THE EFFECTS OF CASE CONCEPTUALIZATION TRAINING AND DELIBERATE PRACTICE COACHING ON COUNSELOR COMPETENCE

by

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This dissertation was prepared under the direction of the candidate's dissertation advisor, Dr. Len T. Sperry, Department of Counselor Education and has been approved by all members of the supervisory committee. It was submitted to the faculty of the College of Education and was accepted in partial fulfillment of the requirements for the degree of Doctor of Philosophy.

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ABSTRACT

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The primary purpose of this longitudinal, quasi-experimental study was to investigate the effects of a bipartite, standardized case conceptualization training among participants in comparison to those who were exposed to both the training and deliberate practice coaching. The secondary purpose of this study was to examine the relationship of the training and aspects of deliberate practice, along with participants' attitudes toward evidence-based practice (EBP). A total of 84 counselor trainees were recruited from two South Florida universities. Participants in both the experimental group (n = 35) and comparison group (n = 49) received two, three-hour training lectures, which explained the integrative case conceptualization model developed by Dr. Len Sperry in 1989. Over a period of eight weeks, the lectures were separated by approximately four weeks in order to assess whether the training effects persist over time.

As measured by the Views About Case Conceptualization (VACC) instrument, the first training lecture effectively reduced case conceptualization myths for both groups

by approximately 4 points (out of 25), t (83) = -8.53, $p < .001$. Repeated measures MANOVA showed that the training had a significant impact on the entire sample. As measured by the Case Conceptualization Evaluation Form (CCEF) 2.0, the comparison group's overall mean score improvement was approximately 40 points (out of 100) and the experimental group's overall mean score improvement was approximately 63 points (out of 100), F (4.256, 348.974) = 32.102, $p < .001$. The results reveal that the training and coaching had a significant effect on counselor trainees' ability to write effective case conceptualizations with a partial eta-squared effect size of .281.

Using both the Evidence-Based Practice Attitude Scale (EBPAS) and Moulaert Questionnaire, this study also examined the influence of attitudes toward EBP and aspects of deliberate practice on trainees' case conceptualization competence. Paired samples t-tests and correlation analysis revealed that participants became more "open" to EBP, t (83) = -5.280, $p < .001$. However, it was determined that coaching did not act as a mediating or moderating variable. Overall, the findings support that case conceptualization training and deliberate practice coaching increase counselor competence, and that the effects persist over time.

DEDICATION

I dedicate this dissertation to the three most important and influential people in my life, my parents, Dr. Alfred and Cheryl Lipp, and my older brother, Peter Lipp. As we have embarked on this adventure together, this accomplishment would not have been possible without your unconditional love and support. Your perpetual belief and confidence in my convictions leaves me eternally grateful.

Pete, from as far back as I can remember, you have always been the stalwart of our family and my staunchest advocate. Your wisdom and experience have helped pave the way for me, acting like a compass during some of life's most challenging moments. You are a man of tremendous grace and intellect, who I have always admired and respected with love. I am truly fortunate to have been blessed with such a loyal and loving brother like you.

Mom and Dad, you are both models of faith, service, and humility, who have a cosmic zest for life. While instilling in me the values of honesty, integrity, hard work, and perseverance, you have always taught me that "there is no excellence without labor." A direct reflection of the opportunities you have so selflessly bestowed upon me, this final product represents my infinite love, respect, and appreciation for you both. To the moon and back!

THE EFFECTS OF CASE CONCEPTUALIZATION TRAINING AND DELIBERATE PRACTICE COACHING ON COUNSELOR COMPETENCE

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I. INTRODUCTION

"Life begins at the end of your comfort zone" (Walsch, 1999), and case conceptualization mastery begins with deliberate practice. Known as the "heart of evidence-based practice" (Bieling & Kuyken, 2003, p. 53), case conceptualization is a method and "clinical strategy for obtaining and organizing information about a client, understanding and explaining the client's situation and maladaptive patterns, guiding and focusing treatment, anticipating challenges and roadblocks, and preparing for successful termination" (Sperry, 2010b, p. 110). In fact, research shows that case conceptualizations are clinically useful, represent evidence-based practice (EBP), and positively influence treatment outcomes (Sperry & Sperry, 2012, p. 27).

A major function of case conceptualization involves the obtainment and organization of all pertinent client information. Sperry and Sperry (2012) state, "the case conceptualization process begins with the first client contact and formulating tentative hypotheses about the client's presentation, expectations, and dynamics" (p. 4). The American Psychological Association Presidential Task Force on Evidence-Based Practice (2006) specifically endorses this key clinical skill in their report:

> The clinically expert psychologist is able to formulate clear and theoretically coherent case conceptualizations, assess patient pathology as well as clinically relevant strengths, understand complex patient presentations, and make accurate diagnostic judgments. Expert clinicians revise their case conceptualizations as

> treatment proceeds and seek both confirming and disconfirming evidence (p. 276).

Through deliberate practice, counselors may be able to develop the knowledge structures and representations that experts possess (Eells et al., 2011). Essentially, case conceptualizations are the map that guides treatment with any client, and therefore, are vital to one's academic and professional development.

Previous investigators have shown that the ability to conceptualize clients' cases directly influences proper diagnosis and the development of appropriate treatment plans (Eells, 2015; MacKinnon & Yudofsky, 1991; McDougall & Reade, 1993; Persons, 1989; Toews, 1993). Furthermore, recent developments in legislation regarding healthcare reform are demanding more accountability; especially, for the critical services provided by mental health counselors. Therefore, case conceptualization competency is not only an emerging trend, but a critical skill and expertise for mental health providers. It is a fact that such accountability demands clinical outcomes and it has been shown that case conceptualizations have a direct impact on such outcomes.

