. As such, when participants had a positive mastery experience, their confidence in completing the task increased, thus increasing self-efficacy.

To aid with the gaining of mastery experiences and increasing in confidence, vicarious experiences were described as a potential aid. Vicarious experiences were defined as any observation of others having mastery experiences or being told by others of their mastery

experiences. In the classroom, vicarious experiences could also be described as modeling, both by the teachers and through slightly more competent peers. Bandura (1977) noted that this element was less likely to endure and lead to increased confidence than mastery experiences. This was also described as being true for verbal persuasion, which could be suggestions, exhortations, self-instructions, and interpretive treatments. In a classroom, these and other types of verbal persuasion could be enacted by the teacher to the class, as well as to individuals, by peers to one another, and students individually as they repeat to themselves the teacher's or peers' verbal persuasions. The fourth element, physiological responses, was described as any emotional responses that manifest in the body in reaction to task stimuli that interferes with task completion (e.g., anxiety), and thus can impact self-efficacy indirectly. However, paying attention to physiological responses was noted as important, because high arousal, for instance high anxiety, usually debilitates performance.

Since Bandura's (1977) groundbreaking article, his publications continued to discuss the model, however they primarily focused on how it related to personal agency (see Bandura, 1980; 1982; 2001). As this project does not pertain directly to this concept, it is not germane to the discussion below. Additionally, since this investigation examined how self-efficacy can be increased in relation to a particular topic (research), related to specific tasks (as measured through the research self-efficacy scale), Bandura's original article (1977) was most applicable. Also, given counseling students' aversion and low interest in research, as discussed previously, his work with phobias detailed in his 1977 article seems particularly fitting.

Critiques of Self-Efficacy

Even though Bandura's (1977) theory and the construct of self-efficacy were initially derived from his work with participants with phobias, the concept was expanded and applied to

other fields where task completion was of interest. A few examples are career counseling (e.g., Lent & Hackett, 1987; Taylor & Betz,1983); work-related performance (e.g., Stajkovic, Luthans, & Eisenberg, 1998), with a focus on entrepreneurship (e.g., Chen, Greene, & Crick,1998; Zhao, Seibert, Hills, & Zedeck, 2005); health improvement behaviors (e.g., Grembowshi et al., 1993; O'Leary, 1985); mathematics competence (e.g., Hackett & Betz, 1989); higher-level academic performance (e.g., Chemers, Hu, & Garcia, 2001; Zajacova, Lynch, & Espenshade, 2005); and teaching the skills of counseling in higher education (e.g., Borders, 2017; Kahn & Scott, 1997; Phillips & Russell, 1994). As shown, a variety of fields have used self-efficacy in research projects including current counseling researchers. Nevertheless, a number of critiques exist. One, made by Kirsch (1980), was that a statistical test Bandura employed violated an assumption of the test. Another was that Bandura's experiments did not take into account all possible influences of social susceptibility (Tyron, 1981). A third was that Bandura's conclusions could be a result of only environmental influences (Biglan, 1987). Lee (1989) argued that the construct of self-efficacy was not a model for explaining behavior. Lastly, Hawkins (1992) stated that the theory was not causational. Each of these arguments will be examined below.

One of the first critics of self-efficacy, Kirsch (1980) argued that one of the methods employed by Bandura to show concordance rates for individual participants (e.g., microanalysis), was made invalid, as it violated an assumption of this particular statistical analysis. Its violation resulted from the fact that the tasks participants' performed were hierarchical. Kirsch then proceeded to demonstrate the true chance rates. Then, in response to a rebuttal by Bandura (1980), Kirsch and Wickless (1983) asserted that the alternative offered by Bandura (1980) still did not take into account the hierarchical nature of the experiments. On the other hand, Sherer et al. (1982) created a scale to test Bandura's theory. They reported a high reliability and validity

of the scale and claimed that the results of the scales' scores demonstrated support of Bandura's (1977) assertion that "past mastery experiences are powerful determinants of self-efficacy expectations" (Sherer et al., 1982, p. 670).

Another critique was regarding the manner in which the participants were tested (Tyron, 1981). In the experiments run by Bandura, participants were placed in highly structured situations closely monitored by authority figures. According to Tyron, this type of research design lends itself to being shaped by unseen social influences that creates the congruence between participants' verbal and motor behaviors, which he claimed Bandura did not account for. Thus, he suggested that Bandura (1977) had missed the susceptibility of behavioral approach tests to social contexts. To explain this possible influence and thus more accurately demonstrate the theory of self-efficacy, Tyron (1981) offered a number of experimental designed tests that could control for this likely confluence.

Similarly, Biglan (1987) suggested that the conclusions Bandura (1977) made could alternatively be explained in terms of environmental events only. He argued that the self-efficacy studies previously conducted and reported had followed a three step procedure, "(a) self-efficacy ratings are experimentally manipulated through treatment; (b) when specific strengths of self-efficacy are achieved for specific approach tasks, behavior or arousal is evaluated; (c) self-efficacy ratings are related to behavior or arousal" (p. 4). Then after these steps have finished, the researchers concluded that changes in behavior and arousal resulted from changes in self-efficacy. The alternative view Biglan offered was that the sequence was more complex than the previous steps imply. In fact, treatment manipulations were affecting self-efficacy ratings along with other behaviors that were not captured by the researchers. The support Biglan offered is that "when environmental variables are manipulated in order to affect self-efficacy ratings, the

environment that affects these other aspects of behavior is also being manipulated" (p. 4).

Biglan also suggested that the different approaches of self-efficacy theory and behavior-analytic, and thus conclusions were most likely due to two different worldviews. Biglan did not suggest that one worldview was better than another. Rather Biglan stated that to the extent that the self-efficacy theory can delineate external variables that "affect both measures of the self-efficacy construct and behaviors that are correlated with self-efficacy measures" was the degree by which the theory may lead to more effective clinical interventions (p. 5).

Critiquing the application of self-efficacy, Lee (1989) argued that the construct was "pre-scientific and cannot be falsified" (p. 115). She admitted that self-efficacy along with other cognitive, social-learning, and systems-based frameworks had practical appeal for the helping fields. Nevertheless, there were even stronger practical reasons to reject these theories as causational. One reason she offered for its rejection was that although as a metaphor for explaining human behavior the theory had strengths, it was a poor model for explaining behavior. Another reason she offered was that it was "based on undefined and unobservable interactions between imprecisely defined variables" (p. 118). This, she argued, created a noteworthy problem: the variables were unverifiable. As such, the models were then unscientific. Furthermore, the vagueness and ambiguity did not allow them to be quantified in a systematic manner. Consequently, hypotheses could not be developed which would test the adequacy of the theory. Lee (1989) concluded that these fundamental problems meant that self-efficacy could not be used to "reliably assist in dealing with human problems" (p. 119).

In a similar critique, Hawkins (1992) argued that attributing causal properties to self-efficacy was inappropriate. Hawkins admitted that the theory of self-efficacy was widespread and that between 1983 and the time of the article's publication there were almost 100 related

journal articles in PsychLit annually. He did not argue against the results from Bandura (1977), admitting that the study has been replicated in large numbers. Rather, his critique was in the interpretation of the results. He stated that attributing causal properties to self-efficacy "is inappropriate since self-efficacy is merely a convenient hypothetical construct, one inferred to summarize observed consistencies of behavior, and one best restricted to use in a metaphorical sense to facilitate communication" (p. 252). Hawkins first argument in support of this assertion was that the amount of training used to produce the rise in self-efficacy was an independent variable, rather than self-efficacy. Instead of being causational, he asserted that the construct of self-efficacy captured a reflection of behavior change. Hawkins further detailed how this was also the case for parts of the model: vicarious experience and verbal persuasion. Lastly, Hawkins stated that the success of self-efficacy as a predictor was "because it is an index of the performance history of past successes and failures" (p. 255).

Taken together the critics of self-efficacy have three major concerns: (1) assumption violations in the statistical analysis used, (2) weaknesses in the original research design's ability to control for confounding variables, and (3) its inability to account of causational affects. However, they also attest to the usefulness of self-efficacy and its persistent use over time. For example, Hawkins (1992) stated, "self-efficacy has a certain utility in terms of predicting behavior" (p. 251) and Lee (1989) declared that after a decade after self-efficacy was first proposed it "has quickly gained widespread acceptance" (p. 115). Despite these critiques, the combination of the critics' supportive attributes as well as the fact that it is still readily used 41 years later demonstrates its continued usefulness in capturing the phenomenon of increasing participants' confidence.

Research Self-Efficacy

As stated previously, although there are multiple elements graduate students' need for PID, one is self-efficacy. As PID includes students' RID, students' research self-efficacy is included. Although not robust, the measurement most often used for the research conducted regarding doctoral counseling and doctoral counseling psychology students' engagement with research has been self-efficacy scales. Various researchers have suggested that for those individuals attracted to the counseling field there is a link between low interest in research and low self-efficacy (Gelso et al., 2013; Kahn & Scott, 1997; Lambie & Vaccaro, 2011; Phillips & Russell, 1994). As a potential approach to overcome these seemingly inherent challenges, Gelso and associates designed a model for altering department approaches to training doctoral counseling psychology students labeled Research Training Environment (RTE). They were able to demonstrate that RTE increased self-efficacy of students in psychology-related fields (Gelso, 2006; Gelso et al., 2013). More recently, Borders (2017) found significant improvements in doctoral students as a result of implementing the RTE model in a CACREP Southeastern counseling program. Although highly encouraging, these outcomes say little about master's students' research self-efficacy. The one article found related to master's research engagement focused on master's students' self-perceptions about their attitudes towards research and CACREP's research training standards, not self-efficacy (Steele & Rawls, 2015).

In the past, relevant counseling literature has primarily focused on research competencies and self-efficacy in relation to doctoral students (Lambie, Hayes, Griffith, Limberg, & Mullen, 2014; Lambie & Vaccaro, 2011). This was not the case at the 2017 Association for Counselor Education and Supervision (ACES) conference. The conference program listed approximately four events per day, over the four-day conference, related to master's students' research

competencies (ACES, 2017). This appears to demonstrate the field's need and desire to discover ways to successfully meet the updated 2016 CACREP standards. Additionally, DeCleene Huber et al. (2015) found that occupation therapy students' implementation of evidence-based practices was influenced by their increased knowledge and confidence. Thus, although further research is needed, there is a possibility that if counseling students' research self-efficacy were increased, then graduates would more likely have the skills necessary to attain the research competencies associated with the 2014 ACA Codes of Ethics.

Research Self-Efficacy Intervention

RTE, since it is an intervention already tested to increase research self-efficacy (Gelso, 2006; Gelso et al., 2013; Kahn & Miller, 2000; Kahn & Scott, 1997; Lambie & Vaccaro, 2011; Phillips & Russell, 1994), was investigated as a possible intervention technique to be used for this project. Despite its empirical support, there were a number of reasons why the following intervention was created instead. The primary reason for the rejection of RTE was that it was made for departments, and this study focused on a particular class. As such, there are no classroom interventions detailed in RTE. Also, RTE was created for psychology departments who are training doctoral students, whereas this study's sample includes master's counseling students. Instead, RTE's non-departmental elements that were applicable to this study were incorporated.

In the creation of the intervention, the four elements that Bandura (1977) discussed (mastery experiences, vicarious experiences, verbal persuasion, and physiological responses) and how he asserted that they were interdependent was determined to be essential. Furthermore, to facilitate the chance of having mastery experiences decreasing heightened emotional states likely to interfere with students' ability to be receptive to verbal persuasion and vicarious experiences

would be valuable. A search of the literature within the counseling field was conducted to discover previous research on classroom teaching methods that had successfully increased research self-efficacy at any graduate level. Nothing was found that adequately met the search. The literature search was expanded for any college subject at any teaching level. Three articles regarding master's non-counseling students were found (i.e., Hamnett & Korb, 2017; Macke & Tapp, 2012; Maier & Curtin, 2005), along with a number of dissertations related to undergraduate classes. The conclusion of these searches was that there is little known about increasing counseling master's students' research self-efficacy. However, what was made clear, using the limited relevant literature found, was that in order to create a pedagogical intervention intended to increase students' self-efficacy, the class' education level and objectives would be needed to be integrated. Additionally, the intervention would need to contain all four elements, but particularly mastery experiences.

Rationale

CACREP accredited departments develop CPD based on detailed standards. An aspect of CPD, as discussed prior, is PID. With PID is the process of becoming a reflective counselor, and narrowing the scope even further is RID. A way of examining RID's progression is through research self-efficacy. Doctoral counseling students' increase of research self-efficacy has been demonstrated through the creation of an intervention (i.e., RTE; Borders, 2017) and measuring alterations through a research self-efficacy scale. This project's aim was to replicate similar results. This was accomplished by creating an intervention for the one research-based class counseling master's students are required to take. Furthermore, changes in self-efficacy were measured through a scale and knowledge questionnaire. In the following chapter, the study's method is summarized.

CHAPTER THREE

PROJECT DESIGN

To reiterate from the previous chapters, this study can be placed under the broad topic of CPD within the master's schooling context. The aim was to improve understanding of the formation process of student counselors into reflective professional counselors who knowledgeably and critically assess counseling literature as well as appropriately and ethically apply evidence-based research clinically. It focused on the development of research competencies, particularly gaining greater understanding of how educators might increase master's students' research self-efficacy. The study was conducted at a southeastern university CACREP counseling program for master's counseling students in the two sections of the one required "introduction to research" class. Using an experimental design, the dissertation investigated whether a pedagogical intervention, based on Bandura's (1977) four elements to increase self-efficacy would yield a statistically significant improvement of students' research self-efficacy in comparison to the other section that received the STM. As discussed previously, three measurements were used to make this determination: Holden et al.'s (1999) RSE scale, a knowledge questionnaire related to the information aligned with class objectives, and a questionnaire of students' history or previous exposure with research.

This chapter provides a description of the study's research method. It will begin with a master table (see Table 1) that summarizes the research questions, variables, and analyses. There will then be an overview of the research method, explanation of participants and sampling method, discussion of procedures, and then measures. Next, the intervention will be detailed along with the steps to be taken to assure the intervention. In closing, the chapter will summarize the data analyses used in the study.

Table 1

Research Questions, Variables, and Analysis

Research Question	Independent Variable	Dependent Variable	Inferential Analysis
To what extent would introducing a self-efficacy intervention into one of two introductory to Research classes increase students' self-report research self-efficacy scores as measured by Holden et al.'s (1999) research self-efficacy scale?	Group: Intervention class vs. Standard Teaching Method class	Holden et al.'s (1999) research self-efficacy scale	ANOVA with repeated measures (within group variable: Time [pre to post] intervention)
To what extent would introducing a self-efficacy intervention into one of two introductory to research classes increase students' research comprehension?	Group: Intervention class vs. Standard Teaching Method class	Questionnaire that measures the participants' knowledge of the class' objectives	ANOVA with repeated measures (within group variable: Time [pre to post] intervention)

Note. Cronbach alphas for RSE will be computed to determine scale's reliability.

Research Method

The research design chosen to answer the research questions was a pretest posttest experimental design. One of the two class' sections served as the intervention group and the other section acted as the comparison group. One instructor was given the intervention to enact, while the other teacher was not given the intervention. Put more plainly, one class received the intervention and the other class was taught in its standard format. Both teachers were told that the students of their section would be given measures on the first day of class and on the last day. Students had no knowledge of the study other than the measures. This method was chosen due to its capacity to draw some conclusions on the effectiveness of the intervention, by controlling for as many variables that are possible in a university setting (Creswell, 2014). The research project had IRB approval prior to its commencement (see Appendix G).

Participants

  All participants were master's students at a southeastern university. The class' two sections were held at the same time on the same day, as has been the case for years past. Students also had the ability to alter the section in which they have been assigned at the registrar's office if they choose to do so. No student enacted this option. Historically the class maximum size has been 20, and the average class size has been 15. For the semester when the study was conducted the semester started with the intervention group having 17 enrolled students and ended with 16 students, as one student dropped the class after the pre-test. Comparatively, the STM section started with 16 enrolled students and ended with 15 enrolled students, as one student dropped the class after the pre-test. Out of both groups all students completed the pre-test giving an 100% completion rate and only one student (in the comparison group) enacted the right to not participate in completing the post-test, giving an 100% completion rate for the intervention group and a 93% completion rate for the comparison group. However, two participants in the comparison group chose to not complete the RSE. Therefore, for the final analysis there were a total of 28 participants, 16 in the intervention group and 12 in the STM group.

  For the demographic questions participants were given empty spaces where they entered their preferred answer (see Appendix A). Ages given ranged from 21-40 with the mode being 23 in both groups (see Table 2 for more details). Only male or female was written as answers for gender. In the intervention group there were slightly more males ($n = 9$; 56.25%) than females ($n = 7$; 43.75%), whereas in the STM group there was an overwhelming percentage of females ($n = 11$; 91.7%) to males ($n = 1$; 8.3%). For race/ethnicity participants wrote in African American, Black, Asian, Mixed, White, or Caucasian with a majority ($n = 11$; 68.75%) writing White or

Caucasian. Comparatively, the STM group for race/ethnicity wrote African American, Black,

African-American/Hispanic, Asian, Latina, Mixed, or White, with a majority (*n* = 4; 33.3%)

writing White (see Table 2 for more details).