In regards to counselor education and supervision (CES), The Council for Accreditation of Counseling and Related Educational Programs (CACREP) provides specific standards for graduate programs to follow. The 2016 standards serve "to promote a unified counseling profession…ensure that students graduate with a strong professional counselor identity and…that graduates demonstrate both knowledge and skill across the curriculum as well as professional dispositions" (Council for Accreditation of Counseling and Related Educational Programs [CACREP], 2015, p. 3). Fundamentally, the goal of all counselor education programs is to therefore, foster and produce competent counselors

who are able to integrate theory into practice. Counseling students' capacity to do so is necessary for effective counseling practice (Sperry, 2005b). Unfortunately, this goal is largely being ignored in many training programs and facilitating this learning does not appear to be a priority among faculty (Sperry, 2005b).

Many authors indicate that counselor education has not integrated research about counseling effectiveness into their curricula (Sexton, 2000), and that current training methods may be insufficient (Whiston & Coker, 2000). Therefore, "what is needed is a structured means of learning essential clinical competencies during the didactic phase of training and during the clinical phase of training" (Sperry, 2010b, pp. 6-7). However, little is still known about the causal relationship between counselor trainees' professional development and case conceptualization competency. Therefore, from a training perspective, it would be helpful to know what best assists in the acquisition of such a fundamental skill.

There are a number of reasons for developing and being able to articulate this skill. The most cogent reason is that a conceptualization enables therapists to experience a sense of confidence in their work (Hill, 2005). The idea is that this confidence, is then communicated to the client, which strengthens the client's trust and belief in the practitioner, and that therapy can and will make a difference (Hill, 2005). Prior researchers indicate that such feelings have a direct impact on the therapeutic alliance. Furthermore, the therapeutic relationship remains the single most important variable in psychotherapy outcome research (Sperry & Carlson, 2014, p. 2). Therefore, one could hypothesize that case conceptualization skills have a direct effect on the therapeutic

alliance, and theoretically, these two constructs should have a significant influence on treatment outcomes in all areas of counseling.

In relating the two variables of case conceptualization and the therapeutic alliance, Sperry and Carlson (2014) outline, "Six core psychotherapy (counseling) competencies." Of the six competencies, three are in direct correlation with case conceptualization skills and the therapeutic alliance. According to Sperry and Carlson (2014), these include (a) articulating a conceptual framework for psychotherapy practice, (b) fostering and maintaining an effective therapeutic alliance, and (c) developing an integrative case conceptualization and treatment plan based on an integrative assessment (p. 4). Therefore, in terms of counselor competence, both case conceptualization skills and the therapeutic alliance are not only significant, but more importantly, necessary factors.

Provision of effective treatment and promotion of positive outcomes begins with the development of a trainees' ability to comprehend the client's (a) problems, (b) personality dynamics, (c) precipitants, (d) perpetuants, and (e) predisposing factors. Ultimately, this is the hallmark of all experienced and expert counselors. In order for counselor trainees to begin developing such competence, graduate training programs must provide a formal and systematic process by which trainees can apply their knowledge to understand a specific case (Sperry & Sperry, 2012). Accordingly, "Students who are preparing to specialize as clinical mental health counselors will demonstrate the knowledge and skills necessary to address a wide variety of circumstances within the context of clinical mental health counseling" (CACREP, 2015, p. 23 section 5C).

Although experience is a necessary component of case conceptualization expertise and competence, experience alone is not sufficient enough. For such achievement, counselors need both experience and practice—deliberate practice. Structured learning, better known as "deliberate practice," is imperative to the development of expertise (Ericsson, 1996). In fact, the evidence suggests that "more structured teaching, including structured supervision, produces more effective learning than less structured approaches" (Binder, 2004, p. 264). However, as Sperry (2010b) states, "there is a dearth of such structured learning approaches and formats" (p.7) currently being conducted in counselor education.

Case conceptualization mastery and expertise "does not occur by chance, instead it requires having an intentional plan and strategy for increasing this essential competency" (Sperry & Sperry, 2012, p. 19). The current literature indicates that deliberate practice is the main and only demonstrated factor that leads to the development of highly effective psychotherapists (Chow et al., 2015; Love, Davis, & Callahan, 2016). For teaching and supervision purposes, Sperry and Sperry (2012) offer a six-step evidence-based strategy that suggests the following: (1) know the requisites for performing high level case conceptualizations; (2) dispel myths that undermine the value of case conceptualizations; (3) engage in deliberate practice in learning this competency; (4) seek feedback on your case conceptualizations; (5) study and review various case conceptualizations, particularly exemplars; (6) learn an integrative method of case conceptualization and practice it often (pp. 20-21). Vital to this strategy is the application of deliberate practice, along with the incorporation of timely and accurate feedback (i.e., formative feedback).

Deliberate practice, which is essential to case conceptualization learning and expertise (Caspar, Berger, & Hautle, 2004), involves repetition of a specific element or case conceptualization factor until it is mastered (Sperry & Sperry, 2012, p. 20). "Ideally, deliberate practice will be incorporated in graduate training programs as a learning strategy, along with systematic learning and coaching by instructors and supervisors who have sufficient expertise in constructing, implementing, and evaluating case conceptualizations" (Sperry & Sperry, 2012, p. 20).

Additionally, the provision of formative feedback to trainees is equally important in the development of this competency. According to Sperry and Sperry (2012), "Trainees need feedback that is intense and systematic, particularly when it is combined with practice, in constructing, improving, and elaborating case conceptualizations" (pp. 20-21). Formative and goal-directed feedback, which has been shown to improve motivation and learning (Shute, 2008) is such a method. Unfortunately, this crucial aspect of the process is often lacking. Therefore, Caspar and colleagues (2004) declare that this type of feedback needs to be intentionally incorporated into counseling training programs that are committed to this core competency. If case conceptualization is "the heart of evidence-based practice" (Bieling & Kuyken, 2003, p. 53) and pattern is the heart of an evidence-based case conceptualization, then deliberate practice is the evidence-based training method for achieving this skill set.

Statement of the Problem

Researchers indicate that counselors are not receiving appropriate training in developing case conceptualizations (Eells, 2007; Binder, 1993; Fleming & Patterson, 1993; Misch, 2000; Ross, Leichner, Matas, & Anderson, 1990; Sperry, Gudeman,

Blackwell, & Faulkner, 1992; Toews, 1993). Others have even described case conceptualization as a "poorly defined skill" that counselors are not taught regularly (Perry, Cooper, & Michels, 1987). Moreover, the literature points to the fact that counselors lack the understanding of what case conceptualization is, and therefore, do not appreciate, nor practice this core competency.

Contributing to these factors, are a number of case conceptualization "myths." Sperry and Sperry (2012) outline five of these myths, all of which lead to infrequent and inadequate case conceptualization use. One such misconception is that a case conceptualization is nothing more than a summary of client data (Sperry & Sperry, 2012). However, case conceptualization is far more than just a case summary, requiring both abstraction and inferential thinking (Sperry & Sperry, 2012). In order to adequately assess and understand clients, a counselor must consolidate and integrate various pieces of information about causal, precipitating, and perpetuating factors of a problem (Kendjelic, 1998). This can be quite challenging for trainees who have not been properly trained in case conceptualization development.

A second misunderstanding is that case conceptualizations are not clinically useful and do not enhance treatment (Sperry & Sperry, 2012). However, the fact remains that case conceptualizations do lead to better outcomes and increase counselor competence. Counselor trainees who develop this skill, advance their proficiency in one of the most important core clinical competencies necessary for effective therapy (Falvey, 2001). Ultimately, training students in the integration of theory and practice (i.e., case conceptualization), leads to increased competence and positive outcomes.

The third myth is that case conceptualizations are too time consuming and difficult to learn (Sperry & Sperry, 2012). Although mastering this skill takes time and practice, learning how to formulate case conceptualizations can take as little as a few hours in a structured training environment (Sperry & Sperry, 2012). Furthermore, counselor trainees can specifically develop these formulation skills through didactic instruction, supervision, and continued practice (Sperry, 2005b). However, "If training programs fail to provide opportunities for learning to conceptualize cases, and if faculty do not teach and model effective case conceptualization, trainees are less likely to develop effective treatment plans and interventions" (Sperry, 2005b, p. 73).

The fourth myth about case conceptualization is that there is only one type and it can be universally applied (Sperry & Sperry, 2012). In fact, there are three different types of case conceptualizations, all of which have unique applications. Sperry and Sperry (2012) identify these as (1) *provisional*, created during the initial evaluation and updated as needed thereafter; (2) *brief*, which includes fewer elements and is typically used with higher functioning clients presenting with specific problems; (3) *full-scale*, which includes most or all of the case conceptualization elements and is indicated with low-functioning clients who experience multiple problems.

The final myth is that all case conceptualization methods are equal (Sperry & Sperry, 2012). However, similar to the three different types, there are in fact, three distinct methods for case conceptualization development. These include the (1) structured case conceptualization methods, (2) non-standardized methods, and (3) integrative method (Sperry & Sperry, 2012). The Sperry (2010b) integrative method of case conceptualization will be presented in this research study and further discussed.

Apparent in the literature, there is clear evidence that these myths do exist and that clinicians are resistant to using case conceptualizations. In surveying 313 psychologists, Groenier, Pieters, Hulshof, Wilhelm, and Witteman (2008) found that "explanation analysis" (i.e., case conceptualization) was reported as being the least necessary and least likely performed diagnostic activity. In a study examining the quality of case conceptualizations in resident psychiatrists' portfolios, McClain, O'Sullivan, and Clardy (2004) concluded that the skill was not widely used, nor competently practiced. In their analysis of 150 assessment letters for new referrals to a psychiatric care clinic, Abbas, Premkumar, Goodarzi, and Walton (2013) found that 94% of them did not include a case conceptualization. Eells, Kendjelic, and Lucas (1998) revealed similar results in their examination of 56 random intake evaluations at an outpatient psychiatric clinic. Despite its inherent value, all of these findings signal to the fact that case conceptualization is unfortunately, not a common practice.

Similarly, many counselors are equally averse to EBPs. Researchers have comprehensively documented this counselor resistance, including counterarguments, demographics, and organizational contexts (Aarons, 2004; Gibbs & Gambrill, 2002; Lilienfeld, Ritschel, Lynn, Cautin, & Latzman, 2013). In one study investigating EBP resistance, Lilienfeld and colleagues (2013) summarized the origin of the following six sources:

1. *realism* (i.e., the belief that the world is exactly as we perceive it);
2. *myths and misconceptions about human nature* (i.e., the primacy of early childhood experiences and the nature of memory);

3. *application of group probabilities to individuals* (i.e., mistakenly believing that one cannot apply principles gained in a study of groups to individuals);
4. *reversal of the onus of proof* (i.e., placing the burden of finding evidence on skeptics, and not the proponents of new psychotherapeutic practices);
5. *what EBP is and isn't* (i.e., mistakenly believing that it stifles innovation and demands a one-size-fits-all approach to clients);
6. *pragmatic, educational, and attitudinal obstacles* (i.e., time needed to train, difficulty in understanding complex statistical concepts, and suspicion or outright hostility toward academia).

As expected, many of these erroneous beliefs parallel with counselors' misconceptions about the EBP of case conceptualization. Correspondingly, educators and supervisors who promote the use of EBPs, equally will advocate for the practice of case conceptualizations. As a result, counselors will (a) continue to value research, (b) see themselves as a scientist-practitioners, (c) maintain positive attitudes about EBP, and (d) engage in intentional and deliberate practice to gradually increase their competence in case conceptualization.