Table 2

Demographics – Age and Race/Ethnicity

Age	Intervention (*n*)	STM (*n*)	Race/Ethnicity (*n*)	Intervention (*n*)	STM (*n*)
21	2 (12.5%)	1 (8.3%)	African American or Black	3 (18.75%)	2 (16.7%)
22	1 (6.25%)	3 (25%)	African-American/Hispanic		2 (16.7%)
23	8 (50%)	4 (33.3%)	Asian	1 (6.25%)	2 (16.7%)
24	1 (6.25%)	3 (25%)	Latina		1 (8.3%)
25	2 (12.5%)		Mixed	1 (6.25%)	1 (8.3%)
27	1 (6.25%)		White or Caucasian	11 (68.75%)	4 (33.3%)
40	1 (6.25%)	1 (8.3%)			

After participants' stated degree plan was noted some answers were combined into

groupings, as participants had indicated a different articulations of the same degree. For

instance, in the intervention group "Education Leadership," "Higher Education," "Higher

Education Administration," and "Higher Education/Education Leadership" were combined and

labeled "Education Leadership." A similar process was completed in the STM group where

"Education Leadership" and "Higher Education" were combined. Also, in the intervention group

"Counseling," "Mental Health Counseling," and "School Counseling" were combined into the

label "Counseling." Lastly "Recreation/Sports Management" and "Sports Management" were

combined into "Sports Management." No additional combining was needed in the STM group.

Overall in both groups the largest degree being pursued was nearly tied between "Higher

Education" (*n* = 6 for the intervention group and *n* = 5 for the STM group) and "Counseling" (*n*

= 6 for the intervention group and *n* = 6 for the STM group) (see Table 3 for more details). Also

related to degree, participants reported the percentage of their degree completed at the start of the

semester.   These written entries were then placed into the following categories "Less than 10%,"

"20-29%," "30%-39%," "40%-49%," "50-59%," "60%-69%," "70-79%," and "80%," as that

was the highest percentage stated. The greatest reported percentage completed in both groups

was "Less than 10%" with each having the same number of participants ($n = 7$) (see more details

in Table 3).

Table 3

Demographics – Degree Pursuing and Percentage Completed

Degree Pursuing	Intervention (*n*)	STM (*n*)	Percentage Completed	Intervention (*n*)	STM (*n*)
Education Leadership	6 (37.5%)	5 (41.67%)	Less than 10%	7 (43.75%)	7 (58.3 %)
Counseling	6 (37.5%)	6 (50%)	20%-29%	2 (12.5%)	
Sports Management	3 (18.75%)	1 (8.33%)	30%-39%	3 918.75%)	
Linguistics	1 (6.25%)		50%-59%		2 (16.7%)
			60-69%	1 (6.25%)	2 (16.7%)
			70%-79%	2 (12.5%)	1 (8.3%)
			80%	1 (6.25%)	

Sampling Method

During the Summer 2018 semester, the students enrolled in the two sections of the

classes were de-enrolled. Due to structural logistical policies purposeful randomization was

employed based on pursuant degree. Also, this method was used to control for possible

confounding demographic information (i.e., race, gender, age). Students were randomly placed

in either the intervention group or the comparison group. As the students signed up voluntarily

for the course, consent for these steps were assumed. Prior to beginning the pre-test and post-test

students were informed that they were under no obligation to participate in the study and that not

participating would have no implication upon their grade or class standing. Thus, they had an

option to opt-out of the study and had the option to remove themselves from the class via the

registrar's office if desired.   None opted out of the study in the intervention group, while one did

from the STM group. Additionally, one student withdrew from the class before the end of the

semester in the intervention group, and one withdrew from the class before the end of the

semester in the STM group. None switched sections via the registrar's office. As stated, the

participation rate was 100% in the intervention group and 93% in the STM group.

Procedures

Before the start of the Fall 2018 semester the intervention was given to one of the

instructors. After having a week to review the intervention, the researcher spoke with the

instructor in person answering questions and adding clarity where needed. No additional

information was given to the instructor of the STM group.   On the first day of class a pre-test

was administered via a printed paper copy. The pre-test consisted of a basic demographic page

(see Appendix A), the questionnaire examining the participants' knowledge of the information

contained within the class' objectives (see Appendix B), RSE scale (Holden et al., 1999); see

Appendix D), and the questionnaire on participants' past history with research (see Appendix E).

On the last day of class a post-test was administered in the same manner as the pre-test.

The post-test consisted of the same measures given in the pre-test with the exception of the past

history questionnaire, where the post-test version was given (see Appendix E). Numbers starting

with one and increasing upwards until the total number of participants was reached replaced the

identification requested of each participant to maintain confidentiality. Additionally, the letter I

for the intervention group or T for the STM group was placed on the packet in order to ensure

the packets of the two groups did not get mixed up.

Measures

Prior to the three measures, participants were presented with a demographic information page that also included the option to opt-out, the purpose of the study, and contact information if they had any questions or concerns. On the demographic page participants were asked to fill out their **"**Field of study (or degree pursuing)," "Approximate percentage completed in your program," "Gender," "Racial or Ethnic Identity," and "Age" (see Appendix A). This demographic information was not included in the post-test. After the demographic page was a questionnaire regarding history with research, the course knowledge questionnaire, and lastly the RSE scale.

History with Research

According to Sherer et al. (1982), individual differences in past experiences and how successful a skill was acquired impacted the scores of generalized self-efficacy. To ensure this possible confounding variable had no statistically significant differences between the groups a questionnaire was created. It asked participants to detail their past exposure to participating in and conducting empirical research as well as their exposure and comfort with the research literature. This measure's pre-test was also used as an aid in the intervention.

At the end of the Spring 2018 semester this measure was piloted with a section of the "introduction to methods" class to increase construct validity. To minimize the confusions that were discovered in the piloted version, the answers were changed from blanks to multiple choices. Additionally, as the questionnaire was designed to capture past history, the introductory wording was changed slightly between the pre and post-test. The wording changes included things like "prior to this semester" to "during the semester" (see the version used in this project in Appendix E). Any response of a "Yes" received one point, whereas "No" received a zero.

For the questions that were multiple options, each option selected received one point. For the questions that asked for time amounts, each month received one point. The lowest limit of the scores was zero, indicating no prior experience with research. There was no set upper limit, given the scoring included time.

Course Knowledge

Additionally, a questionnaire was created and then piloted with the targeted class at the end of the Spring 2018 semester measuring whether and by how much students had retained information regarding the course's objectives. It contained no self-perception questions. After piloted, questions that students found confusing were altered. For instance, question C was changed from "What are some different types of research reports?" to "Name two sections you would expect in a research report" (see Appendix B for the version used in this project). The score range for this measure was 0-22 with zero indicating no correct answers and 22 indicating every question correct. Its use in the study was as a measure to compare the intervention group with the comparison group. For this purpose, an answer key was also created based on the information detailed in the textbook that was assigned to both sections (*Research in Education: Evidence-Based Inquiry* [6th ed.] by McMillan & Schumacher, 2006; see Appendix C).

Research Self-Efficacy Scale

Lastly, students completed the RSE scale. The measurement for this study needed to capture master's students' changes in research self-efficacy over time. A literature search of research self-efficacy scales was conducted. This resulted in eight articles reporting the creation of a research self-efficacy scale (Bieschke, Bishop, & Garcia, 1996; Büyükoztürk, Atalay, Sozgun, & Kebapcı, 2011; Greeley et al, 1989; Holden et al., 1999; Lambie & Vaccaro, 2011; O'Brien, Malone, Schmidt, & Lucas, 1998; Phillips & Russell, 1994; Royalty & Reising, 1986),

and two articles that compared three scales (Forester, Kahn, & Hesson-McInnis, 2004; Lambie et al., 2014). The majority of the scales reported overall high reliability and validity. However, often if they had multiple subscales, the subscales were reported as being moderate to high. The deciding factor for scale appropriateness was based on whether it would capture the research skills outlined by CACREP standards and therefore reflect the expected PID phase of master's counseling students. When this criterion was used, either the themes of the subscales or the questions asked in the scale resulted in all scales but one to be ruled out, as their questions would have acquired inappropriate data.

The one scale containing items most appropriate for the population was Research Self-Efficacy (RSE; Holden et al., 1999). This scale has nine items with a strong internal consistency reliability (Cronbach's alpha = .94). It was also reported that the content validity as well as the construct validity was tested by comparing the Cronbach's alpha scores at both pre-test and post-test to another established research efficacy scale that had over twice the number of questions. The results caused the authors to conclude that RSE had strong content and construct validity (Holden et al., 1999). One important aspect to note regarding this scale that it is a self-report instrument. As such, it captures participants' research self-efficacy self-perceptions as measured by the tasks listed in the scale (see Appendix D). The score range for this measure was from 0-900 with zero indicating "cannot do at all" for all tasks and 900 indicating "Certain can do" for all nine tasks. As the RSE scale (Holden et al., 1999) assesses students' self-perceptions of their research self-efficacy, no assumption of self-efficacy having a causational effect exists. As such, this project takes into account the before mentioned critiques about self-efficacy theory not being able to account for causation.

STM and Intervention Procedures

The STM will follow the department's pedagogical standard. According to brief interviews, during a pilot study with counseling students, who had previously taken the course used in the study, the STM is lecture format with PowerPoints. Their descriptions conveyed something akin to the banking deposit style of teaching, where the focus is on knowledge acquisition and then demonstration of successful retention (McAuliffe, 2011). According to the syllabi from 2014, the grading criteria consisted of a midterm, final, accumulative written assignment, and participation, which appears to support the descriptions from the students. The actual delivery of the class material for the STM section will be described in Chapter 4 based on observations (see Appendix F for pedagogical observation guide).

In comparison, the intervention description, which was given to the instructor of the intervention group, is broken down into the four parts of Bandura's (1977) theory starting with physiological responses, then moving to verbal persuasion, next discussing vicarious experiences, and lastly touching upon mastery experiences. Putting these four elements into the intervention represents leveraging a combination of environmental factors and individual factors in order to best facilitate students' increase in self-efficacy. Having both elements has been shown to be effective at a programmatic level (Gelso, 2006; Gelso et al., 2013; Kahn & Miller, 2000; Kahn & Scott, 1997; Lambie & Vaccaro, 2011; Phillips & Russell, 1994).

To then create an intervention intended to focus at the classroom level, recommendations supported by research related to self-efficacy were found and then categorized according to Bandura's (1977) four parts. In addition to the four areas, it is worth mentioning that Keefe (2013) proposed collecting feedback throughout the semester to ensure that students are receiving a self-efficacy intervention as anticipated. The subsequent partitioned interventions are

intended to give the intervention instructor a framework from which to work in order to create a classroom environment infused with elements that the literature suggested would assist students in leaving a course more efficacious.

Physiological Responses

Teachers' interventions enacted in order to alter physiological responses are very likely the most challenging aspect of increasing self-efficacy. Part of the difficulty is that emotions are challenging to measure. This increases the complexity for instructors in their ability to be confident that the intervention is working as intended. Despite the caveats, the literature contains potential ways to create an academic environment that could decrease heightened physiological responses. One technique was when the instructor created an environment where the students were simultaneously supported in their autonomy while also encouraged to have a sense of belonging through inclusive activities (Yavorsky, 2017). Another type of teacher behavior found to open students up to content and concepts that they feared was giving examples of when research had not gone to plan in a humorous manner (Epstein, 1987). Epstein stated that these examples "are selected as illustrative of research principles" and they clarify to students that "no real researcher or research study is perfect" while also pointing out what can be learned amidst that imperfection (p. 85). He also postulated that humor used in this way reduced students' fear of making mistakes and reduced the tendency towards perfectionist picking at others' efforts (Epstein). Ideally, then, this specific use of humor would reduce heightened physiological responses, assist in creating a space for students to feel safe to talk about their heightened physiological responses (Montcalm, 1999), and aid in building a willingness to collaborate with fellow classmates. However, humor can be tricky and possibly offensive. Thus, instructors

would need to carefully craft examples that fit within Epstein's findings while keeping in mind sensitivities to diversity issues.

Another technique to aid in decreasing heightened physiological responses is in connection to the below section regarding vicarious experiences. It will be described how students' pre-test history questionnaire would be leveraged. In addition to these formal data collections, during the first class period questions about students' physiological responses related to being in the class would be asked anonymously, and then in the second class shared with students. This anonymous type of sharing and awareness is intended to normalize the experience. In addition, McConnell (2014) recommended outlining pivotal events, describing early misconceptions, and detailing struggles, "anxiety, self-doubt, and questioning" (p. 75). This adds to the normalization process by demonstrating that the teacher also experienced heightened psychological responses when first encountering research.

A third technique found suggested that teachers lead the students at the beginning of the semester in a discussion regarding students' passion and then link that passion with the topics to be covered for the rest of the semester (McConnell, 2014). Personalizing the topics, connecting them to the students' passion, and demystifying research is all intended to decrease heightened psychological responses in students and give them a non-threatening and perhaps, even, inviting lens in which to view research.

Verbal Persuasion

Bandura (1977) pointed out that when people are socially persuaded that they possess the capacity to master difficult situations, they often finding the courage to attempt something that they might have not otherwise. This has the potential to lead to mastery experiences. At the same time, social persuasion only works if the individual believes the person presenting the

persuasion and if there is positive reinforcement to the words. In this way, verbal persuasion can be seen as a type of positive enforcement that can assist in the increase of self-efficacy (Wang, 2011). This could include giving students positive feedback when they have completed an assignment or even when they are in the process of completion, or stating specific praises to students in regards to their improvements as they engage in activities. This would include giving students a multitude of verbal encouragers, and when appropriate offering to the class as a whole well-placed and honest verbal encouragement. An additional side effect might be that as teachers use verbal persuasion it could assist in the process of normalization for students, which might also help decrease their physiological responses.

Added to the forms of verbal persuasion described above, Susskind (2005) found that PowerPoint presentations increased students' self-efficacy as compared to lectures without PowerPoints. Although PowerPoint slides are not verbal persuasion as described by Bandura (1977), this study demonstrated that in the classroom they are an important form of communication. In this way teachers are recommended to consider not just their verbal communications, but any other form of communication as opportunities of verbal persuasion.

Vicarious Experiences

Bandura (1977) also mentioned the importance of having different kinds of models. In the classroom this includes not just peer-to-peer modeling, but also teacher-to-student modeling. In regards to peer-to-peer modeling, the purpose is to see others' performance without adverse consequences. This can then "generate expectations in observers that they too will improve if they intensify and persist in their efforts. They persuade themselves that if others can do it, they should be able to achieve at least some improvement in performance" (Bandura, 1977, p. 197). To achieve this objective, on the first day of class the students were given the pre-test history

questionnaire. From these results students were paired. Each pair consisted of a student that had self-reported more exposure with a student had self-reported less exposure. For this to be optimally effective, the less experienced student needed a close-enough model that they could see themselves in the other person. Thus, an approximately five-point spread between the participants was used to create the pairs. In this way, as the semester progressed, the less experienced student would be able to observe the more experienced student engagement and the more experienced student would have the opportunity to demonstrate competence to the less experienced student. Not only was this pairing expected to meet the criteria for encouraging peer-to-peer vicarious experiences, but it could also assist in creating an environment where cooperative learning is expected and encouraged, which was also shown to increase self-efficacy (Dahlman, 2010).

In regards to the teacher-student vicarious experiences, Abaho, Olomi, and Urassa (2015) recommended that skilled models demonstrate themselves to be knowledgeable in the topic and thus show themselves to the observer as worthy of being modeled after. Given the power differential inherent in the teacher and student relationship, teachers' presentation of themselves as skilled models could also add strength to the verbal persuasion enactments. Teachers presenting to students their condensed history of engaging with research would add support to the idea of them being a skilled model. Yet, McConnell (2014) found it particularly helpful for instructors to present themselves as being a reluctant researcher and focus on their struggles to connect with research and research literature. This balance would aid in preventing the teacher from becoming a model that is too far removed from the students, and thus undermining the influence of the modeling.

Mastery Experiences

The three previous categories of techniques in conjunction with the following ones were intended to create the environment theoretically most conducive for increasing self-efficacy. Students' heightened physiological responses would be calmed in the ways discussed previously. Students would be given positively worded constructive feedback along with encouragement and praise as described. Additionally, peer-to-peer as well as student-to-teacher vicarious experiences would be used to persuade students that they are capable of mastering the material. Combined, this would give students opportunities to have mastery experiences, thereby increasing self-efficacy over the semester.

In addition, in order to create the most likely opportunities for students to have mastery experiences, it is important that students are confident with the basics and can engage in the material without penalty (Dahlman, 2010). Furthermore, it is valuable to build in incremental assignments and to attempt to make the projects as related to the professional world as possible (Montcalm, 1999). As such, it is important to teach to students at their level (Unrau & Grinnell, 2005), which will be aided by the pre-test history questionnaire. If the gap between the least experienced student and most experienced student is large, the teacher would need to consider how to use these differences to increase peer to peer vicarious experiences. Additionally, whenever possible the teacher would include participatory learning (Abaho et al., 2015). Ideally these specific techniques alongside the previous mentioned ones would create the classroom environment most suited to facilitate opportunities for mastery experiences, and as students have them, their research self-efficacy would increase.

Intervention Assurance

The following steps were taken to ensure the intervention fidelity rate was maximized.

1. Instructors of both sections were given the identical objectives and textbook.

2. Intervention instructor was given the intervention manual and the researcher answered any questions about the intervention.

3. Non-intervention instructor was given no additional information, except that a researcher would come by class on the first and last session to give students measures of their research self-efficacy.

4. Researcher reviewed answers regarding students' research history between the first and second class meetings. Students were assigned dyads based on their scores. Then, these results were given to the intervention instructor.

5. Sections were observed and recorded for fidelity at mid-term and semester end pedagogical observations (see Appendix F for Pedagogical Observation Guide).

6. Intervention instructor academic freedom was maintained through:

    a. Instructor's ability to create assessments as desired that met the course objectives, department expectations, and intervention recommendations.

    b. Intervention offered as a guide of practices supported by research to increase self-efficacy, not a detailed how-to manual.