Comparable to experienced counselors and practicing clinicians, programs in CES seem to dismiss the importance of case conceptualization. Thus, leaving many novice counselors mystified about the rationale or efficacy of this practice and capable of only formulating artless summaries of client data (Kendjelic & Eells, 2007). To further elaborate, a survey of 57 psychiatry training supervisors in the United States, Canada, United Kingdom, and Ireland conducted by Ben-Aron and McCormick (1980) found that 60% of the responses indicate that case conceptualization is not sufficiently taught during

training. In a later survey, Fleming and Patterson (1993) revealed that 69% of psychiatry residents did not receive any guidelines in case conceptualization during their training. All of this evidence points to the fact that counselors are ill-equipped in formulating evidence-based case conceptualizations that lead to positive treatment outcomes. Unfortunately, this deficiency in counselor education and training not only leads to incompetent counseling, but also a vulnerable and at-risk consumer market.

Ultimately, this difficulty lies in the required endeavor to adequately learn case conceptualization. Previous researchers clearly indicate the benefits of case conceptualization training (Abbas, Walton, Johnston, & Chikoore, 2012; Betan & Binder, 2010; Eells, Lombart, Kendjelic, Turner, & Lucas, 2005; Eells et al., 2011; Kendjelic & Eells, 2007; Ladd, 2015; Smith Kelsey, 2014; Stoupas, 2016). However, there is no consensus on the best method for teaching this core competency. Furthermore, no prior study has applied a complementary condition or supplementary intervention toward case conceptualization training. According to Sperry and Sperry (2012), "Learning and mastering the case conceptualization competency does not occur by chance, instead it requires having an intentional plan and strategy for increasing this essential competency" (p.19). Primarily, this means the deliberate practice of case conceptualization. This process includes the setting of "stretch" goals just beyond the current performance level of a trainee. These goals must be based on repetition of incremental difficulty for a particular element (e.g., precipitant, pattern, movement, etc.) until eminent performance is achieved.

Vital to such acquisition is the incorporation of "formative" feedback, which is consistent and goal-directed responses toward explicit case conceptualization elements.

According to Shute (2008), formative feedback is information communicated to the learner that is intended to modify their thinking or behavior, for the purposes of learning improvement (p. 154). Under the guidance of an instructor or supervisor, this form of feedback can be thought of as a performance review that is specific, supportive, and prudent. Both parties (instructor and trainee), must be fully engaged in, and committed to the process. For example, Bartholomew, Joe, Rowan-Szal, and Simpson (2007) found that good training experiences lead to trial adoption periods and increased interest in learning more about EBP. Since case conceptualization is "the heart of evidence-based practice" (Bieling & Kuyken, 2003, p. 53), proper training of EBP must be addressed if counselor trainees are to learn this core competency.

To become a competent counselor, trainees need to develop the capability to properly and successfully apply the knowledge, skills, and attitudes required to execute a broad range of therapeutic and clinical responsibilities (Sperry, 2010b), which includes case conceptualization. Deliberate practice is an essential method in learning and achieving the competency of case conceptualization (Caspar et al., 2004). Developing such competence requires training, planning, and repeated practice (Sperry, 2010a). Furthermore, providing timely and accurate feedback to trainees on an ongoing basis is essential in improving case conceptualization competency (Sperry & Sperry, 2012, p. 20). Therefore, mental health training programs that are fully committed to this competency must intentionally incorporate such feedback (Caspar et al., 2004). However, as stated previously, many graduate counseling training programs are failing in this area. Ultimately, due to the inadequate training and development of counselors, it is the clients who unfortunately, suffer the consequences. Therefore, competent training of counselors

in case conceptualization is not only of profound importance in counselor education, but to the counseling profession, as a whole.

Purpose of the Study

The purpose of this study is to measure the effects of deliberate practice coaching and a two-part, standardized training designed to improve counselor competence in writing case conceptualizations. A secondary purpose is to examine the relationships between counselor trainee demographic variables, their attitudes toward EBP, and their competence in writing case conceptualizations.

Research Questions and Hypotheses

This study is designed to address the following research questions:

- Research Question 1: Do participants coached in deliberate practice develop better written case conceptualizations than participants with no formal coaching?
    - Null Hypothesis 1 (Ho_1): Participants coached in deliberate practice will not develop better written case conceptualizations than participants with no formal coaching.
- Research Question 2: What is the effect of deliberate practice coaching on participants' competence in writing case conceptualizations?
    - Null Hypothesis 2 (Ho_2): There will be no effect of deliberate practice coaching on participants' competence in writing case conceptualizations.
- Research Question 3: Does a three-hour, initial training lecture increase counselor trainee competence in developing a case conceptualization?

    - Null Hypothesis 3 (Ho_3): A three-hour, initial training lecture will not increase counselor trainee competence in developing a case conceptualization.
- Research Question 4: Does a three-hour, initial training lecture reduce counselor trainee myths about case conceptualizations?
    - Null Hypothesis 4 (Ho_4): A three-hour, initial training lecture will not reduce counselor trainee myths about case conceptualizations.
- Research Question 5: Does a three-hour, follow-up training lecture increase counselor trainee competence?
    - Null Hypothesis 5 (Ho_5): A three-hour, follow-up training lecture will not increase counselor trainee competence.
- Research Question 6: Do the effects of case conceptualization training persist over time?
    - Null Hypothesis 6 (Ho_6): The effects of case conceptualization training will not persist over time.
- Research Question 7: What variables of attitudes toward evidence-based practice (appeal, requirement, openness, divergence) influence whether the effects of case conceptualization training persist over time?
    - Null Hypothesis 7 (Ho_7): These variables will have no influence on whether the effects of case conceptualization training persist over time.
- Research Question 8: What variables (aspects) of deliberate practice (planning, concentration/dedication, repetition/revision or review/evaluate, study style/self-

reflection) influence whether the effects of case conceptualization training persist over time?

- Null Hypothesis 8 (Ho_8): These variables (aspects) will have no influence on whether the effects of case conceptualization training persist over time.

Definitions

1. **Case conceptualization** refers to a "method or clinical strategy for obtaining and organizing information about a client, understanding and explaining the client's situation and maladaptive patterns, guiding and focusing treatment, anticipating challenges and roadblocks, and preparing for successful termination" (Sperry, 2010b, p. 110).
2. **Clinical formulation** refers to the explanation of the client's symptoms, concerns, level of functioning, and maladaptive relational problem (Sperry, 2010b).
3. **Competence** is the consistent and prudent use of knowledge, skills, clinical reasoning, emotions, values and reflection in clinical practice (Sperry, 2010b). Competence refers to an individual's capacity to assess and revise decisions through reflective practice (Kaslow, 2004).
4. **Competency** refers to knowledge, skills, attitudes, and their integration (Sperry, 2010b). Competence refers to the capacity to evaluate and modify one's decisions through reflective practice (Kaslow, 2004). Competency is similar, but different from competence (Sperry, 2010b).
5. **Counselor** refers to a licensed mental health professional responsible for providing treatment services to clients. These services include assessment,

psychotherapy, and treatment planning. Licensed, practicing titles include a licensed professional counselor (LPC) or licensed mental health counselor (LMHC).

6. **Counselor competence** is the consistent and judicious use of knowledge, skills, clinical reasoning, emotions, values, and reflection in clinical practice by counseling personnel (Sperry, 2010b).
7. **Counselor trainee** is an individual enrolled in a master's-level, graduate counseling program for the purpose of becoming a licensed mental health counselor (LMHC), licensed professional counselor (LPC), or similar mental health counseling professional.
8. **Cultural formulation** refers to the systematic review of cultural factors and dynamics (Sperry, 2010b).
9. **Deliberate practice** is a highly structured activity especially designed by a coach or teacher with an explicit goal of improving one's performance through repetition and successive refinement… accompanied with feedback for improvement, specific tasks are invented to overcome weaknesses, and performance is carefully monitored (Ericsson, Krampe, & Tesch-Römer, 1993; Ericsson & Lehmann, 1996).
10. **Deliberate practice coaching** is a formal method of instruction, guided by the five components of deliberate practice, which includes self-assessment, skill repetition, formative feedback, stretch goals, and progress monitoring.

11. **Diagnostic formulation** refers to the descriptive appraisal of the client's presentation, precipitants, and reflects the client's pattern (Sperry & Sperry, 2012).
12. **Explanatory power** provides a compelling explanation for a client's presenting problem in a case conceptualization (Sperry & Sperry, 2012)
13. **Evidence-based practice (EBP)** is a "three-legged stool" comprised of the best available research evidence, clinical expertise, and client values and preferences (APA, 2006; Lilienfeld et al., 2013).
14. **Formative feedback** "is information communicated to the learner that is intended to modify their thinking or behavior in order to improve learning" (Shute, 2008, p. 154).
15. **Goal-directed feedback** "provides learners with information about their progress toward a desired goal (or set of goals) rather than providing feedback on discrete responses" (Shute, 2008, p. 161).
16. **Pattern** refers to the predictable and consistent style or manner in which a person thinks, feels, acts, copes, and defends oneself in both stressful and non-stressful circumstances" (Sperry, 1989, p. 503). It is "a succinct description of a client's characteristic way of perceiving, thinking, and responding. It links the client's presentation with the precipitant, and makes sense of the situation" (Sperry & Sperry, 2012, p. 34).
17. **Perpertuant** refers to a trigger that activates one's pattern resulting in presentation. Perpetuants are also called maintaining factors (Sperry & Sperry, 2012).

18. **Precipitant** refers to a trigger that activates the pattern resulting in the presenting problem (Sperry & Sperry, 2012).
19. **Predictive power** provides anticipation of obstacles and facilitators to treatment success in a case conceptualization (Sperry & Sperry, 2012).
20. **Predisposing factor** refers to the factors that foster adaptive and maladaptive functioning (Sperry & Sperry, 2012).
21. **Presentation** refers to the presenting problem and the characteristic responses to the precipitants (Sperry & Sperry, 2012).
22. **Tailored treatment interventions** are those which meet the needs of the client, taking into consideration his or her unique circumstances.
23. **Treatment formulation** refers to an explicit blueprint for intervention planning (Sperry & Sperry, 2012).

Overview of Intervention

The study will include approximately 35 participants for the experimental group (deliberate practice coaching) and approximately 35 participants for the comparison group (no formal coaching), for a total of approximately 70 participants (N = approximately 70). Participants will be recruited from two South Florida universities (one large, public university and one small, private university). While the large public institution's counseling program is accredited by CACREP, the other program's curriculum is only CACREP "equivalent." Both groups (experimental and comparison) will receive two separate and standardized, three-hour case conceptualization training lectures. Only the experimental group will receive both the training and deliberate

practice coaching. Pre-tests and post-tests will be administered in both the experimental and comparison groups.

Study Design

The proposed study is of a longitudinal, quasi-experimental design. Guiding this research project is the theoretical framework of the integrative case conceptualization model. The concept at the core of this model is that of "pattern analysis" (Sperry, 2010b; Sperry & Sperry, 2012). Pattern is the predictable, consistent, and self-perpetuating manner in which people think, act, and feel (Sperry, 1989). Counseling can be seen as the process by which a counselor identifies a client's maladaptive pattern and helps the client replace it with a more adaptive pattern. Therefore, effective case conceptualizations synthesize client information and accurately identify a client's maladaptive pattern, while providing both direction and future predictions.

This research project is also based on the notion that case conceptualization can be taught using structured training interventions, and that the effects of these interventions can be empirically evaluated (Kendjelic & Eells, 2007; Abbas et al., 2012; Smith Kelsey, 2014; Ladd, 2015; Stoupas, 2016). Further guiding these principles is deliberate practice coaching, which will amplify the effects of the training. Also, of interest in the present study is that of participants' attitudes toward EBP. It is expected that such attitudes will influence participants' behavior and skill acquisition during the training intervention (i.e., case conceptualization learning).