<div align="center">**Data Analyses**</div>

Screening and Cleaning Data

After entering the data into IBM SPSS, "Variable View" was used to examine any errors of inputting when compared to the original data. Next, the "Measure" labels were scrutinized to ensure they are correct for each variable. Following, the "Values" column was checked to ensure that the correct information for this column was present. Subsequently, "Data View" was inspected to see if any variables contained mis-labeled or mis-scaled data.

Missing Data

After a cursory examination, a command to printout descriptive statistics was run. Any

data that matched the original measures, but was out of range was altered to contain the value

999. Then, going back into "Variable View" a discrete value of 999 as a missing value was

added. Upon completion of this last step, "Missing Value Analysis" was run on the nominal

variables. Only participants were kept if they completed all measures. For the RSE measure, as

long as the participant answered six of the nine questions, any blanks were filled in using the

measure of central tendency most appropriate. For the course knowledge measure any blanks

were scored as zero, the same as a "I don't know" or a "I'm not sure." For the history

questionnaire any blanks were also be given a zero, the same as a "No." Afterwards, verification

that changes were correctly registered were completed by running Missing Value Analysis and

then Descriptive.

Homogeneity of Variance Assumption-Testing

To test for the homogeneity of variance between the two groups the Kolmogorov-

Smirnov (K-S) statistic was used.

Reliability Coefficients

Additionally, to increase reliability for the course knowledge measure, a graduate student

separately generated each participant's scores. The interrater reliability was calculated by

number of agreements divided by number of possible agreements for each score (Salkind, 2014).

Any calculations that result in less than 90% were discussed for reasons of non-agreement.

When determined to be appropriate scoring was altered and the interrater reliability re-computed.

If after the second iterance, less than 90% reliability was found, test questions were examined

along with answers for possible problems with the questionnaire.

Descriptive Statistics

Next, a descriptive report was run, inspecting means, standard deviations, and

distribution indices (e.g., kurtosis and skewness). To accomplish this, the researcher used the

Explore analysis option within IBM SPSS. For the pre-test of RSE scale means that were greater

than 600 were examined more closely. For the post-test any scores lower than 300 were

scrutinized. Any standard deviation greater than 300, for the pre-test and post-test were checked

more closely. For the pre-test of the knowledge questionnaire any score greater than 10 was

inspected. For the post-test any score less than 10 was explored. Any skewness or kurtosis

greater than one was investigated. As an additional verifier, P-P and box plots were examined

for each item and any outside of range were flagged.

Inferential Statistical Analysis

An ANOVA with repeated measures (time: pre and posttest) statistical analysis was used

(see Table 1). Salkind (2014) and Field (2013) recommended the use of this inferential analysis

for a two-group pre and post-test experimental design. As there were only two groups sphericity

was assumed. Therefore, no test to compute this was examined. Omega squared is

recommended as the effect size statistic for an ANOVA with repeated-measures (Field, 2013).

However, the effect size statistic most reported in the counseling field is eta squared, and thus

was reported instead.

Summary of Project Design

Using an experimental design, this study investigated whether an intervention, based on

Bandura's (1977) four elements to increase self-efficacy, designed for an introduction to research

class, yielded a statistically significant improvement of students' research self-efficacy scores in

comparison to another class that received the STM. Three measurements were used to make this

determination: Holden et al.'s (1999) RSE scale, knowledge questionnaire of information contained within the class' objectives, and a questionnaire of students' history with research. IRB approval was granted for this project (see Appendix G). The results of the study are summarized in the following chapter.

CHAPTER FOUR

RESULTS

The results of this study are reported in six parts. The interrater reliability of the knowledge scores and the Cronbach alpha for the RSE scores will be reviewed first. Next, the observations of the instructors as well as the class assignments will be summarized. Fourth, the findings of two within-subjects ANOVAs will be described. Next, the results of correlational analyses will be reviewed. To conclude this chapter, the findings of the dependent *t* tests comparing potential mean differences on the history questionnaire from pre- to posttest will be summarized.

Interrater Reliability of Knowledge Scores

For the first step both the researcher and a graduate student scored the pre-test. Next, the differences in scoring were examined. Out of the 14 questions, the scorers most regularly disagreed with the scores marked on four questions, creating a 71.43% interrater agreement. As this was less than 90%, reasons for non-agreement were discussed. It was discovered that the reviewer was scoring more literally to the answer key than the researcher. A conversation about whether the answers should reflect an exact match or a match to the concept was had. The result from the conversation was that having the scoring reflect that the participant demonstrated understanding of the concept more closely matched the intention of the questionnaire. Afterwards, answers were rescored and a 92.86% interrater agreement was achieved. This scoring was then applied to the post-tests.

RSE Analysis

An analysis was computed to determine the Cronbach alpha for the RSE scale. This was to ensure the internal consistency or reliability of this measure with the sample, as the measure

had been previously used to capture research self-efficacy with social workers (e.g., Macke & Tapp, 2012; Unrau, & Beck, 2004) and counseling PhD students (e.g., Borders, 2017; Lambie, & Vaccaro, 2011). Therefore, it was untested for counseling master's students. All completed pre-test RSE scores were used with a reported Cronbach alpha of $\alpha = .93$ ($N=28$). This is only slightly below the Cronbach alpha reported in Holden et al. (1999; $\alpha = .94$). Consequently, RSE was determined to be a reliable tool to appraise research self-efficacy for the sample.

Instruction Observations and Class Assignments

In order to examine the fidelity of the intervention, each group's instructor was observed twice. In each instance the observations were made on the same day so that the same content would be present. Each trained observer recorded what occurred in the classroom in a document (see a blank document in Appendix F). The first observation was completed on week six and the second on week 14 (out of a 14 week semester). In the first observation of the intervention section "Teaching at students' level" was recorded as being observed throughout the class time with a few exceptions. "Participatory learning" was noted in 17 instances with each one having a quick duration and a relatively low intensity. In each case less than five students engaged. Additionally, seven instances were noted that lasted a few minutes and were moderate in intensity with multiple students adding input. Regarding "Teacher describing mastery experiences" there were five short examples given that held low intensity and two that were medium in length and contained moderate intensity. The presentation used throughout the class was clear, easy to read, and engaging. Its intensity was determined to be low, as it was built into the lecture. "Students' autonomy appears to be supported" was seen through the questions asked of students, and the intensity reported as low, as the questions were content specific. "Students appear to have a sense of belonging" was observed regularly through the lecture by the teacher

engaging the students. "Demystifying research" was done through the use of examples, and on a few occasions negative physiological responses appeared to increase when the students' answers were corrected. In total, eight of the 15 techniques were observed, which is a 53% fidelity rate.

For the first observation of the STM section, "Teaching at students' level," was done throughout the class period, and there were 14 recorded instances of "Participatory learning" that were short in duration (less than two minutes) and low on intensity (a few students were engaged). "Teacher describing mastery experiences" was also recorded as present throughout the class period. "Offering students positive feedback," "Verbal Encouragers," and "PowerPoints" were also recorded to be present throughout the session. Two instances of statements by the instructor that implied "Students appear to have a sense of belonging" were noted, both of which were short in duration and low in intensity, as they were general statements. One instance of "Examples of normalization" was noted, which was a brief statement and thereby also low on intensity. There were two instances of "Demystifying research," one that had a long duration and a second that has a short duration, both of which were low in intensity. In total there were 11 observed techniques out of the 15 (73% fidelity rate).

Thus, the STM was observed to have more techniques demonstrated (11 verses eight). Most notably missing from the intervention observation was the lack of peer to peer vicarious experiences. Additionally, both observers noted moments when the instructor's approach was reminiscent of being a preparation course for a doctoral-level research class. Furthermore, it was noted by both observers a lack of openness on the students' part about their fears, even when the instructor broached the subject. Moreover, the intervention instructor informed the researcher after the class time ended that the PowerPoints were near identical to the STM, as the STM instructor had given them to the intervention instructor. When the gaps from the intervention

and what was observed were noted, the intervention teacher assured the researcher that the observation was an inaccurate reflection of the class period and usually most, if not all, of the intervention techniques were enacted.

During the second observation of the intervention group, "Students practicing a task" was noted multiple times with a few minutes to complete it each time and high intensity, where almost all the students appeared engaged. These practicing moments also were noted to contain "Engaging in material without penalty." Throughout the class period "Teach at students' level" was observed, similar to before. However, in addition there were also multiple moments when the instructor checked in with the students, which garnished about half of the class' response. "Participatory learning" was noted in four instances. One lasted a little over a minute, another two to three minutes, a third over five minutes, and the fourth for nearly ten minutes. In the shorter instances about half the students appeared engaged and in the other two almost all the students appeared engaged. Also, "Teacher describing mastery experience" was noted once, lasting a short duration and having a low intensity, as it was woven into the lecture. The class' "PowerPoints" were throughout the class period and engaging as well as clear. "Students autonomy appears supported," "Students appear to have a sense of belonging", and "Demystifying research" were noted to be done multiple times throughout the class period through class engagement, examples used, and the amount of responses from the students. In this second observation a total of nine out of the 15 techniques were observed. This showed an increase of fidelity rate from 53% to 60%.

Throughout the second observation of the STM group "Engage in material without penalty" was noted four times, each through questions and answers that lasted a short time period, and "Teach at students' level" was noted to be occurring throughout the class time.

"Teacher describing mastery experience" was noted once when the instructor explained her dissertation. "Offering student positive feedback," "Verbal encouragers," and "PowerPoints" were noted to be present with a low impact, as they were interwoven through the class period. Similarly "Examples of normalization" and "Demystifying research" were noted as being passively present. In this case a total of nine out of the 15 techniques were observed, which is a decrease from 73% to 60%.

The class objectives, required texts, course description, and assignments were identical between the two sections. Thus, both syllabi's assignments contained "Students practicing a task" through applied exercises (10 assignments that in total were 50% of the grade), which meant each one contained low stakes at 5% of the grade. Also, the assignments were "Incremental," with a culminating final exam worth 15% of the total grade. The remaining points were a research training module worth 5% of the total grade and participation and preparation worth 30% of the grade. This meant that two of the techniques were done through the assignments.

In summary, by the end of the semester the intervention section was observed through the instructor and assignments to have received 10 out of the 15 techniques, which is a 67% fidelity rate to the total intervention. Those not observed were "Watching peer have a mastery experience" a vicarious experiences, "Offering students positive feedback" along with "Verbal encouragers" which are verbal persuasions, and "Students can speak without fear/concerns" as well as "Examples of normalization" in the category of physiological responses. Also, the STM section was observed through instructor and assignments to have received 10 out of the 15 techniques, suggesting a 67% fidelity rate to the total intervention. Those not observed were "Participatory learning" in the category of mastery experiences, "Watching peer have a mastery

experience" a vicarious experience, and "Students autonomy appear supported," "Students appear to have a sense of belonging," as well as "Students can speak about fear/concern," which are all classified as physiological responses. Additionally, seven of 15 (47%) techniques were noted to be observed in both groups. These were four out of the five techniques associated with mastery experiences, one related to vicarious experiences ("Teacher describing mastery experience"), one related to verbal persuasion ("PowerPoints"), and one related to physiological responses ("Demystifying research"). Thus, overall a moderate level of fidelity to prescribed treatment was observed, and a low-moderate level of similarity between the groups was noted (47%).

ANOVA with Repeated Measures

Before being able to run the ANOVA with repeated measures analysis the test's assumption of homogeneity was explored in a multitude of ways. First, the items were examined for their parametric properties. Specifically, kurtosis and skewness values were scrutinized, along with item distribution graphs, P-P and Q-Q plots, and by the Kolmogorov-Smirnov (K-S) test. Potential outliers were also checked. Once homogeneity was confirmed, the repeated measure ANOVA was computed twice, one for each measure (the knowledge questionnaire and RSE). Specific results are summarized next.

Given the unusually high results of skewness and kurtosis for the history pre-test intervention group scores, they were examined further to see if the results were due to an outlier (for scores skewness, kurtosis, mean, and standard deviation; see Table 4). One outlier was found. This participant had reported having 26 months of previous experience. No other participant had that much. Consequently, overall the skewness and kurtosis values indicated the general parametric nature of the item distributions.

Table 4

Skewness, Kurtosis, Mean, and Standard Deviation (SD)

Variable	Skewness	Kurtosis	Mean	*SD*
Intervention group pre-test history	2.02	5 .58	20.25	11.30
Intervention group pre-test knowledge	0.74	0.75	11.59	4.29
Intervention group pre-test RSE	-0.16	-1.20	560.00	173.47
Intervention group post-test history	-0.55	-0.13	15.56	6.94
Intervention group post-test knowledge	-1.00	0.57	16.69	3.86
Intervention group post-test RSE	-0.77	-0.53	689.38	150.49
Comparison group pre-test history	0.64	0.83	28.25	13.75
Comparison group pre-test knowledge	0.42	-1.05	13.79	3.65
Comparison group pre-test RSE	-0.35	-0.40	590.00	167.50
Comparison group post-test history	-0.22	0.63	26.25	9.52
Comparison group post-test knowledge	-0.03	-1.08	16.68	3.85
Comparison group post-test RSE	0.21	-1.34	665.83	153.24

There were moderate departures from normality as indicated by the Q-Q and P-P plots. For the Kolmogorov-Smirnov (K-S) test only the post-test RSE intervention group scores were significant, $p = .02$, thus providing support for the normality for all other scores. Therefore, it was determined that overall the scores indicated an adequate level of homogeneity of item variances.

Inferential Statistics

The ANOVA with repeated measures showed that participants' knowledge scores significantly increased over time, $F(1,26) = 34.82$, $p = .000$, $\eta^2 = .57$. However, the results did not support a significant interaction effect, $F(1,26) = 2.70$, $p = .112$. Figure 1 below illustrates how knowledge scores increased for both the intervention group ($M_{pre} = 11.59$; $M_{post} = 16.59$) over time as well as the comparison group ($M_{pre} = 13.79$; $M_{post} = 16.68$), and that the increase was greater for the intervention group.

Figure 1. A graphical display of the changes of knowledge scores group means over time

When the analysis for the RSE scores was computed, the results showed RSE scores significantly increased over time, $F(1,26) = 12.11$, $p = .002$, $\eta^2 = .32$. However, the interaction effect was nonsignificant. The intervention and STM groups' RSE scores were not significantly different over time, $F(1,26) = .83$, $p = .372$. Figure 2 below illustrates how RSE scores increased for both the intervention group ($M_{pre} = 560.00$; $M_{post} = 689.38$) over time as well as the comparison group ($M_{pre} = 590.00$; $M_{post} = 665.83$), and that the increase was greater for the intervention group.
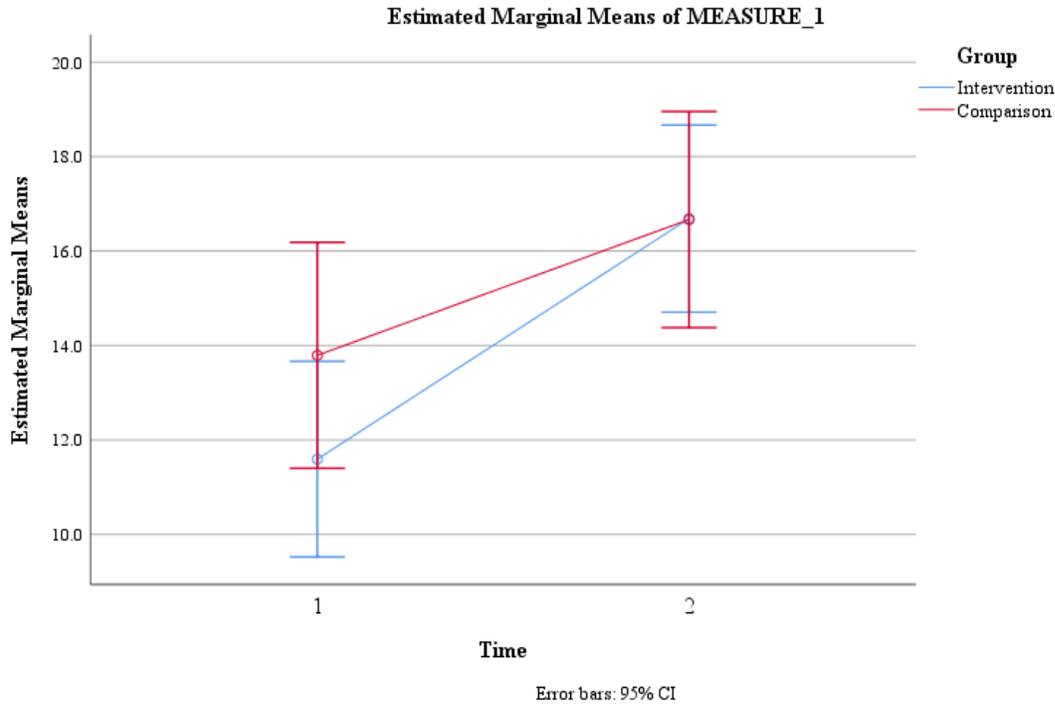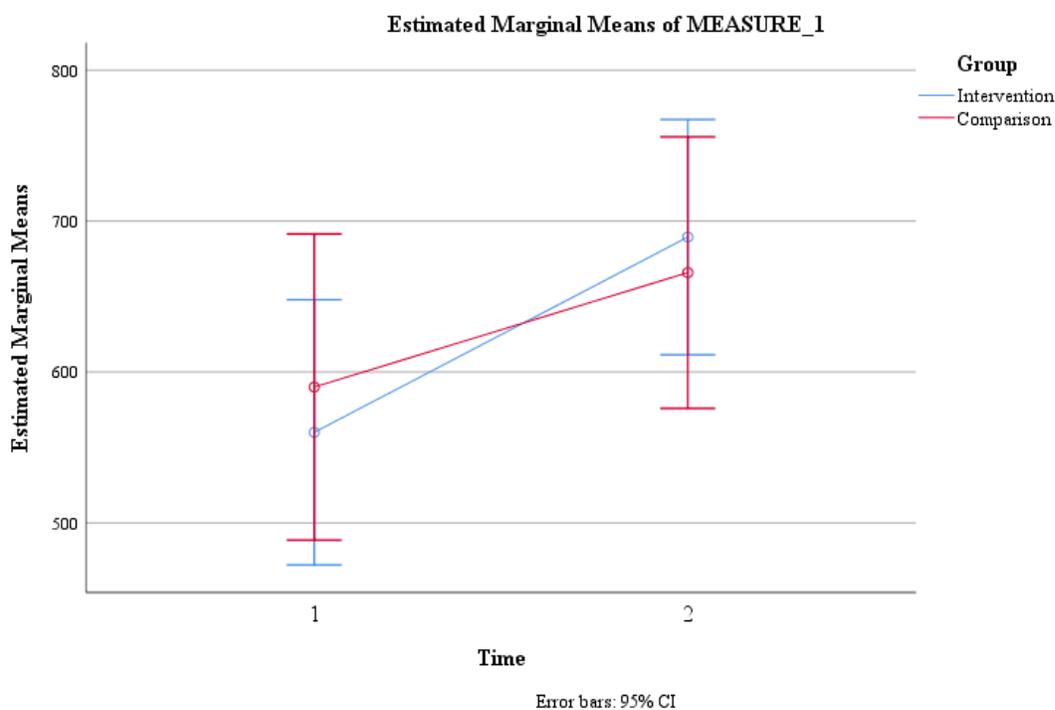
Figure 2. A graphical display of the changes of RSE scores group means over time

Correlations Between Knowledge and Self-Efficacy

In order to determine how much the increases seen in knowledge and self-efficacy were related, correlations were analyzed. For the pre-tests knowledge scores and self-efficacy scores ($N = 28$) were compared. Their correlation was $r(27) = .613$, $p < .01$, which is a moderately high correlation, accounting for 37.58% of the variance. When this analysis was narrowed to only focus on participants who identified as their major being counseling ($n = 12$) their correlation was moderate $r(11) = .584$, $p < .05$, accounting for 34.11% of the variance. Every other group based on college major had no significant correlation at the $p < .05$ level. The correlation between total majors' post-test knowledge scores and self-efficacy scores ($N = 28$) was $r(27) = .424$, $p < .05$, accounting for 17.98% of the variance. In contrast, when the analysis was narrowed to counseling students, the correlation was $r(11) = .683$, $p < .05$, accounting for

46.65% of the variance. Similar to the pre-test results, for the post-test the other college majors had no significant correlations at the *p* < .05 level.