The study itself will consist of two, three-hour training lectures separated by approximately four weeks. To ensure standardization, the lectures have been pre-recorded and will be played during the training with specific times for participant interaction. All

study participants will be counselor trainees enrolled in a master's counseling program located in South Florida. They will be recruited through communication with department coordinators and contacts. The total sample will consist of approximately 70 participants. An approximate total of 35 students will receive deliberate practice coaching (experimental group) and approximately 35 students will receive no formal coaching (comparison group). The participants in the comparison group will only receive the two training lectures, whereas the experimental participants will receive both of the lectures and the intervention of deliberate practice coaching.

The two training lectures are based on the integrative case conceptualization model developed by Dr. Len Sperry (Sperry, 1989; Sperry, 2010b) and expanded upon in Sperry and Sperry (2012). The first lecture presents elements of a brief case conceptualization, and includes components such as presentation, precipitant, predisposing factors, perpetuating factors, and appropriate treatment interventions. The second lecture presents elements of full-scale case conceptualizations, including culture, strengths and protective factors, and predictive ability. Administration of a second lecture will allow for longitudinal measurement of the initial lecture's effects.

During both lectures, all participants will be given the same case vignette and asked to write an original case conceptualization to establish their pre-training skill level. Participants will then complete the pre-test measures, which include the Moulaert Questionnaire (Moulaert, Verwijnen, Rikers, & Scherpbier, 2004; Duvivier et al., 2011), the Evidence-Based Practice Attitude Scale (EBPAS; Aarons, 2004), and the Views About Case Conceptualization (VACC; Sperry, 2012b) instrument. At the end of each lecture, participants will revisit the same vignette and write a new case conceptualization

using the concepts taught in the training. Following the first lecture, participants will also be asked to complete a Demographic Questionnaire.

In the second lecture, participants will be given a different case vignette and write another case conceptualization based on the case. At the end of the follow-up lecture, participants will again, complete the Moulaert Questionnaire (post-test). Following the completion of both lectures, independent raters will assess participants' case conceptualization skill levels using the Case Conceptualization Evaluation Form (CCEF) 2.0 developed by Sperry (2015). At the conclusion of the entire training (following the last deliberate practice coaching session) participants in the experimental group (deliberate practice coaching) will be administered the Moulaert Questionnaire one last time (post-post-test). Both training lectures include the following:

- information about case conceptualization
- exemplar case conceptualizations
- videos of real counseling sessions
- interactive activities

Variables

The effects of case conceptualization training will be analyzed using repeated measures multivariate analysis of variance (MANOVA) and paired samples *t*-tests to compare changes in mean CCEF 2.0 scores across the eight assessment points (four training lecture and four homework assignment case conceptualizations). Counselor trainees' views about case conceptualization will be analyzed with a paired samples *t*-test and frequency distribution. The relationships between participant demographic variables, instrument scores, and training effects will be analyzed using correlation analysis. The

influence of attitudes toward EBP and aspects of deliberate practice on training effects will be analyzed using paired samples *t*-tests, which will include an investigation into the possible mediating effects of (1) EBP attitudes and (2) deliberate practice coaching on counselor trainees' case conceptualization competence.

Dependent Variables

- Counselor trainee case conceptualization competence, as measured by the CCEF 2.0
- Counselor trainee views about case conceptualization, as measured by the VACC

Independent Variables

- Three-hour, standardized case conceptualization training lecture
- Three-hour, standardized follow-up training lecture, focusing on culturally-sensitive treatment, strengths, predictive factors, and predictions
- Three, individual deliberate practice coaching sessions
- Counselor trainee variables (gender, age, race/ethnicity, graduate school completion, grade point average [GPA], counseling experience, attitudes toward evidence-based practice, and aspects of deliberate practice)

Mediating Variables

- Attitudes toward evidence-based practice, as measured by the EBPAS
- Aspects of deliberate practice, as measured by the Moulaert Questionnaire

Limitations

This study was designed to address several of the issues and limitations of prior research; however, certain limitations still remain. One of these is utilizing a convenience sample (graduate students). These participants will not be randomized. Therefore, the

study is of a quasi-experimental design and not a "true" experiment. Additionally, the study will be implemented within the program's curriculum. Although all participants are voluntary and participation or abstention will not affect grades, some students may feel obligated to participate in the study. Therefore, ability to generalize the results may be limited.

Another potential limitation is the diversity of the sample. This will include differences in intelligence, motivation, and experience. All of which may confound the effects of the training. In regards to the two counseling programs being utilized, only one will be accredited by CACREP. Although the other program's curriculum is CACREP "equivalent," it must be noted that it is not officially CACREP-accredited. Furthermore, one university sample will be a small, private institution, while the other will be a large, public university. In order to moderate this limitation, an analysis of participant demographic variables will be conducted.

A final limitation of the present study is that the intervention of deliberate practice coaching will be conducted by the lead researcher. However, the investigator has no ulterior motives and measures will be taken to minimize bias. Furthermore, there is no guarantee that participants will utilize the case conceptualization model following participation (i.e., practicum, internship, and practice). While this does not alter the results of the study, it does potentially limit the benefits of this research strictly to CES.

Delimitations

Participants for this study are limited to counselor trainees. For the objectives of the study, this is defined as individuals enrolled in a master's-level, graduate counseling program for the purpose of becoming a licensed mental health counselor (LMHC),

licensed professional counselor (LPC), or similar mental health counseling professional. Participation is limited to counselor trainees who are enrolled in such a program from one of two South Florida universities. As mentioned, only one program from the university sample is CACREP-accredited. Furthermore, the case conceptualization training will only be offered to trainees who consent to participate in the study.

Summary

The training of competent counselors requires students to effectively collect, comprehend, and synthesize large amounts of client data in order to develop appropriate treatment interventions, while predicting potential obstacles. Prior studies have demonstrated that this competency can be taught in the context of focused training exercises; however, many students do not appear to fully understand this competency. Therefore, during practicum and internship, trainees either do not practice it, or do so inadequately.

The factors that influence case conceptualization competence may include counselor trainee variables such as counseling experience, attitudes toward EBP, and type of reasoning (inductive and deductive). An additional factor includes the potential "mediation" of deliberate practice coaching in the development of case conceptualization competence. This study adds to the existing literature by implementing the intervention of deliberate practice coaching. Furthermore, this study will be examining the effects of a standardized case conceptualization training, while exploring how (1) demographic variables, (2) attitudes toward EBP, and (3) aspects of deliberate practice with the passage of time influences these effects.

Organization of the Study

The format for this dissertation proposal is as follows:

- Chapter One introduced case conceptualization and deliberate practice, as well as existing problems, the limitations of prior research, and the purpose of this study.
- Chapter Two provides a detailed review of the literature relevant to this study, specifically research regarding deliberate practice, counselor education and training, case conceptualization, and evidence-based practice. According to Sperry and Sperry (2012), case conceptualization can be defined by the various theoretical models outlined, which includes the integrative model used in this study.
- Chapter Three presents the methods, procedures, instruments, and statistical analyses that will be used in this study.
- Chapter Four will present the results of the study, which will include specific details regarding statistical analyses and hypothesis testing.
- Chapter Five will discuss the results of the study and its theoretical, practical, and research implications in the context of the its limitations. This will further include any future training recommendations and concluding thoughts.

II. LITERATURE REVIEW

The following chapter provides a review of the literature relevant to the proposed study. It begins by presenting the latest research on case conceptualization, including various models, associations with counseling outcomes, previous training studies, and the connection to evidence-based practice (EBP) and deliberate practice. Then, deliberate practice is examined, including its history, definition, and related variables. The chapter concludes with a summary of the effects of deliberate practice on case conceptualization training.

Case Conceptualization

A "core psychotherapy skill" (Kendjelic & Eells, 2007, p. 66), case conceptualization is "the heart of evidence-based practice" (Bieling & Kuyken, 2003, p. 53). This skill is the hallmark of all competent counselors and is a fundamental component of CES curriculum. The American Psychological Association Presidential Task Force on Evidence-Based Practice (2006) states that expert clinicians are be able to "formulate clear and theoretically coherent case conceptualizations" (APA, 2006, p. 276). In support of such a statement, Kendjelic and Eells (2007) define case conceptualization as "a hypothesis about the causes, precipitants, and maintaining influences of a person's psychological, interpersonal, and behavioral problems" (p. 66). Betan and Binder (2010) assert that case conceptualizations "set the framework for implementing other skills and activities in clinical practice, including assessment and diagnostic judgment, meaning making and interpretation, clinical decision-making and intervention, and interpersonal as

well as, multicultural sensitivity" (p. 143). Betan and Binder (2010) further state that case conceptualizations make sense of and frame a client's problems in a "meaningful way that helps guide a path toward change" (p. 144). Sperry (2010b) clarifies these descriptions by offering an integrative definition:

> Case conceptualization is a method or clinical strategy for obtaining and organizing information about a client, understanding and explaining the client's situation and maladaptive patterns, guiding and focusing treatment, anticipating challenges and roadblocks, and preparing for successful termination (p. 110).

Ultimately, a well-formulated case conceptualization bridges the gap between both theory and practice. It provides clinicians with a road map that guides one's practice throughout the entire treatment process. Deliberately practicing this evidence-based skill provides a practitioner with purpose, and more importantly, offers clients an ethical and efficacious therapeutic experience.

Significance of Case Conceptualization. A multitude of researchers have cited the significance of case conceptualization. All of these references confirm that case conceptualization is an essential skill in treatment planning and counselor competence (Eells, 2007; Eells & Lombart, 2003; MacKinnon & Yudofsky, 1991; Scheiber, Kramer, & Adamowski, 2003; Toews, 1993). However, case conceptualization is especially significant because of (a) the Patient Protection and Affordable Care Act (PPACA), (b) increased demand for EBP, and (c) the atheoretical nature of the *Diagnostic and Statistical Manual of Mental Disorders, Fifth edition* (DSM-5). All three of these indicators highlight the implications that case conceptualizations have on clinical outcomes.

Government health policy, managed care, and consumer protection rights demand that mental health counselors are held accountable in how they influence clinical practice and effect client outcomes (Falvey, 2001). This has allowed third-party payers to dictate standard treatment protocol. This criterion includes (a) accurate description of presenting problems; (b) identification of informed treatment goals and plans; (c) specified length of treatment; (d) progress monitoring and outcome assessment (Eells, 2007). Furthermore, managed care policy stresses the need for brief, short-term therapy (Cummins, 1995). Levenson and Strupp (2007) state that such treatment is readily achieved with the use of case conceptualizations.

A current trend in counseling is that of evidence-based treatment (Eells, 2007). Previous studies indicate that comprehensive and accurate case conceptualizations are positively correlated with client progress (Silberschatz, Fretter, & Curtis, 1986) and beneficial outcomes (Crits-Christoph, Cooper, & Luborsky, 1988). Both, clinicians and researchers alike, attest to the fact that case conceptualizations lead to accurate diagnoses and informed treatment (MacKinnon & Yudofsky, 1991; McDougall & Reade, 1993; Persons, 1989; Toews, 1993). Ultimately, case conceptualizations enable counselors to put scientific knowledge into practice (Eells, 2007), thus fulfilling the scientist-practitioner model. Therefore, the proliferation of empirically based research and accumulation of enhanced scientific knowledge necessitates the need for counselors to implement such methods (Eells, 2007).