Potential Confounding Influences

To test whether the previously mentioned possible confounding variable (group participants unequally exposed to research methods outside of the class) influenced knowledge and RSE scores two *t* tests were run. The first compared pre-test history scores. The second compared post-test history scores.

The first *t*-test results suggested that the two groups had no significant differences at pre-test related to history scores, $t[26] = -1.69$, $p = .103$, with the comparison group generating a higher mean ($M = 28.25$, $SD = 13.75$) than the intervention group ($M = 20.25$, $SD = 11.30$). The second *t*-test results suggested that the comparison group ($M = 26.25$, $SD = 9.52$) engaged in significantly more research opportunities outside of the classroom based on the post-test history results compared to the intervention group ($M = 15.56$, $SD = 6.94$), $t[26] = -3.44$, $p = .002$, $d = -1.30$.

Summary of Findings

First, the Cronbach alpha analyses results suggest that the RSE was reliable for the sample. Additionally, the interrater reliability for the knowledge questionnaire was 92.86% in the second scoring. Also, analyses examining the parametric properties of the demographic variables showed they overall suggested a normal distribution. Furthermore, homogeneity analyses (e.g., plots and K-S test) largely reflected normality in the scores. The pre-test history *t*-test results implied that the groups were non-significantly different at the start of the semester in regards to their exposure to research methods prior to taking the course.

Revisiting the research questions, the analyses showed that introducing a self-efficacy intervention into one of two sections of an "introduction to research" class increased participants' self-report research self-efficacy scores as measured by Holden et al.'s (1999) RSE scale and increased students' research knowledge scores. However, these increases were not found to be statistically more significant than the increases in these two scores in the STM group.

The results of the ANOVA with repeated measures suggested that students' knowledge and research self-efficacy significantly increased over the semester. However, there was not a significant difference in that increase in questionnaire scores when comparing the two groups over time. In conclusion, the students in both sections gained in knowledge and confidence regarding research methods over the semester, but the two sections were not significantly different from one another. In the following chapter, these findings are discussed in context to previous research. Relevant theoretical considerations and implications for practice are also overviewed.

CHAPTER FIVE

DISCUSSION

This chapter will first review the intent of the study. Next, the major findings will be examined. These findings are discussed through the lens of self-efficacy, as informed by the study's results, first at the classroom level and then at the structural level. Lastly, research limitations and implications to counselor educators will be specified.

Intent of Study

The primary intent of this study was to address the existing gap between the research-based skills master's students' graduate with and the expected skills as articulated in the CACREP standards (Sink & Lemich, 2018). As such, this study was designed to determine if a pedagogical self-efficacy intervention implemented into one of two master's introductory research classes would increase student outcomes as measured by a (1) self-report research self-efficacy scale (Holden et al., 1999; see Appendix B); and (2) researcher-created questionnaire regarding students' knowledge acquisition (see Appendix C). The corresponding null hypotheses were that there will be no statistically significant difference in (1) research self-efficacy scores over time between students in the intervention and STM groups; and (2) research knowledge scores over time between students in the intervention and the STM groups. Additionally, the interaction effects will also be nonsignificant.

Major Findings

Self-efficacy, at its most basic definition, is the confidence to complete a task or tasks (Bandura, 1977). This construct has been shown to be important both in the classroom (e.g., Abaho et al., 2015; Dahlman, 2010; Epstein, 1987; McConnell, 2014; Montcalm, 1999; Susskind, 2005; Unrau & Grinnell, 2005; Wang, 2011; Yavorsky, 2017) and in the institutional

structures that supports a classroom (e.g., Gelso's [2006] RTE model and Borders' [2017] application of the RTE model in a CACREP PhD program). This study focused on research self-efficacy as it manifested in the classroom. However, the results showed how the supporting infrastructures also influenced students' research self-efficacy. Results relevant to the classroom will be explored, namely, the relationship between knowledge and self-efficacy, pedagogical influences, and research self-efficacy. Then, results related to the structural level will be appraised, including examining research exposure outside of the classroom, verifying increases in research self-efficacy, and considering departmental intentionality.

Classroom Level

The current study and its pedagogical intervention were founded on previous classroom-based self-efficacy research (i.e., Abaho et al., 2015; Dahlman, 2010; Epstein, 1987; McConnell, 2014; Montcalm, 1999; Susskind, 2005; Unrau & Grinnell, 2005; Wang, 2011; Yavorsky, 2017). In addition to this research base, the RTE model (Gelso, 2006) and 2016 CACREP standards speak to the connections between increasing knowledge and increasing self-efficacy. Results from the current study discussed below support this assertion. Observational data regarding pedagogical fidelity of the classroom intervention will also be explored. Lastly, RSE findings, as they correspond to classroom effectiveness, meeting 2016 CACREP standards, and RID development will be discussed.

Relationship between knowledge and self-efficacy. The 2016 CACREP standards related to research indicate that students must be knowledgeable of quantitative as well as qualitative research methods and have the ability to use research to evaluate counseling practices, including counseling programs (Sink & Lemich, 2018). These standards speak to the two hallmarks of counseling expectations: knowledge acquisition and skillful application. Similarly,

research standards request that the reflective professional counselor is not simply a wise consumer of research, but also a practitioner able to critically and prudently evaluate research for effective application. High self-efficacy is one quality that assists in completing the reflective steps articulated by McAuliffe and Lovell (2006) allowing knowledge to become action. As a result, the amount of research self-efficacy is a valuable indicator of a novice counselor's RID. As such, it is particularly useful to teachers of master's research method classes.

In fact, the correlation between knowledge scores and RSE scores for counseling students (n = 12) statistically supports the relationship between knowledge and self-efficacy. At pre-test a moderate correlation was found (r[11] = .584, p < .05), sharing 34.11% of the variance. At post-test, the correlation was moderately high (r[11] = .683, p < .05), accounting for 46.65% of the variance. This 12.54% increase in variance explained implies that for counseling students in the sample, although the relationship between their knowledge of research topics and research self-efficacy was moderate at the start of the semester, this relationship grew to be moderately high by the end of the semester. In contrast, all other participants' scores, grouped by major, failed to generate a significant correlation (p < .05).

The correlational findings are likely explained by the counseling sample's percentage of program completed as reported at the pre-test. The counseling participants' average was approximately 50% (M = 52.08%) of the program completed. In comparison, the Higher Education participants (n = 11) indicated that they were in the first semester of their program. Sports Management majors (n = 4) reported either being in their first semester or having completed about 20% of their program. The participant enrolled in the Linguistics program stated that he was 65% through his degree at the start of the course. In summary, out of all the non-counseling participants at the start of the semester, 13 (81.25%) reported it being their first

semester at the university while two (12.5%) reported having 20% of their program complete, and one participant reporting having 65% of his program complete.

Furthermore, within the counseling group, one student reported being in her first semester and another in her last semester. Additionally, the participant who reported it being her first semester scored slightly higher (35) on the pre-test history score than the mean of counseling students ($M = 28.67$, $SD = 12.66$), thus indicating exposure to research topics prior to entering the program. Three of the counseling participants reported completing about one-third of the program, and thus would have been starting their second year. Three reported being between a half and 60% complete, implying that they were finishing up their course work, but not quite yet in their practicum sites. The remaining four reported being between 68% and 75% complete with their programs, which indicated that they were taking the class while in practicum or in their first internship semester. Given this data, the pre-test correlation suggests that this sample came into the class with prior exposure to the research topics measured in the knowledge questionnaire, and perhaps with some previous research self-efficacy. Ultimately, the moderately high relationship between knowledge scores and RSE scores by the end of the semester speaks to the importance of master's students learning research concepts in order to aid in increasing students' research self-efficacy. Consequently, the results seem to indicate that a course that increases knowledge would also increase research self-efficacy, thereby offering the basics needed to meet 2016 CACREP standards.

Pedagogical influences and intervention fidelity. This relationship between research knowledge and research self-efficacy gives way to the question if altering the classroom pedagogy to have a focus on increasing self-efficacy can assist in bolstering knowledge scores and RSE scores. Although, the lack of a statistical significance over time between the

intervention group and the comparison group implies that pedagogy is not a causational factor, classroom observations showed that both sections had moderate intervention fidelity rates (~67%) suggesting that pedagogy was influential.   Given the study's design, this means that even without any information regarding the intervention techniques, the instructor of the comparison group used many of these strategies. In fact, the intervention and comparison instructors had a 47% overlap of teaching techniques. This overlap suggests that the techniques assisted in student learning acquisition and increased self-efficacy.

By design the classrooms shared PowerPoints, which were observed to be engaging, incremental assignments, and low stakes opportunities for students to practice a task. These accounted for three of the seven techniques that overlapped. The remaining were instructor led and included "Engage in material without penalty," "Teach at students' level," "Teacher describing mastery experiences," and "Demystifying research." Thus, it appeared that these techniques held influence in the student outcomes.

In addition to these techniques, the intervention instructor was observed to engage in "Participatory learning," "Students' autonomy appeared supported," and "Students appear to have a sense of belonging." Comparatively, the three techniques solely enacted by the STM instructor were "Offering student positive feedback," "Verbal encouragers," and "Examples of normalization." Even though these only appeared in one of the two sections, the knowledge and RSE scores statically significant improvement over the semester suggest that they too might have contributed to student outcomes.

In summary, the pedagogical similarities between the two classrooms appear to have influenced the significant increases in student research knowledge and RSE scores. Those techniques that were observed in both sections most likely aided these increases. However, those

techniques used in only one of the two sections could have also supported students' increases over time. An important point to note is that in each case at least one technique from each of Bandura's (1977) elements was observed. Hence, results indicate that to increase self-efficacy it is essential that pedagogy fully integrate techniques that meet Bandura's (1977) four elements of increasing self-efficacy (physiological responses, verbal persuasion, vicarious experiences, and mastery experiences).

Measuring research self-efficacy. Keefe (2013) proposed collecting feedback throughout the semester as an important step to ensure that students receive a self-efficacy intervention as anticipated. Prior to this study there was no measure tested for capturing counseling master's students' research self-efficacy. RSE's high Cronbach alpha results imply that it was a reliable tool to appraise research self-efficacy for the sample. These results speak to its usefulness in measuring research self-efficacy for the field of counseling, thereby filling a gap that previously existed. Thus, a measure was found that could be useful in evaluating classroom effectiveness, offer evidential support for RID development, and demonstrate achieving 2016 CACREP standards. The value of a highly reliable measure like RSE to the counseling field and the unlikelihood of all 2016 CACREP research expectations being met in only one course will be discussed in more detail in the Structural Level section below.

Summary. One CACREP standard related to research states that students will graduate knowing, as part of their professional counseling identity, "the importance of research in advancing the counseling profession, including how to critique research to inform counseling practice" (CACREP, 2015, p. 12). Traditionally to demonstrate accomplishing this, an instructor would assess students' knowledge of a course's objectives, which would be tied to the standards. As shown, increases in research knowledge correlated positively with research self-efficacy.

Additionally, leveraging the existing research on self-efficacy pedagogical techniques included in the intervention appeared to aid increasing students' research self-efficacy. These two findings combined with RSE's high Cronbach alpha and how RSE captured students' increase in scores over the semester suggests (1) that a class focused on research methods increased the participants' research self-efficacy, (2) that through class instruction and topics covered some interpretation and internalization transpired, and thus (3) students grew in their RID through the course of the semester. Furthermore, RSE offers a tool that meets Keefe's (2013) recommendation to measure an instructor's effectiveness in increasing research self-efficacy, an important aspect of RID (Jorgensen & Duncan, 2015), and useful evidence regarding 2016 CACREP standards. Even more critically, the combination of these findings in the classroom offers educators a potential path to assist their students in being able, upon completion of the program, to be wise consumers of research, and thus judicious applicators of evidence-based practices.

Structural Level

Classrooms do not exist in a vacuum. They are supported by a department and further by a university/college. The RTE model (Gelso, 2006) has been demonstrated, where research is thread throughout the counseling psychology graduate program, to create an environment that significantly increases participants' research self-efficacy (Gelso et al., 2013; Kahn & Miller, 2000; Kahn & Scott, 1997; Lambie & Vaccaro, 2011; Phillips & Russell, 1994). Borders (2017) found similar positive results in a CACREP counseling doctoral program. Ultimately, as related to 2016 CACREP research standards, the actions of departments are to prepare skilled professional counselors to act ethically (ACA, 2014), and enact ACA's 20/20 vision (Kaplan & Gladding, 2011). Keeping the RTE model in mind, the following are considerations of how

counseling departments can use this study's results to meet research standards by examining research exposure outside of the classroom, verifying increases in research self-efficacy, and considering departmental intentionality.

  Research exposure outside of the classroom. According to the RTE model (Gelso, 2006), research should be a part of the department, including offering students opportunities to engage in research outside of the classroom. In contrast to these recommendations, in the location where this study was conducted research opportunities within the counseling department for master's students are limited. Despite the few chances of the participants' engaging in research outside of the classroom, before the study began these possible research opportunities were recognized as a potential confounding variable. Given the study's design, it was expected that any influence (captured through the history questionnaire) would not be statistically significant between the groups. This expectation appeared to be met in the lack of statistical significance between the groups on the participants' pre-test history scores.

  The history post-test asked students what exposure to research outside of the class they had experienced during the semester. The *t*-test results on the post-test history questionnaire scores indicated that the comparison group received a statistically significantly greater amount of exposure to research over the semester outside of the classroom in comparison to the intervention group. Upon closer examination, the above average scores appeared to be throughout the degree groups. Thus, based on the RTE model (Gelso, 2006) and these results, it appears that the participants in the STM group' scores regarding self-efficacy and knowledge were influenced by the confounding variable of exposure to research outside of the classroom disproportionately to the intervention group.

Even though this result added error to the study, it highlights the impact to students, their knowledge, research self-efficacy, and ultimately RID in having such opportunities. In line with a facet of Gelso's (2006) RTE model, Meade, Fox, and O'Grady (under review) argued that research labs offer master's counseling students the chance to take skills gained in a course like the one used in this study and practice them in a supervised environment, much like practicum and internship classes. A department offering such spaces would allow for a purposeful leveraging of exposure to research outside of the classroom. It also suggests an intentionality in how students will progress in their research self-efficacy and RID throughout their counseling matriculation.

Verifying increases of research self-efficacy. The previously mentioned results regarding RSE offer instructors a tool to ensure their students' increase in research self-efficacy and demonstrate meeting a critical element of 2016 CACREP research learning standards. In a similar manner to Border's (2017) study, RSE could be used to create evidence that a program has successfully completed meeting master's research 2016 CACREP standards. For instance, this could be done by comparing RSE scores when students enter and leave the program. Additionally, any results from RSE would offer departments evidence to alter structural pieces, if necessary, and then a tool to measure if those changes were useful, and thus be able to capture students' improvements over time. Therefore, RSE offers counseling departments a reliable and potentially a valid measure to create purposeful increases in student outcomes primarily influenced by structural decisions, and then test that the outcomes meet expectations.

Departmental intentionality. The RTE model (Gelso, 2006) also recommended an environment where the research is positively reinforced both formally and informally. In contrast, where the study was conducted the counseling department does not teach the required

research course used in this study. Instead, another department within the College of Education instructs this course. Additionally, the counseling department does not employ a cohort model with the master's students. Instead, the counseling department employs a recommended progression of classes. However, as the research class used in this study is offered outside of the department, students do not take it at the same time within their matriculation, as can be seen by the varied percentage of the program completed. These attributes in some ways inhibited assurances regarding the number of counseling students expected to take the class during the autumn semester and might have accounted to some extent in the lack of statistical power by the end of the study. Moreover, this result might imply that the department where the study was conducted lacks the intentionality of creating the characteristics recommended in the RTE model. This supposition is also supported by the variation in the counseling participants' percentage of the program completed in contrast to the other participants. This factor might be negatively impacting RID.

Jorgensen and Duncan's (2015) investigation found that although the learning environment and external messages were important in RID, what seemed most salient was how student counselors interpreted the information and internalized it. The participants who stated their degree as counseling ($n = 12$) knowledge scores increased from $M = 13.83$ ($SD = 3.80$) to $M = 17.25$ ($SD = 3.50$) over the semester, which represented a percentage score of 62.86% correct at the start of the semester to 78.41% correct by the end of the semester.   Additionally, these participants' scores related to RSE increased from $M = 608.33$ ($SD = 108.75$) to $M = 675.83$ ($SD = 153.65$) over the semester. This supports the idea that the class aided RID not just for the sample generally, but also specifically for the student counselors. However, this statistic hides the variation in time in the program as reported, and thus does not account in RID for each

individual student. Nevertheless, what these results do articulate is the importance of when a research-based course would be taken during matriculation.

Additionally, this increase on the RSE scale moved the mean from moderately low confidence to moderately high confidence of completing the nine research tasks listed. Consequently, it would seem that although research self-efficacy statistically significantly rose over the semester, it did not rise enough that the counseling student participants at the end of the semester could be classified as being highly confident in completing the nine tasks related to research. The 15.55% knowledge scores increase combined with the RSE scores increase appears to add to the previous discussion about the relationship between knowledge and research self-efficacy. As such, these results point to the value of intentionally regarding when students would take the research course by considering how the department is weaving the formal and informal elements of RID. Additionally, it also supports the previous discussion of the value of RID outside of the classroom.

Recommendations. This study's results offer useful systemic recommendations to improve master's students' research self-efficacy. One suggestion is that counseling departments be intentional about student program planning. Purposefully sequencing research coursework as well as putting in place the structural necessities so that students can follow the sequencing seems important to improve research self-efficacy. Another suggestion is to provide opportunities where master's students can practice their emerging research skills, for instance a research lab that is more intentional about serving the learning needs of master's counseling students. A third suggestion is that departments use a tool, like RSE, to measure students' progress. Finally, department faculty could use the RSE to demonstrate that their programs are

successfully meeting 2016 CACREP standards, preparing professional counselors to act ethically in this regard (ACA, 2014), and enacting aspects of the 20/20 vision (Kaplan & Gladding, 2011).

Limitations and Possible Future Research

This study, despite its promising findings, contained multiple research limitations. First, it should be acknowledged that given the sparse literature on master's students' research self-efficacy, various unaccounted for confounding variables were likely present, negatively affecting the study's internal validity. Second, counseling education literature did not provide specific pedagogical techniques to increase student self-efficacy. As such, the intervention drew from other disciplines. It is possible that the moderate fidelity rate to the intervention reflects the lack of usability of some of these techniques in a counseling master's research course. On the other hand, it is equally possible that the moderate fidelity is a reflection of the intervention instructor not achieving the study's expectation that the intervention group would receive 100%, or near to 100%, of the techniques accounts for this finding. Notably, one of the techniques that drew on all four elements of the intervention, dyad work, was not observed in the intervention group.

As detailed in chapter 3, and as part of the intervention, the researcher asked participants about their previous research experience. Students with similar histories were then paired. In theory and practice, these dyads would provide opportunities for increased peer to peer vicarious experiences and verbal persuasions, as well as aid in reducing negative physiological responses to complex material. Ultimately, this teaching technique would facilitate more opportunities for mastery experiences. When the researcher first spoke with the intervention instructor regarding the pedagogical techniques to be used in the class, this instructor insisted that teaching strategies should be similar across classrooms. The researcher agreed that many elements between the two sections would be alike (i.e., assignments, time and day of week of the class); however, it was

conveyed that the point of the investigation was to compare different pedagogical approaches on student outcomes. Nonetheless, the intervention instructor chose to not use the assigned pairings during the semester. Thus, the intervention group's learning experience lacked many of the techniques intended to enhance the students' research self-efficacy beyond the STM. Therefore, without further enquiry it is challenging to discuss the usefulness of these unused techniques. Consequently, a study focused on the usefulness of these techniques might aid the field.

The sample and sample size were also serious research limitations. Previous counseling investigations on research self-efficacy were conducted with doctoral students as participants. Although this literature was used to guide the current study, potential differences between doctoral students' attitudes towards research in comparison to master's students' attitudes towards this topic are still a relatively unknown. Related to the sample size, in setting up the study there was some risk that there would be an inadequate number of participants needed to have sufficient power. However, when the pre-test was collected with a 100% participation rate (17 participants in the intervention group and 16 in the comparison group), it had appeared that the number of participants needed would be adequate. Unfortunately, the actual sample size was too small to find statistically significant results. Relatedly, not all participants were counseling students (only 6 respondents per group), so direct application (generalizability) of the results to the counseling field are tenuous.

To summarize, the limitations described above highlight some of the challenges of completing an experimental design in-vivo. Despite the study's attempts to control and monitor potential confounding variables, they still appeared to be present. Additionally, the treatment fidelity rate for the intervention group was much lower than expected. Most importantly perhaps

was the lack of enough participants to have the sufficient statistical power. Thus, multiple factors interfered with the study as designed, seriously impacting internal and external validity.

This offers important lessons to future counseling researchers work to increase the depth and breadth of the literature while maintaining high ecological validity. Thus, it would be ideal if the lessons learned from this study could be controlled and the experiment replicated. Additionally, since there is a possibility that the results of this study suggest that a lack of relevancy could account for some of the variance not measured, it would be beneficial if a study could be designed where the different possible reluctances of master's counseling students could be investigated.

Finally in line with DeCleene Huber et al.'s (2015) findings, the investigator assumed that high research self-efficacy would lead to higher competence and confidence in enacting evidence-based practices. However, to demonstrate this connection in the counseling field, additional studies would need to be done. Particularly useful would be a longitudinal study to examine the connections, if any, that exist between levels of research self-efficacy leaving an introductory research class and actual engagement in evidence-based practices in the field.

Implications for Counseling Research Course Development and Application

Ultimately, what this study hoped to contribute to the counseling field was a greater understanding of how to improve master's students' RID, and thus research self-efficacy. This endeavor has several implications for counselor educators. First from a classroom level, a significant relationship between students' research knowledge and self-efficacy was found, suggesting that the importance of quality classroom instruction and a positive learning environment cannot be underappreciated. Additionally, this relationship supports the practice of counseling programs offering a class focused on research methods in order to meet 2016

CACREP standards. This relationship was in part supported by the internal reliability of RSE for the sample. Second, this conclusion regarding RSE offers counselor educators a tool to measure master's students' research self-efficacy progression in a classroom. Third, the study's results showed the value of implementing the techniques placed in this study's intervention. These results support other's findings that student self-efficacy increases when instructors intentionally consider how to manage students' physiological responses related to research (usually fear) and create a classroom that contains verbal encouragement along with positive vicarious experiences, leading to mastery experiences (i.e., Abaho et al., 2015; Dahlman, 2010; Epstein, 1987; McConnell, 2014; Montcalm, 1999; Susskind, 2005; Unrau & Grinnell, 2005; Wang, 2011; Yavorsky, 2017). Thus, this study offers some concrete techniques that counselor educators might want to consider when teaching a research-related course to master's students.

The findings also relate to how departments can facilitate students' RID and research self-efficacy growth, while meeting 2016 CACREP' research and program evaluation standards. Specifically, at the structural level, RSE offers counseling departments a tool to measure students' research self-efficacy alterations and to verify that they match department intentions. Additionally, counseling departments could be more intentional regarding when their students take an "introduction to research methods" class. Faculty should consider the course sequencing and how it may contribute to increasing research self-efficacy. Furthermore, in line with some of the concepts articulated in the RTE model (Gelso, 2006) and Meade, Fox, and O'Grady's (under review) suggestions, it appears that departments would benefit from creating research spaces where master's students can further develop their research self-efficacy with hands-on activities and mentoring. Thus, the study's results both at the classroom level and structural level offer

counseling educators some intentional ways in how they can produce students who can critically read and judicially apply research in clinical settings.

In summary, this study's results (1) demonstrate the positive relationship between students' knowledge about research and their confidence in completing tasks related to research, (2) suggest pedagogical techniques to aid educators in increasing research self-efficacy, (3) offer counselor educators a reliable measure to capture, in part, the effectiveness of increasing students' self-efficacy both in the classroom and in their overall program progression, thus providing evidence of meeting 2016 CACREP standards, and (4) show the potential benefits of being purposeful of how students will graduate capable and confident in their research ability and skills to follow ACA's Code of Ethics (2014) and enact the 20/20 vision (Kaplan & Gladding, 2011).

CHAPTER SIX

ARTICLE

Introduction

For those institutions that decide to acquire counseling accreditation, the Council for

Accreditation of Counseling and Related Educational Programs (CACREP) standards are the

framework by which a counseling program engages in counselor professional development

(CPD). Although CPD is a profession-long process, which includes continued education and

professional identity formation, the foundational elements of that process are completed in a

master's program (Granello & Young, 2012). When a university counseling program submits

itself to the process of achieving CACREP approval or renewal the standards are the benchmark

used to determine if the program receives/retains this programmatic accreditation. Thus, as the

standards are modified programs, assuming they desire to continue having CACREP

accreditation, must transform to match the new standards. The alterations made between the

2009 and 2016 standards related to the content focused on research are no exception. As a

program adjusts itself to meet the new standards, these changes also revise students' CPD. As

such, the changes to the content focus regarding research impact counseling students' research

identity development (RID).

Any RID adjustments a department might need to make is juxtaposed against the

standing challenges scholars have asserted for over two decades regarding counseling students'

RID. One such finding is that individuals attracted to the helping fields tend to lack confidence

or even interest in research (Gelso, Baumann, Chui, & Savela, 2013; Kahn & Scott, 1997;

Lambie & Vaccaro, 2011; Phillips & Russell, 1994; Steele & Rawls, 2015). This is particularly

troubling in contrast to the 2016 CACREP standards, which states that programs teach students

the "importance of research in advancing the counseling profession including how to critique research to inform counseling practice" (2015, p. 12). These researchers studied students' reluctances related to research, ways to improve students' lack of confidence in research, otherwise termed low research self-efficacy, and how to increase students' interest in research. However, these authors' tested interventions were enacted upon doctoral counseling students, and thus do not directly address the needs of master's counseling students. Nevertheless, this study mirrored these investigations and used as the primary theoretical framework Bandura's (1977) seminal article regarding his theory of self-efficacy, which includes four parts–mastery experiences, vicarious experiences, verbal persuasion, and physiological responses. Relevant literature formed the study's pedagogical intervention. Cumulative, the intervention combing all four elements, but focused towards facilitating mastery experiences. Additionally, the class' education level and objectives were taken into account.

According to Sink and Lemich (2018) a gap exists between CACREP standards and the research-based skills master's and doctoral students' graduate with. This study contributes to filling that gap by researching master's students' RID. Specifically, a pedagogical intervention was enacted in two sections of the same course. Then, students' changes in research self-efficacy and content knowledge over the semester were compared over time. Thus, this project investigated whether an intervention, based on cumulating pedagogical techniques shown to increase self-efficacy (e.g., Abaho et al., 2015; Dahlman, 2010; Epstein, 1987; McConnell, 2014; Montcalm, 1999; Susskind, 2005; Unrau & Grinnell, 2005; Wang, 2011; Yavorsky, 2017), would lead to higher master's students' research self-efficacy. This study contributes to the literature regarding what is known about counseling master's students' research self-efficacy, and examines how pedagogy might matter in increasing self-efficacy. To this end the study was

guided by the research questions, to what extent will introducing a self-efficacy pedagogical intervention increase students' outcomes as measured by a (1) self-report research self-efficacy scale (Holden et al., 1999); and (2) researcher-developed questionnaire regarding students' knowledge acquisition?

Method

At the southeastern university CACREP counseling program where this study was conducted the one required research-related class is taught within a separate department that instructs the research classes for multiple departments within the college. Thus, the study's population was master's students within the College of Education. Measurements of the effectiveness of the intervention were a research self-efficacy measurement scale (RSE; Holden, Barker, Meenaghan, & Rosenberg, 1999), and a questionnaire regarding participants' knowledge acquisition based on the class' objectives. Additionally to facilitate one of the intervention's techniques and to verify that the study was not unduly influenced by the possible confounding variable "exposure to research," a questionnaire enquired on participants' history with research outside of the class being investigated.

Participants

All participants were master's students at a southeastern university. The class' two sections were held at the same time on the same day, as has been the case for years past. Students also had the ability to alter the section in which they have been assigned at the registrar's office if they choose to do so. No student enacted this option. Historically the class maximum size has been 20, and the average class size has been 15. For the semester when the study was conducted the semester started with one section having 17 enrolled students and ended with 16 students, as one student dropped the class after the pre-test. Comparatively, the other

section started with 16 enrolled students and ended with 15 enrolled students, as one student

dropped the class after the pre-test. Out of both groups all students completed the pre-test giving

an 100% completion rate. For the post-test only one student enacted the right to not participate

giving a 96.77% completion rate. However, two participants chose to not complete the RSE.

Therefore, for the final analysis there were a total of 28 participants.

For the demographic questions participants were given empty spaces where they entered

their preferred answer. Ages given ranged from 21-40 with the mode being 23 in both groups

(see Table 2 for more details). Only male or female was written as answers for gender. Overall,

there was a greater percentage of females ($n = 18$; 64.29%) to males ($n = 10$; 35.71%). For

race/ethnicity participants wrote in African American, Black, African-American/Hispanic, Asian,

Latina, Mixed, White, or Caucasian with a majority ($n = 15$; 53.57%) writing White or

Caucasian (see Table 2 for more details).

Table 2

Demographics – Age and Race/Ethnicity

Age	*n* (%)	Race/Ethnicity	*n* (%)
21	3 (10.71%)	African American or Black	5 (17.86%)
22	4 (14.29%)	African-American/Hispanic	2 (7.14%)
23	12 (42.86%)	Asian	3 (10.71%)
24	4 (14.29%)	Latina	1 (3.57%)
25	2 (7.14%)	Mixed	2 (7.14%)
27	1 (3.57%)	White or Caucasian	15 (53.57%)
40	2 (7.14%)		

After participants' stated degree plan was noted some answers were combined into

groupings, as participants had indicated a different articulations of the same degree. For

instance, "Education Leadership," "Higher Education," "Higher Education Administration," and

"Higher Education/Education Leadership" were combined and labeled "Education Leadership."

Also, "Counseling," "Mental Health Counseling," and "School Counseling" were combined into

the label "Counseling." Lastly "Recreation/Sports Management" and "Sports Management" were combined into "Sports Management." No additional combining was needed. Overall in both groups the largest degree being pursued was nearly tied between "Counseling" (n = 12) and "Higher Education" (n = 11; see Table 3 for more details). Also related to degree, participants reported the percentage of their degree completed. These written entries were then placed into the following categories "Less than 10%," "20-29%," "30%-39%," "40%-49%," "50-59%," "60%-69%," "70-79%," and "80%," as that was the highest percentage stated. The greatest reported percentage completed was "Less than 10%" (n = 14; see more details in Table 3).

Table 3

Demographics – Degree Pursuing and Percentage Completed

Degree Pursuing	n (%)	Percentage Completed	n (%)
Counseling	12 (42.84%)	Less than 10%	14 (50%)
Education Leadership	11 (39.21%)	20%-29%	2 (7.14%)
Sports Management	4 (14.24%)	30%-39%	3 (10.71%)
Linguistics	1 (3.57%)	50%-59%	2 (7.14%)
		60-69%	3 (10.71%)
		70%-79%	3 (10.71%)
		80%	1 (3.57%)

Results

Interrater Reliability of Knowledge Scores

For the first step both the researcher and a graduate student scored the pre-test. Next, the differences in scoring were examined. Out of the 14 questions, the scorers most regularly disagreed with the scores marked on four questions, creating a 71.43% interrater agreement. As this was less than 90%, reasons for non-agreement were discussed. It was discovered that the reviewer was scoring more literally to the answer key than the researcher. A conversation about whether the answers should reflect an exact match or a match to the concept was had. The result from the conversation was that having the scoring reflect that the participant demonstrated

understanding of the concept more closely matched the intention of the questionnaire. Afterwards, answers were rescored and a 92.86% interrater agreement was achieved. This scoring was then applied to the post-tests.

RSE Analysis

An analysis was computed to determine the Cronbach alpha for the RSE scale. This was to ensure the internal consistency or reliability of this measure with the sample, as the measure had been previously used to capture research self-efficacy with social workers (e.g., Macke & Tapp, 2012; Unrau, & Beck, 2004) and counseling PhD students (e.g., Borders, 2017; Lambie, & Vaccaro, 2011). Therefore, it was untested for counseling master's students. All completed pre-test RSE scores were used with a reported Cronbach alpha of $\alpha = .93$ (*N=28*). This is only slightly below the Cronbach alpha reported in Holden et al. (1999; $\alpha = .94$). Consequently, RSE was determined to be a reliable tool to appraise research self-efficacy for the sample.

Instruction Observations and Class Assignments

In order to examine the fidelity of the intervention, each section's instructor was observed twice. In each instance the observations were made on the same day so that the same content would be present. Each trained observer recorded what occurred in the classroom in a document. The first observation was completed on week six and the second on week 14 (out of a 14 week semester). In the first observation of section one "Teaching at students' level" was recorded as being observed throughout the class time with a few exceptions. "Participatory learning" was noted in 17 instances with each one having a quick duration and a relatively low intensity. In each case less than five students engaged. Additionally, seven instances were noted that lasted a few minutes and were moderate in intensity with multiple students adding input. Regarding "Teacher describing mastery experiences" there were five short examples given that held low

intensity and two that were medium in length and contained moderate intensity. The presentation used throughout the class was clear, easy to read, and engaging. Its intensity was determined to be low, as it was built into the lecture. "Students' autonomy appears to be supported" was seen through the questions asked of students, and the intensity reported as low, as the questions were content specific. "Students appear to have a sense of belonging" was observed regularly through the lecture by the teacher engaging the students. "Demystifying research" was done through the use of examples, and on a few occasions negative physiological responses appeared to increase when the students' answers were corrected. In total, eight of the 15 techniques were observed, which is a 53% fidelity rate.

For the first observation of section two, "Teaching at students' level," was done throughout the class period, and there were 14 recorded instances of "Participatory learning" that were short in duration (less than two minutes) and low on intensity (a few students were engaged). "Teacher describing mastery experiences" was also recorded as present throughout the class period. "Offering students positive feedback," "Verbal Encouragers," and "PowerPoints" were also recorded to be present throughout the session. Two instances of statements by the instructor that implied "Students appear to have a sense of belonging" were noted, both of which were short in duration and low in intensity, as they were general statements. One instance of "Examples of normalization" was noted, which was a brief statement and thereby also low on intensity. There were two instances of "Demystifying research," one that had a long duration and a second that has a short duration, both of which were low in intensity. In total there were 11 observed techniques out of the 15 (73% fidelity rate).

Thus, section two was observed to have more techniques demonstrated (11 verses eight). Most notably missing from the observations was the lack of peer to peer vicarious experiences.

Additionally, both observers noted moments when the instructor's approach was reminiscent of being a preparation course for a doctoral-level research class. Furthermore, it was noted by both observers a lack of openness on the students' part about their fears, even when the instructor broached the subject.

During the second observation of section one, "Students practicing a task" was noted multiple times with a few minutes to complete it each time and high intensity, where almost all the students appeared engaged. These practicing moments also were noted to contain "Engaging in material without penalty." Throughout the class period "Teach at students' level" was observed, similar to before. However, in addition there were also multiple moments when the instructor checked in with the students, which garnished about half of the class' response. "Participatory learning" was noted in four instances. One lasted a little over a minute, another two to three minutes, a third over five minutes, and the fourth for nearly ten minutes. In the shorter instances about half the students appeared engaged and in the other two almost all the students appeared engaged. Also, "Teacher describing mastery experience" was noted once, lasting a short duration and having a low intensity, as it was woven into the lecture. The class' "PowerPoints" were throughout the class period and engaging as well as clear. "Students autonomy appears supported," "Students appear to have a sense of belonging", and "Demystifying research" were noted to be done multiple times throughout the class period through class engagement, examples used, and the amount of responses from the students. In this second observation a total of nine out of the 15 techniques were observed. This showed an increase of fidelity rate from 53% to 60%.

Throughout the second observation of section two "Engage in material without penalty" was noted four times, each through questions and answers that lasted a short time period, and

"Teach at students' level" was noted to be occurring throughout the class time. "Teacher describing mastery experience" was noted once when the instructor explained her dissertation. "Offering student positive feedback," "Verbal encouragers," and "PowerPoints" were noted to be present with a low impact, as they were interwoven through the class period. Similarly "Examples of normalization" and "Demystifying research" were noted as being passively present. In this case a total of nine out of the 15 techniques were observed, which is a decrease from 73% to 60%.

The class objectives, required texts, course description, and assignments were identical between the two sections. Thus, both syllabi's assignments contained "Students practicing a task" through applied exercises (10 assignments that in total were 50% of the grade), which meant each one contained low stakes at 5% of the grade. Also, the assignments were "Incremental," with a culminating final exam worth 15% of the total grade. The remaining points were a research training module worth 5% of the total grade and participation and preparation worth 30% of the grade. This meant that two of the techniques were done through the assignments.

In summary, by the end of the semester section one was observed through the instructor and assignments to have received 10 out of the 15 techniques, which is a 67% fidelity rate to the total intervention. Those not observed were "Watching peer have a mastery experience" a vicarious experiences, "Offering students positive feedback" along with "Verbal encouragers" which are verbal persuasions, and "Students can speak without fear/concerns" as well as "Examples of normalization" in the category of physiological responses. Also, section two was observed through instructor and assignments to have received 10 out of the 15 techniques, suggesting a 67% fidelity rate to the total intervention. Those not observed were "Participatory

learning" in the category of mastery experiences, "Watching peer have a mastery experience" a vicarious experience, and "Students autonomy appear supported," "Students appear to have a sense of belonging," as well as "Students can speak about fear/concern," which are all classified as physiological responses. Additionally, seven of 15 (47%) techniques were noted to be observed in both sections. These were four out of the five techniques associated with mastery experiences, one related to vicarious experiences ("Teacher describing mastery experience"), one related to verbal persuasion ("PowerPoints"), and one related to physiological responses ("Demystifying research"). Thus, overall a moderate level of fidelity to prescribed treatment was observed, and a low-moderate level of similarity between the groups was noted (47%).

ANOVA with Repeated Measures

Before being able to run the ANOVA with repeated measures analysis the test's assumption of homogeneity was explored in a multitude of ways. First, the items were examined for their parametric properties. Specifically, kurtosis and skewness values were scrutinized, along with item distribution graphs, P-P and Q-Q plots, and by the Kolmogorov-Smirnov (K-S) test. Potential outliers were also checked. Once homogeneity was confirmed, the repeated measure ANOVA was computed twice, one for each measure (the knowledge questionnaire and RSE). The results showed that participants' knowledge scores significantly increased over time, $F(1,26) = 34.82$, $p = .000$, $\eta^2 = .57$. When the analysis for the RSE scores was computed, the results showed RSE scores significantly increased over time, $F(1,26) = 12.11$, $p = .002$, $\eta^2 = .32$.

Correlations Between Knowledge and Self-Efficacy

In order to determine how much the increases seen in knowledge and self-efficacy were related, correlations were analyzed. For the pre-tests knowledge scores and self-efficacy scores ($N = 28$) were compared. Their correlation was $r(27) = .613$, $p < .01$, which is a moderately high

correlation, accounting for 37.58% of the variance. When this analysis was narrowed to only focus on participants who identified as their major being counseling ($n = 12$) their correlation was moderate $r(11) = .584$, $p < .05$, accounting for 34.11% of the variance. Every other group based on college major had no significant correlation at the $p < .05$ level. The correlation between total majors' post-test knowledge scores and self-efficacy scores ($N = 28$) was $r(27) = .424$, $p < .05$, accounting for 17.98% of the variance. In contrast, when the analysis was narrowed to counseling students, the correlation was $r(11) = .683$, $p < .05$, accounting for 46.65% of the variance. Similar to the pre-test results, for the post-test the other college majors had no significant correlations at the $p < .05$ level.

Potential Confounding Influences

To test whether the possible confounding variable (group participants unequally exposed to research methods outside of the class) influenced knowledge and RSE scores two t tests were run. The first compared pre-test history scores. The second compared post-test history scores.

The first t-test results suggested that the two groups had no significant differences at pre-test related to history scores, $t[26] = -1.69$, $p = .103$, with the comparison group generating a higher mean ($M = 28.25$, $SD = 13.75$) than the intervention group ($M = 20.25$, $SD = 11.30$). The second t-test results suggested that the comparison group ($M = 26.25$, $SD = 9.52$) engaged in significantly more research opportunities outside of the classroom based on the post-test history results compared to the intervention group ($M = 15.56$, $SD = 6.94$), $t[26] = -3.44$, $p = .002$, $d = -1.30$.

Summary of Findings

First, the Cronbach alpha analyses results suggest that RSE was reliable for the sample. Additionally, the interrater reliability for the knowledge questionnaire was 92.86% in the second

scoring. Also, analyses examining the parametric properties of the demographic variables showed they overall suggested a normal distribution. Furthermore, homogeneity analyses (e.g., plots and K-S test) largely reflected normality in the scores. Moreover, both knowledge scores and RSE scores significantly increased over time. The pre-test history *t*-test results implied that the groups were non-significantly different at the start of the semester in regards to their exposure to research methods prior to taking the course.

Discussion

Self-efficacy, at its most basic definition, is the confidence to complete a task or tasks (Bandura, 1977). This construct has been shown to be important both in the classroom (e.g., Abaho et al., 2015; Dahlman, 2010; Epstein, 1987; McConnell, 2014; Montcalm, 1999; Susskind, 2005; Unrau & Grinnell, 2005; Wang, 2011; Yavorsky, 2017) and in the institutional structures that supports a classroom (e.g., Gelso's [2006] RTE model and Borders' [2017] application of the RTE model in a CACREP PhD program). This study focused on research self-efficacy as it manifested in the classroom. However, the results showed how the supporting infrastructures also influenced students' research self-efficacy.

Classroom Level

Results from the current study support the connections between increasing knowledge and increasing self-efficacy. Observational data regarding pedagogical fidelity of the classroom intervention will also be explored. Lastly, RSE findings, as they correspond to classroom effectiveness, meeting 2016 CACREP standards, and RID development will be discussed.

Relationship between knowledge and self-efficacy. The 2016 CACREP standards related to research indicate that students must be knowledgeable of quantitative as well as qualitative research methods and have the ability to use research to evaluate counseling practices,

including counseling programs (Sink & Lemich, 2018). These standards speak to the two hallmarks of counseling expectations: knowledge acquisition and skillful application. Similarly, research standards request that the reflective professional counselor is not simply a wise consumer of research, but also a practitioner able to critically and prudently evaluate research for effective application. High self-efficacy is one quality that assists in completing the reflective steps articulated by McAuliffe and Lovell (2006) allowing knowledge to become action. As a result, research self-efficacy is a valuable indicator to the counseling field, and particularly to teachers of master's research method classes. However, that does not mean that knowledge of the material is not also critical.

In fact, the correlation between knowledge scores and RSE scores for counseling students ($n = 12$) statistically supports the relationship between knowledge and self-efficacy. At pre-test a moderate correlation was found ($r[11] = .584, p < .05$), sharing 34.11% of the variance. At post-test, the correlation was moderately high ($r[11] = .683, p < .05$), accounting for 46.65% of the variance. This 12.54% increase in variance explained implies that for counseling students in the sample, although the relationship between their knowledge of research topics and research self-efficacy was moderate at the start of the semester, this relationship grew to be moderately high by the end of the semester. In contrast, all other participants' scores, grouped by major, failed to generate a significant correlation ($p < .05$).

The correlational findings are likely explained by the counseling sample's percentage of program completed as reported at the start of the semester. The counseling participants' average was approximately 50% ($M = 52.08\%$) of the program completed. In comparison, the Higher Education participants ($n = 11$) indicated that they were in the first semester of their program. Sports Management majors ($n = 4$) reported either being in their first semester or having

completed about 20% of their program. The participant enrolled in the Linguistics program stated that he was 65% through his degree at the start of the course. In summary, out of all the non-counseling participants at the start of the semester, 13 (81.25%) reported it being their first semester at the university while two (12.5%) reported having 20% of their program complete, and one participant reporting having 65% of his program complete.

Furthermore, within the counseling group, one student reported being in her first semester and another in her last semester. Additionally, the participant who reported it being her first semester scored slightly higher (35) on the pre-test history score than the mean of counseling students ($M = 28.67$, $SD = 12.66$), thus indicating exposure to research topics prior to entering the program. Three of the counseling participants reported completing about one-third of the program, and thus would have been starting their second year. Three reported being between a half and 60% complete, implying that they were finishing up their course work, but not quite yet in their practicum sites. The remaining four reported being between 68% and 75% complete with their programs, which indicated that they were taking the class while in practicum or in their first internship semester. Given this data, the pre-test correlation suggests that this sample came into the class with prior exposure to the research topics measured in the knowledge questionnaire, and perhaps with some previous research self-efficacy. Ultimately, the moderately high relationship between knowledge scores and RSE scores by the end of the semester speaks to the importance of master's students learning research concepts in order to aid in increasing students' research self-efficacy. Consequently, the results seem to indicate that a course that increases knowledge would also increase research self-efficacy, thereby offering the basics needed to meet 2016 CACREP standards.

Pedagogical influences and intervention fidelity. This relationship between research knowledge and research self-efficacy gives way to the question if altering the pedagogy to have a focus on increasing self-efficacy can assist in bolstering knowledge scores and RSE scores. Classroom observations showed that both sections had moderate intervention fidelity rates (~67%) suggesting that pedagogy was influential and a 47% overlap of teaching techniques. These findings suggest that the techniques assisted in student learning acquisition and increased self-efficacy.

By design the classrooms shared PowerPoints, which were observed to be engaging, incremental assignments, and low stakes opportunities for students to practice a task. These accounted for three of the seven techniques that overlapped. The remaining were instructor led and included "Engage in material without penalty," "Teach at students' level," "Teacher describing mastery experiences," and "Demystifying research." Thus, it was appear that these techniques held influence in the student outcomes.

In addition to these techniques, the intervention instructor was observed to engage in "Participatory learning," Students' autonomy appeared supported," and "Students appear to have a sense of belonging." Whereas the three techniques solely enacted by the STM instructor were "Offering student positive feedback," "Verbal encouragers," and "Examples of normalization." Even though these only appeared in one of the two sections, the knowledge and RSE scores statically significant improvement over the semester suggest that they too might have contributed to student outcomes.

In summary, the pedagogical similarities between the two classrooms appear to have influenced the significant increases in student research knowledge and RSE scores. Those techniques that were observed in both sections are most likely have aided these increases.

However, those techniques used in only one of the two sections could have also supported students' increases over time. An important point to note is that in each case at least one technique from each of Bandura's (1977) elements was observed. Hence, to increase self-efficacy in the way designed in the intervention, it is essential that pedagogy fully integrate techniques that meet Bandura's (1977) four elements of increasing self-efficacy (physiological responses, verbal persuasion, vicarious experiences, and mastery experiences).

Measuring research self-efficacy. Keefe (2013) proposed collecting feedback throughout the semester as an important step to ensure that students receive a self-efficacy intervention as anticipated. Prior to this study there was no measure tested for capturing counseling master's students' research self-efficacy. RSE's high Cronbach alpha results imply that it was a reliable tool to appraise research self-efficacy for the sample. These results speak to its usefulness in measuring research self-efficacy for the field of counseling, thereby filling a gap that previously existed. Thus, a measure was found that could be useful in evaluating classroom effectiveness, offer evidential support for RID development, and demonstrate achieving 2016 CACREP standards.

Jorgensen and Duncan's (2015) investigation found that although the learning environment and external messages were important in RID, what seemed most salient was how student counselors interpreted the information and internalized it. The participants who stated their degree as counseling ($n = 12$) knowledge scores increased from $M = 13.83$ ($SD = 3.80$) to $M = 17.25$ ($SD = 3.50$) over the semester, which represented a percentage score of 62.86% correct at the start of the semester to 78.41% correct by the end of the semester. Additionally, these participants' scores related to RSE increased from $M = 608.33$ ($SD = 108.75$) to $M = 675.83$ ($SD = 153.65$) over the semester. This supports the idea that the class aided RID not just for the

sample generally, but also specifically for the student counselors. This increase on the RSE scale moved from moderately low confidence to moderately high confidence of completing the nine research tasks listed. Consequently, it would seem that although research self-efficacy statistically significantly rose over the semester, it did not rise enough that the counseling student participants at the end of the semester could be classified as being highly confident in completing the nine tasks related to research. The 15.55% knowledge scores increase combined with the RSE scores increase appears to add to the previous discussion about the relationship between knowledge and research self-efficacy. The value of a highly reliable measure like RSE to the counseling field and the unlikelihood of all 2016 CACREP research expectations being met in only one course will be discussed in more detail in the Structural Level section below.

Summary. One CACREP standard related to research states that students will graduate knowing, as part of their professional counseling identity, "the importance of research in advancing the counseling profession, including how to critique research to inform counseling practice" (CACREP, 2015, p. 12). Traditionally to demonstrate accomplishing this, an instructor would assess students' knowledge of a course's objectives, which would be tied to the standards. As shown, increases in research knowledge correlated positively with research self-efficacy. Additionally, leveraging the existing research on self-efficacy pedagogical techniques included in the intervention appeared to aid increasing students' research self-efficacy. These two findings combined with RSE's high Cronbach alpha and how RSE captured students' increase in scores over the semester suggests (1) that a class focused on research methods increased the participants' research self-efficacy, (2) that through class instruction and topics covered some interpretation and internalization transpired, and thus (3) students grew in their RID through the course of the semester. What RSE offers, then, is a tool that meets Keefe's (2013)

recommendation to measure an instructor's effectiveness in increasing research self-efficacy, an important aspect of RID (Jorgensen & Duncan, 2015), and useful evidence regarding 2016 CACREP standards.   Even more critically, the combination of these findings in the classroom offers educators a potential path to assist their students in being able, upon completion of the program, to be wise consumers of research, and thus judicious applicators of evidence-based practices.

Structural Level

Classrooms do not exist in a vacuum. They are supported by a department and further by a university/college. Gelso's (1993, 2006) RTE model has demonstrated the value of counseling psychology departments creating an environment where research is thread throughout the graduate program (Gelso et al., 2013; Kahn & Miller, 2000; Kahn & Scott, 1997; Lambie & Vaccaro, 2011; Phillips & Russell, 1994). Borders (2017) found similar positive results in a CACREP counseling doctoral program. Ultimately, as related to 2016 CACREP research standards, the actions of departments are to prepare skilled professional counselors to act ethically (ACA, 2014), and enact ACA's 20/20 vision (Kaplan & Gladding, 2011). The following are considerations of how counseling departments can use this study's results to meet research standards by examining research exposure outside of the classroom, verifying increases in research self-efficacy, and considering departmental intentionality.

Research exposure outside of the classroom. According to the RTE model (Gelso, 2006), research should be a part of the department, including offering students opportunities to engage in research outside of the classroom. In contrast to these recommendations, in the location that this study was conducted research opportunities within the counseling department for master's students are limited, which includes access to a research lab and a few other rare

research-related opportunities with faculty. Despite the few chances of the participants' engaging in research outside of the classroom, before the study began these possible research opportunities were recognized as a potential confounding variable. Given the study's design, it was expected that any influence (captured through the history questionnaire) would not be statistically significant between the groups. This expectation appeared to be met in the lack of statistical significance between the groups on the participants' pre-test history scores.

The history post-test asked students what exposure to research outside of the class they had experienced during the semester. The *t*-test results on the post-test history questionnaire scores indicated that the comparison group received a statistically significantly greater amount of exposure to research over the semester outside of the classroom in comparison to the intervention group. Upon closer examination, the above average scores appeared to be throughout the degree groups. Thus, based on the RTE model (Gelso, 2006) and these results, it appears that the participants in the STM group' scores regarding self-efficacy and knowledge were influenced by the confounding variable of exposure to research outside of the classroom disproportionately to the intervention group.

Even though this result added error to the study, it highlights the impact to students, their knowledge, research self-efficacy, and ultimately RID in having such opportunities. In line with a facet of Gelso's (2006) RTE model, Meade, Fox, and O'Grady (under review) argued that research labs offer master's counseling students the chance to take skills gained in a course like the one used in this study and practice them in a supervised environment, much like practicum and internship classes. A department offering such spaces suggests an intentionality in how students will progress in their research self-efficacy and RID throughout their counseling matriculation.

Verifying increases of research self-efficacy. The previously mentioned results regarding RSE offers instructors a tool to ensure their students' increase in research self-efficacy and demonstrate meeting a critical element of 2016 CACREP research learning standards. Similar to Border's (2017) study, RSE could be used to create evidence that a program has successfully completed meeting master's research 2016 CACREP standards. This could be done by comparing RSE scores when students enter and leave the program. Additionally, any results from RSE would offer departments evidence to alter structural pieces, if necessary, and then a tool to measure if those changes were useful, and thus be able to capture students' improvements over time. Therefore, RSE offers counseling departments a valid measure to create purposeful increases in student outcomes primarily influenced by structural decisions.

Departmental intentionality. The RTE model (Gelso, 2006) also recommended an environment where the research is positively reinforced both formally and informally. In contrast, where the study was conducted the counseling department does not teach the required research course used in this study. Instead, another department within the College of Education instructs this course. Additionally, the counseling department does not employ a cohort model with the master's students. Instead, the counseling department employs a recommended progression of classes. However, as the research class used in this study is offered outside of the department, students do not take it at the same time within their matriculation, as can be seen by the varied percentage of the program completed.

These attributes in some ways inhibited assurances regarding the number of counseling students expected to take the class during the Fall semester and might account to some extent in the lack of statistical power by the end of the study. Moreover, this result might imply that the department where the study was conducted lacks the intentionality of creating the characteristics

recommended in the RTE model. This supposition is also supported by the variation in the counseling participants percentage of the program completed in contrast to the other participants whose knowledge scores and RSE scores were not correlated at either the pre-test or post-test. Therefore, it seems that the correlation observed for counseling students is due to previous exposures to research topics in the counseling program. As such, these results point to the value of intentionally regarding when students would take the research course by considering how the department is weaving the formal and informal elements of RID.

  Recommendations. This study's results offer useful systemic recommendations to improve master's students' research self-efficacy. One suggestion is that counseling departments be intentional about student program planning. Purposefully sequencing research coursework as well as putting in place the structural necessities so that students can follow the sequencing seems important to improve research self-efficacy. Another suggestion is to provide opportunities where master's students can practice their emerging research skills, for instance a research lab that is more intentional about serving the learning needs of master's counseling students. A third suggestion is that departments use a tool, like RSE, to measure students' progress. Finally, department faculty could use the RSE to demonstrate that their programs are successfully meeting 2016 CACREP standards, preparing professional counselors to act ethically in this regard (ACA, 2014), and enacting aspects of the 20/20 vision (Kaplan & Gladding, 2011).

Limitations

  This study, despite its promising findings, contained multiple research limitations. First, it should be acknowledged that given the sparse literature on master's students' research self-efficacy, various unaccounted for confounding variables were likely present, negatively affecting the study's internal validity. Second, counseling education literature does not provide specific

pedagogical techniques to increase student self-efficacy. As such, the intervention drew from other disciplines. It is possible that the moderate fidelity rate to the intervention reflects the lack of usability of some of these techniques in a counseling master's research course. It is important to note that studying RID in this way is based on the fundamental assumption that a lack of engagement with research is based on competency rather than another variable (e.g., irrelevancy).

The sample was also a limitation. Previous counseling investigations on research self-efficacy were conducted with doctoral students as participants. Although this literature was used to guide the current study, potential differences between doctoral students' attitudes towards research in comparison to master's students' attitudes towards this topic are still a relatively unknown. Relatedly, not all participants were counseling students (only 6 respondents per group), so direct application (generalizability) of the results to the counseling field are tenuous.

This offers important lessons to future counseling researchers work to increase the depth and breadth of the literature while maintaining high ecological validity. Thus, it would be ideal if the lessons learned from this study could be controlled and an experimental study comparing the two groups completed. Additionally, since there is a possibility that the results of this study suggest that a lack of relevancy could account for some of the variance not measured, it would be beneficial if a study could be designed where the different possible reluctances of mater's counseling students could be investigated.

Finally in line with DeCleene Huber et al.'s (2015) findings, the investigator assumed that high research self-efficacy would lead to higher competence and confidence in enacting evidence-based practices. To demonstrate this connection in the counseling field, additional studies would need to be done. Particularly useful would be a longitudinal study to examine the

connections, if any, that exist between levels of research self-efficacy leaving an introductory research class and actual engagement in evidence-based practices in the field.

Conclusion

Ultimately, what this study hoped to contribute to the counseling field was a greater understanding of how to improve master's students' RID, and thus research self-efficacy. This endeavor has several implications for counselor educators. First from a classroom level, a significant relationship between students' research knowledge and self-efficacy was found, suggesting that the importance of quality classroom instruction and a positive learning environment cannot be underappreciated. Additionally, this relationship supports the custom of counseling programs offering a class focused on research methods in order to meet 2016 CACREP standards. This relationship was in part supported by the internal reliability of RSE for the sample. Second, this conclusion regarding RSE offers counselor educators a tool to measure master's students' research self-efficacy progression in a classroom. Third, the study's results showed the value of implementing the techniques placed in this study's intervention. These results support other's findings that student self-efficacy increases when instructors intentionally consider how to manage students' physiological responses related to research (usually fear) and create a classroom that contains verbal encouragement along with positive vicarious experiences, leading to mastery experiences (i.e., Abaho et al., 2015; Dahlman, 2010; Epstein, 1987; McConnell, 2014; Montcalm, 1999; Susskind, 2005; Unrau & Grinnell, 2005; Wang, 2011; Yavorsky, 2017). Thus, this study offers some concrete techniques that counselor educators might want to consider when teaching a research-related course to master's students.

The findings also relate to how departments can facilitate students' RID and research self-efficacy growth, while meeting 2016 CACREP' research and program evaluation standards.

Specifically, at the structural level, RSE offers counseling departments a tool to measure students' research self-efficacy alterations and to verify that they match department intentions. Additionally, counseling departments could be more intentional regarding when their students take an "introduction to research methods" class. Faculty should consider the course sequencing and how it may contribute to increasing research self-efficacy. Furthermore, in line with some of the concepts articulated in the RTE model (Gelso, 2006) and Meade, Fox, and O'Grady's (under review) suggestions, it appears that departments would benefit from creating research spaces where master's students can further develop their research self-efficacy with hands-on activities and mentoring. Thus, the study's results both at the classroom level and structural level offer counseling educators some intentional ways in how they can produce students who can critically read and judicially apply research in clinical settings.

In summary, this study's results (1) demonstrate the positive relationship between students' knowledge about research and their confidence in completing tasks related to research, (2) suggest pedagogical techniques to aid educators in increasing research self-efficacy, (3) offer counselor educators a reliable measure to capture, in part, the effectiveness of increasing students' self-efficacy both in the classroom and in their overall program progression, thus providing evidence of meeting 2016 CACREP standards, and (4) show the potential benefits of being purposeful of how students will graduate capable and confident in their research ability and skills to follow ACA's Code of Ethics (2014) and enact the 20/20 vision (Kaplan & Gladding, 2011).

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APPENDICES

Appendix A

Participating will allow the researchers to learn if the material being taught in this class is meeting professional accreditation standards. The goal is use the information to help focus instruction and classroom activities to best meet your background and needs. There are no potential risks associated with participation and the study has been approved by ODU's Institutional Review Board.

Moreover, your participation is completely voluntary. Your answers are important to us. However, you have the choice to opt out of participation at any time. To do so, simply do not answer any questions you do not wish to. If you do not want to participate at all, simply leave the pages blank, and return the sheets when requested. Thank you.

If you have any questions or problems with your participation feel free to contact Dr. Sink at csink@odu.edu or Nicole Snyder at nsnyder@odu.edu.

Demographic information

Bachelor's degree (or field of study at the bachelor-level):

Name of Institution were awarded bachelor's degree:

Present field of study (or degree pursuing):

Approximate percentage completed in your program:

Gender:

Racial or Ethnic Identity:

Age:

Appendix B

FOUN 611 Questionnaire

Please answer each of these questions as *best* as you can. Most students have never seen the following concepts, so if you come across one (or several) that is vaguely familiar or even totally unfamiliar to you, just say so. In other words, it is perfectly fine to say, "I am not sure" or "I remember this vaguely but I am not sure how to explain it." to any of the questions.

You are *not* being graded on this, so please don't worry. Since we want to see how much you know/understand right now, please answer the questions based solely on your own knowledge.

1. Name two steps that are needed in order to write a literature review.

_____

_____

_____

2. Name two types of research methods, and two types of ways to do each research method.

_____

_____

_____

3. Name two sections you would expect in a research article

_____

_____

_____

4. Name one difference between a primary source and a secondary source.

_____

_____

_____

5. Define a research question.

_____

_____

_____

6. Define a hypothesis.

_____

_____

_____

7. Name one difference between a population and a sample.

_____

_____

_____

8. Name one difference between random sampling and random assignment.

_____

_____

_____

9. Define validity.

_____

_____

_____

10. Name one advantage and one disadvantage of lab versus field research.

_____

_____

_____

11. Define the statistical concept of a mean.

_____

_____

_____

12. Define the statistical concept of a standard deviation.

_____

_____

_____

13. Name one possible data analysis.

_____

_____

_____

14. Describe the importance of reliability for a measurement instrument.

_____

_____

_____

Appendix C

Answer Key for Knowledge Questionnaire

1. (2 pts)
   a. Analyze the problem statement
   b. Read secondary literature
   c. Decide the search strategy for primary literature
   d. Transform the problem statement into search language and conduct a search
   e. Evaluate the pertinent primary literature
   f. Organize and logically group selected literature
   g. Write the review
2. (6 pts)
   a. Qualitative: case study, observation, interviews, artifact collection
   b. Quantitative: descriptive, developmental, comparative, correlational, predictive, survey, experimental, quasi-experimental
3. (2 pts) Methods, results, data collection, data evaluation, literature review, introduction, conclusion, discussion
4. (1 pt) Primary sources original research; secondary literature reviews prior research and gives quick overview of topic
5. (1 pt) Can be descriptive, relationship, or difference and orients the researcher to the research problem
6. (1 pt) Tentative statement of the expected relationship between two of more variables
7. (1 pt) Sample is drawn from the population
8. (1 pt) Random assignment: each subject has an equal chance of being assigned to a group; Random sampling: every member of the population has an equal chance of being selected
9. (1 pt) Degree to which scientific explanations are phenomena match reality.
10. (2 pt) Control variables in lab; Field more mirrors real life
11. (1 pt) Average of variance
12. (1 pt) Average dispersion or spread of scores around the mean
13. (1 pt) Statics, using a program like SPSS, pattern seeking
14. (1 pt) The more error it contains, the less useful.

Appendix D

Research Self-Efficacy Scale

How confident are you that you can…	I Cannot do at all		I am Moderately certain can do							I am Certain can do	
a. do effective electronic database searching of the scholarly literature?	0	10	20	30	40	50	60	70	80	90	100
b. use various technological advances effectively in carrying out research (e.g., the Internet)?	0	10	20	30	40	50	60	70	80	90	100
c. review a particular area of social science theory and research, and write a balanced and comprehensive literature review?	0	10	20	30	40	50	60	70	80	90	100
d. formulate a clear research question or testable hypothesis?	0	10	20	30	40	50	60	70	80	90	100
e. choose a research design that will answer a set of research questions and/or test a set of hypotheses about some aspect of practice?	0	10	20	30	40	50	60	70	80	90	100
f. design and implement the best sampling strategy possible for your study of some aspect of practice?	0	10	20	30	40	50	60	70	80	90	100
g. design and implement the best measurement approach possible for your study of some aspect of practice?	0	10	20	30	40	50	60	70	80	90	100
h. design and implement the best data analysis strategy possible for your study of some aspect of practice?	0	10	20	30	40	50	60	70	80	90	100
i. effectively present your study and its implications?	0	10	20	30	40	50	60	70	80	90	100

Thanks for your help!

Appendix E

Past history with research – Pre-Test

<mark>**Prior to this semester:**</mark>

1. **Before this class have you taken a research-related course?**

   Yes ☐   No ☐

   If yes, how many? _____

2. **Have you ever worked on a research project intended for publication?**

   Yes ☐   No ☐

   a. **If yes, how many months (round up to the nearest whole number)?**

      _____ months

   b. **If yes, what role/jobs did you do (pick all that apply, including roles on multiple projects)?**

      A research group member   ☐

      Code Data   ☐

      Clean data   ☐

      Transcribe   ☐

      Search the literature for articles related to project   ☐

      Enter data   ☐

      Other _____

    c. If yes, and you used any software to assist in the project, what was the name of the computer program (pick all that apply, including roles on multiple projects)?

    SPSS ☐

    Excel ☐

    NVivo ☐

    Other _____

3. Have you ever worked on any research project (could even be prior to college) not intended for publication?

Yes ☐   No ☐

    a. **If yes, what aspects of the project (pick all that apply, including roles on multiple projects)?**

    A research group member ☐

    Code Data ☐

    Clean data ☐

    Transcribe ☐

    Search the literature for articles related to project ☐

    Enter data ☐

    Other _____

    b. **If yes, how long did you work on the project (round up to the nearest whole number)?**

    _____ months

4. Have you ever needed to access published works regarding research and its results for a project?

Yes ☐   No ☐

    a. If yes, how did you search for the published research (pick all that apply, including roles on multiple projects)?

      Google ☐

      Google Scholar ☐

      University Search Engine (e.g. Monarch OneSearch) ☐

      Specific Database (e.g. PsychInfo) ☐

      Other _____

    b. If yes, how did you use the results you found (pick all that apply, including roles on multiple projects)?

      Topical Background information ☐

      Literature support for ideas ☐

      Literature review) ☐

      Support intervention in practicum or internship ☐

      Other _____

5. **If you've read a published journal article, what parts did you read (pick all that apply, including roles on multiple projects)?**

Abstract ☐

Literature Review ☐

Data Collection ☐

Data Analysis ☐

Results ☐

Discussion ☐

Conclusion ☐

Other _____

Past History With Research – Post-Test

:

1. **Before this class have you taken a research-related course?**

   Yes ☐   No ☐

           If yes, how many? _____

2. **Have you ever worked on a research project intended for publication?**

   Yes ☐   No ☐

   a. **If yes, how many months (round up to the nearest whole number)?**

      _____ months

   b. **If yes, what role/jobs did you do (pick all that apply, including roles on multiple projects)?**

   A research group member   ☐

   Code Data   ☐

   Clean data   ☐

   Transcribe   ☐

   Search the literature for articles related to project   ☐

   Enter data   ☐

   Other _____

c. **If yes, and you used any software to assist in the project, what was the name of the computer program (pick all that apply, including roles on multiple projects)?**

SPSS ☐

Excel ☐

NVivo ☐

Other _____

3. **Have you ever worked on any research project (could even be prior to college) not intended for publication?**

Yes ☐   No ☐

a. **If yes, what aspects of the project (pick all that apply, including roles on multiple projects)?**

A research group member ☐

Code Data ☐

Clean data ☐

Transcribe ☐

Search the literature for articles related to project ☐

Enter data ☐

Other _____

b. **If yes, how long did you work on the project (round up to the nearest whole number)?**

_____ months

4. Have you ever needed to access published works regarding research and its results for a project?

Yes ☐   No ☐

    a. If yes, how did you search for the published research (pick all that apply, including roles on multiple projects)?

    Google ☐

    Google Scholar ☐

    University Search Engine (e.g. Monarch OneSearch) ☐

    Specific Database (e.g. PsychInfo) ☐

    Other _____

    b. If yes, how did you use the results you found (pick all that apply, including roles on multiple projects)?

    Topical Background information ☐

    Literature support for ideas ☐

    Literature review) ☐

    Support intervention in practicum or internship ☐

    Other _____

5. If you've read a published journal article, what parts did you read (pick all that apply, including roles on multiple projects)?

Abstract ☐

Literature Review ☐

Data Collection ☐

Data Analysis ☐

Results ☐

Discussion ☐

Conclusion ☐

Other _____

Appendix F

Pedagogical Observation Guide

	Frequency	Duration	Intensity
Mastery Experiences			
Students practicing a task			
Engage in material without penalty			
Incremental assignments			
Teach at students' level			
Participatory learning			
Vicarious Experiences			
Teacher describing mastery experience			
Watching peer have a mastery experience			
Verbal Persuasion			
Offering students positive feedback			
Verbal encouragers			
PowerPoints			
Physiological Responses			
Students autonomy appear supported			
Students appear to have a sense of belonging			
Students can speak about fear/concerns			
Examples of normalization			
Demystifying research			

Appendix G

IRB Letter for Study

IRBNet Board Document Published

Laura Chezan <no-reply@irbnet.org>

Fri 6/8, 6:53 PMSink, Chris;Snyder, Nicole C.

Please note that Old Dominion University Education Human Subjects Review Committee has published the following Board Document on IRBNet:

Project Title: [1231597-1] Increasing Research Self-Efficacy: An Experimental Approach
Principal Investigator: Christopher Sink, PhD

Submission Type: New Project
Date Submitted: April 17, 2018

Document Type: Exempt Letter
Document Description: Exempt Letter
Publish Date: June 8, 2018

Should you have any questions you may contact Laura Chezan at lchezan@odu.edu.

Thank you,
The IRBNet Support Team

https://na01.safelinks.protection.outlook.com/?url=www.irbnet.org&data=01%7C01%7Cnsnyder%40odu.edu%7C8b8893f4945b4fde1b2708d5cd92aa46%7C48bf86e811a24b8a8cb368d8be2227f3%7C0&sdata=RQMR86tkTmClgIf1FVQV2hRVWIftuLSGHO%2B8DQRF89A%3D&reserved=0

VITA

EDUCATION

PhD, Education, Counseling Education and Supervision Concentration (CACREP accredited)
Old Dominion University Norfolk, VA (Sept 2016-present) 3.94 GPA

   Dissertation: *An Experimental Study of Research Self-Efficacy in Master's Students*

MS, Pastoral Counseling (CACREP accredited)
Loyola University Maryland Columbia, MD (May 2016) 3.94 GPA

BA, International Studies with Departmental Honors, *Focus:* **Power, Control and Gender**
University of Oregon Eugene, OR (June 2011) 4.0 GPA

   Honors Thesis: *Power and Control in the Lives of Female Victims and Perpetrators of Domestic Violence: An Imperial Investigation*

AA, Computer Science
Montgomery College Montgomery, MD (June 2000) 3.94 GPA

SCHOLARLY ACTIVITIES

PEER-REVIEWED ARTICLES

Meade, N. A. (in preparation) *Creative Learning Techniques of Erikson's Psychosocial Model to Improve Student Learning: A Case Study*

Meade, N. A. & Early, M. (in preparation) *Clients' Voices Regarding Barriers to Care: A Case Study at a Family Medical Clinic*

Tarver, S. & **Meade, N. A.** (in preparation) *Leaders in the Field of Human Services: Conversations with Instructors at CSHSE Institutions*

Meade, N. A., Tarver, S., Rehfuss, M. (under review). A snapshot of CSHSE accreditation: A content analysis. *Journal of Human Services*

Meade, N. A., Fox, J., & O'Grady, K. (under review). Providing Spaces for Research Formation: The Critical Need for Research Labs. *Research on Education and Psychology*

Sparkman-Key, N., & **Meade, N. A.** (under review). Advancing the field of Human Services: LGBT competencies. *Journal of Human Services*

Meade, N. A. & Sparkman-Key, N. (2018). An Exploratory Investigation of a Flipped Classroom Model in Human Services Education. *Journal of Human Services: Training, Research, and Practice, 4*(1), Article 3.

O'Grady, K. A., Stewart, C., Orton, J. D., Flythe, W. W., **Snyder, N.**, & Desius, J-P. (2018). Resilience in the wake of disasters: A two-wave qualitative study of survivors of the 2010 Haiti earthquake. *Journal of Psychology & Christianity, 37*(1), 43-56.

O'Grady, K. A., Orton, J. D., White K.W., & **Snyder, N.** (2016). A way forward for spirituality, resilience, and international social science. *Journal of Psychology and Theology, 44*(2)*,* 166-172.

PEER-REVIEWED PRESENTATIONS

Snyder, N. & Fox, J. (2018, Oct). *Improving Research Self-Efficacy: A Means of Cultivating Equality.* Fifty minute roundtable at SACES bi-yearly conference

Eaton, C. & **Snyder, N.** (2018, Sept). *Building Bridges Through Creative Interventions: Improving Social, Emotional and Educational Skills of At-Risk Children/Youth.* Fifty minute roundtable at ACC national conference

Snyder, N. C. & Fox, J. (2017, Oct). *Creative Strategies for Increasing Master's Student Research Self-Efficacy: Forging the Future.* Fifty minute roundtable at ACES national conference

O'Grady, K. A., Richardson, K., Christie, D., & **Snyder, N. C.** (2016, March). *Resilience Processes in the Context of Extreme Sexual Violence: Lessons Learned from Congolese Rape Survivors (improvisation).* Hundred and ten minute workshop at the Division 36 APA mid-year conference

White, K. W., **Snyder, N. C.**, O'Grady, K.A., & Orton, J.D. (2015, July). *The Center for Trauma Studies and Resilience Leadership: A New Way Forward in an Ever-Changing World.* Ninety minute workshop at the ASERVIC ACA 2015 Conference.

Rollison, D., Canner, C., & **Snyder, N. C.** (2015, July). *Haiti and Faith in Times of Trauma: Posttraumatic Growth, Meaning, and Spiritual Transformation after the 2010 Earthquake.* Ninety minute workshop at the ASERVIC ACA 2015 Conference.

Snyder, N. C. (2014, Nov). *Hearing Power: A New Framework for Domestic Violence.* Ninety minute workshop at the AAPC Atlantic regional conference.

Dillehay, A., Stewart, C., **Snyder, N. C.**, Dickerson, G., Flythe, W., & O'Grady, K.A. (2014, Nov). *A Posttraumatic Investigation of the 2010 Haiti Cosmology Episode: A Three Year Qualitative Follow-up Study.* Poster presented at the AAPC Atlantic regional conference

Dillehay, A., Stewart, C., **Snyder, N. C.**, Dickerson, G., Flythe, W., & O'Grady, K.A. (2014, Aug). *A Posttraumatic Investigation of the 2010 Haiti Cosmology Episode: A Three Year Qualitative Follow-up Study.* Poster presented at the Division 36 APA mid-year conference

Dillehay, A., Stewart, C., **Snyder, N. C.**, Dickerson, G., Flythe, W., & O'Grady, K.A. (2014, Apr). *A Posttraumatic Investigation of the 2010 Haiti Cosmology Episode: A Three Year*

Qualitative Follow-up Study. Poster presented at the Emerging Scholars Loyola University Maryland event.

Snyder, N. C. (2011) *Power and Control in the Lives of Female Victims and Perpetrators of Domestic Violence: An Imperial Investigation.* Sixty minute paper presentation at the University of Oregon's Undergraduate Symposium.

UNIVERSITY EXPERIENCE

Clinical Counseling Supervisor Old Dominion University Norfolk, VA (Spring 2017, Summer 2018, Fall 2018)
- Supervised three practicum master's students (Fall 2018)
- Supervised two practicum master's students (Summer 2018)
- Supervised three pre-practicum master's students (Spring 2017)

Co-Instructor Old Dominion University Norfolk, VA
- Counseling class *Advanced Counseling Research Design and Assessment* (Spring 2019)
- Counseling class *Development Through the Lifespan* (Fall 2018)
- Counseling class *Diagnosis and Treatment Planning in Mental Health* (Fall 2018)

Teaching Assistant Old Dominion University Norfolk, VA (Fall 2016-present)
- Taught on-campus Human Services class *Interpersonal Communication* (Spring 2019)
- Co-taught on-line Human Service class *Career Development and Appraisal* (Spring 2019)
- Taught on-campus Human Services class *Interpersonal Communication* (Fall 2018)
  - Revamped class to increase students' capacity to improve their writing skills along with opportunities to practice interpersonal skills, reflect on their interpersonal skill sets, and critically consider how interpersonal communication relates to diversity issues
- Co-taught on-line Human Service class *Career Development and Appraisal* (Fall 2018)
  - Co-taught on-line Human Service class *Intervention and Advocacy with Children* (Summer 2018)
  - Taught on-campus class *Human Services Methods* (Spring 2018)
    - Revamped class to increase students' capacity to improve their writing skills and opportunities to engage with human services methods practically during class time
  - Taught on-campus class *Introduction to Human Services* (Fall 2017)
    - Revamped class to increase students' capacity to increase their writing skills and opportunities to engage with key basic skills in a practical manner during class time
  - Co-taught on-line class *Introduction to Human Services* (Summer 2017)
  - Taught on-campus Human Service class *Intervention and Advocacy with Children* (Spring 2017)
    - Revamped class to be taught in a flipped classroom model style in order to increase students' practicing time with different interventions described in the textbook
  - Taught on-line Human Service class *Career Development and Appraisal* (Spring 2017)

- Co-taught on-line Human Service class *Career Development and Appraisal* (Spring 2017)
- Co-taught on-campus Human Service class *Program Development and Implementation* (Fall 2016)
- Co-taught two on-line Human Service classes *Career Development and Appraisal* (Fall 2016)

Research Assistant Old Dominion University Norfolk, VA (Fall 2016-present)
- To Dr. Rehfuss, Program Director, Human Services (Distance Learning) (Fall 2018-present)
  - o Edited 12 chapters for an upcoming book
  - o Completed a course evaluation measuring if objectives are being met and congruent with planned levels of Bloom's Taxonomy
  - o Evaluated an online course for strategies in order to improve students' writing skills
  - o Created evaluation form of upcoming candidates for three departmental positions
  - o Completed a course award nomination application

- To Dr. Tarver (Summer 2018)
  - o Generated literature review of content analysis publications and CSHSE
  - o Collected data for content analysis
  - o Performed data analysis
  - o Collected supportive evidence for IRB application for second project

- To Dr. Sparkman-Key, Program Director, Human Services Program (Summer 2017-Spring 2018)
  - o Generated literature review on auto-ethnography
  - o Assisted in preparation for Study Abroad trip to Jamaica
  - o Edited articles ready for submission to journals
  - o Created three IRB applications
  - o Assisted in writing NIH 2018 Opportunity Grant: Understanding the Generational Impact of Drugs and Alcohol When It's Culturally Acceptable: Teen Maternal Health and Their Families in Jamaica
  - o Assisted in writing NSF 2017 ATE Grant: Entrepreneurship Based Peer Support Network for Improvement of Transfer Students Retention and Success in Engineering Technology
- To Dr. Dustin (Fall 2016-Spring 2017)
  - o Managed student complaints
  - o Sent out correspondences requesting changes to the online platform for different courses

Graduate Assistant Loyola University Maryland Columbia, MD (Fall 2014-Fall 2015)
- To Dr. Kari O'Grady, Director of Center for Trauma Studies and Resilience Leadership
  - o Coordinated research lab: Faith in Times of Trauma
  - o Maintained the Faith in Times of Trauma SharePoint site
  - o Suggested and then implemented a new model of how to run the research lab

     o   Participated actively with conceptualization and implementation of a new departmental center: Center for Trauma Studies and Resilience Leadership (CTSRL)

Team Member of Faith in Times of Trauma Research Group Loyola University Maryland Columbia, MD (Fall 2013-Spring 2014)
- Analyzed data
- Engaged in discussion about members' biases
- Discussed themes uncovered to generate inter-coder reliability
- Contributed and refined model developed during the grounded theory process

CLINICAL EXPERIENCE

Counseling Intern Eastern Virginia Medical Services, Family Medical Center Norfolk, VA (Jan 2018-Dec 2018)
- Conduct therapy with low-income clients ranging from 19 to 80 years old with a wide range of mental health needs
- Support doctoral and nursing staff with patients who demonstrate mental health needs
- Maintain all records necessary for the client's medical record
- Offer brief training for nursing staff regarding handling clients manifesting suicidal idealizations

Counseling Intern Maryland Health Alliance Greenbelt, MD (Sept 2015-May 2016)
- Conduct therapy with low-income clients ranging from 5 years old to 64 years old with a wide range of mental health needs
- Build solid working relationships with other members of the integrative team, which include Social Workers, a Psychiatrist, and other Counselors
- Maintain all records necessary for submitting insurance payment requests

Counseling Intern St. Agnes Hospital Baltimore, MD (Sept 2014-May 2015)
- Conduct therapy with low-income clients with heart concerns from 35 to 70 years old with a wide range of mental health needs
- Work alongside medical staff in the Congestive Heart Failure Clinic (CHF)
- Educate CHF staff on roles and skills of a counseling intern
- Train CHF staff on a counseling technique for them to use with especially challenging patients
- Both recruited clients and had clients referred from CHF, Heart rehab, and Pastoral Care

Navigator The Gateway Center for Domestic Violence Portland, OR (Sept 2011 – Feb 2012)
- Within a short time frame create a sense of trust and value in my role
- Assist an average of 5-8 drop-in clients in a 20 hour week with a variety of needs
- Create a plan with clients to give them the best possibility of successfully achieving their desired goals using whatever community resources best fits their next step

Co-Facilitator Womenspace Eugene, OR (2010-2011)
- Create a safe place for survivors to share their stories and begin the healing process

- Give one-on-one support when a survivor is in crises or overwhelmed by day's material
- Co-create monthly themes and lead group in looking at those themes

Co-Facilitator Christians As Family Advocates (CAFA) Eugene, OR (2009 – 2011)
- Lead a non-denomination faith-based support group for women who are in or were a part of a domestic violent relationship
- Plan and on occasion design educational pieces for the group
- Ensure group was a safe space for all parties to share and be heard

Family Advocate Limerick Social Services Limerick County, Ireland (2006 – 2008)
- Case manage at-risk families in their homes in the first year of a new birth
- Triage with other agencies to bring to the family the resources they needed to be successful

SERVICE

- *Interim Executive Administrator,* Native-American Concerns Group, a division of the Association for Multicultural Counseling and Development (Fall 2018-present)
- *Member,* Native-American Concerns Group, a division of the Association for Multicultural Counseling and Development (Spring 2018-present)
- *Panelist*, Old Dominion University Doctoral Interviewee Panel
- *Reviewer,* A Primer on Celtic Spirituality with Recommendations for Counseling Practice (under review)
- *Data Reviewer,* E-Portfolio: Advancing Human Services Education through Technology (under review)
- *Mentor,* First-year doctoral student (Fall 2017-present)
- *Data Reviewer,* Study Abroad Case Study (Fall 2017-Spring 2018)
- *Chair,* Pastoral Counseling Loyola University Maryland Alumni and Friends Committee (2017-present)
- *Case Consultant,* Practitioners with complex cases (2016-present)
- *Reviewer,* Dictionary of Counseling & Human Services by E. Neukrug, M. Kalkbrenner, and K. Snow (Fall 2016)

COMMUNITY EXPERIENCE
The Co-Op Family Center Eugene, OR (2009-2011)
  Co-Chair, Board of Directors, Elected (Sept 2010 – July 20*11)*
  Staff Liaison (April 2010 – July 2011)
  Chair, Personnel Committee (April 2010 – July 2011)
  Chair, Open House Committee (Aug 2009 – July 2011)

HONORS and AWARDS

Graduate Teaching Assistantship, Sept 2016-present
 $20,500 per academic year plus full tuition waiver

MD Senatorial Scholarship, Sept 2015-2016
$1,332 award given to Maryland residents pursuing a graduate degree based on academic performance and financial need

Pastoral Counseling Grant Recipient, Sept 2014-May 2015 & Sept 2015-May 2016
$3,300 award given by the Pastoral Counseling department at Loyola University Maryland based on academic performance and financial need for pastoral counseling students

Ford Family Foundation Opportunity Scholarship Recipient Graduate Program, Sept 2013-May 2015
$15,000 per year award up to two years given those funded by the Ford Family Foundation's undergraduate program based on academic performance and financial need

Ford Family Foundation Opportunity Scholarship, Sept 2009-June 2011
90% of unmet need including all living expenses and childcare costs awarded to single mothers pursuing continuing education based on academic performance and financial need

Osher Reentry Scholarship, Sept 2009-June 2011
$2,000 per year award for students who took more than five years off between starting an undergraduate degree and returning to finish it, must reapply each year

Edmunson/Davis Memorial Scholarship, Sept 2009-June 2011
$2,000 per year award for undergraduate women who have demonstrated potential leadership, superior scholastic abilities, and who are in need of financial aid, must reapply each year

Gherty-Moore Scholarship Fund, Sept 2010-June 2011
$2,000 award for nontraditional student parent who serves as primary support and care giver to his or her children and faces financial need, economic hardship and/or other obstacles to attendance at and graduating from the university

Dean's List, University of Oregon, Fall 2009 and Winter 2010
A student who completes at least 15 credits for the term with a grade point average of at least 3.75

CERTIFICATION

Preparing Future Faculty (Spring 2019)
Foundational Strategies for Effective Online Teaching (Fall 2018)
Nationally Certified Counselor (NCC) – 2016 to present

MEMBERSHIPS

ACC, Division of ACA, Student Member (2018-present)
AMCD, Division of ACA, Student Member (2018-present)
ACES, Division of ACA, Student Member (2016-present)
AARC, Division of ACA, Student Member (2016-2018)
American Counseling Association, Student Member (2014-present)
Chi Sigma Iota Honor Society (Inducted Fall 2014)
Phi Beta Kappa (Inducted Spring 2011)
Golden Key Honor Society (Inducted Fall 2010)