Finally, case conceptualization informs counselors of best practices. The current diagnostic system is mainly descriptive and lacks explanation of why problems occur, and how to resolve them (Sperry & Sperry, 2012). Diagnostic handbooks, like the

Diagnostic and Statistical Manual of Mental Disorders, Fifth edition (DSM-5) fail to explain precipitants, patterns, perpetuants, and other factors relevant to sufficient treatment. construct effective, tailored treatment interventions. Novice clinicians may become distracted by irrelevant details and confused about how to discern and make use of such information (Sperry, 2005b). Failure to organize such data can result in ineffective treatment. Case conceptualization provides the necessary system for bridging the gap between theory and practice; leading to accurate diagnoses and evidence-based treatment.

Although most of the research on case conceptualization and clinical outcomes is somewhat dated, this does not mean that case conceptualization is not important. In fact, the lack of recent investigation confirms the conclusive results that case conceptualization is important and has been found to be significant. Currently, the majority of the literature has now been directed toward case conceptualization education and training (Abbas et al., 2012; Eells, 2015; Kendjelic & Eells, 2007; Ladd, 2015; Smith Kelsey, 2014; Sperry & Sperry, 2012; Stoupas, 2016). The present study attended to this question, investigating how to properly teach this critical skill and what variables influence its training procedures.

Views About Case Conceptualization. There are numerous misconceptions or "myths" about case conceptualization. Sperry and Sperry (2012) reveal and debunk the most commonly cited myths in their book *Case Conceptualization: Mastering this Competency with Ease and Confidence.* The five most frequently mentioned case conceptualization misconceptions include the following:

1. Sperry and Sperry (2012) indicate that some consider case conceptualization as a basic case summary. “However, a case summary is a distillation of the facts…a case conceptualization draws from facts and constructs a story that goes well beyond a summary of the facts and…has both explanatory and predictive power” (Sperry & Sperry, 2012, p. 14).
2. Some counselors falsely believe that case conceptualizations are not a clinically useful practice. In fact, case conceptualizations are considered EBP and contribute to positive treatment outcomes (Kuyken, Padesky, & Dudley, 2009; Sperry & Sperry, 2012).
3. Both, counselor trainees and professionals think that case conceptualizations are too complex and time-consuming (Kendjelic & Eells, 2007). To the contrary, counselors can learn to develop comprehensive and accurate case conceptualizations by attending trainings (Kendjelic, 1998; Kendjelic & Eells, 2007).
4. Counselors suppose that there is simply one kind of case conceptualization that can be applied to all clients. Sperry and Sperry (2012) suggest using three types of case conceptualizations (a) provisional, (b) full-scale, and (c) brief case conceptualizations.
5. Sperry and Sperry (2012) indicate that some have the idea that all case conceptualizations are basically the same. In reality, there are actually three different methods of case conceptualization development. The two most common are a structured, theory-based method and a non-standardized or “seat-of-the-pants” case conceptualization method (Sperry & Sperry, 2012, p. 18). The third

and most useful approach is the integrative case conceptualization model. This model will be described in detail later in this chapter.

It is unfortunate and a detriment to the profession that so many counselors hold these misconceptions. It is vital that counselor educators implement evidence-based case conceptualization training into their curriculum. The use of an integrative model enables counselors to accurately formulate client problems, provide appropriate interventions, and improve treatment outcomes. As a result, counselors who are adequately trained and deliberately practice such a method will be able to achieve both mastery and competency in this critical area.

Case Conceptualization Training. Due to the significance of case conceptualization and its impact on outcomes, the research has mostly been devoted to improving competence. Some of these studies, focus specifically on training methods in achieving such results. However, counseling outcomes related to the levels of training experience varies in the literature. For example, in a meta-analytic review, Berman and Norton (1985) found that professionally trained counselors perform relatively equal to non-professionals who had no formal training. Furthermore, Weisz, Weiss, Alicke, and Klotz (1987) revealed in their review of meta-analyses that professional training had only a modest effect on client outcomes. While these studies do not support training methods, research conducted by Stein and Lambert (1995) revealed findings that do support training. Caspar, Berger, and Hautle (2004) explain that this discrepancy is due to the lack of systematic feedback in psychotherapy training. The researchers contend that for trainees to develop a comprehensive understanding of relevant client information, they must repeatedly engage in deliberate practice until they have mastered the skill (Caspar et

al., 2004). During this practice, trainees must receive consistent and informative feedback in order to enhance case conceptualization competence (Faust, 1986; Garb, 1989).

In regards to standardized training procedures, Kendjelic and Eells (2007) developed a 2-hour generic case conceptualization training and evaluated the "quality" of participants' case conceptualizations. The sample included 20 participants who received the training (experiment) and 23 participants who were not trained (control). The results revealed that the treatment case conceptualizations were more elaborate, comprehensive, complex, and precise compared to the control group. Kendjelic and Eells (2007) note that the treatment group was more likely to address complex details related to precipitants, predisposing factors, and inferences to explain symptoms and problems. According to effect sizes, these were better than 86% of the conceptualizations in the control group (Kendjelic & Eells, 2007).

More recently Abbas and colleagues (2012) investigated an integrated case conceptualization training program. The researchers conducted a randomized control trial of 24 total participants; 12 in the experimental group and 12 in the control group. Similar to the previous study, the effects of the training revealed promising results. Those who received the training improved five times more than those who did not receive the training (Abbas et al., 2012).

In a doctoral dissertation, Smith Kelsey (2014) examined the effects of a standardized, 2-hour integrative case conceptualization training on 85 graduate counseling students. The training developed by Sperry (2010b) significantly improved the case conceptualization competence of the student sample, as measured by the Case Conceptualization Evaluation Form (CCEF). This instrument will be discussed in greater

detail in the following chapter. Using the same integrative case conceptualization model, Ladd (2015) examined its effect on a more robust sample. Utilizing a quasi-experimental design, Ladd (2015) assigned the 145 graduate counseling students to both experimental and comparison groups. As with the study conducted by Smith Kelsey (2014), results indicated a significant increase in the experimental group's CCEF scores. Recently, Stoupas (2016) investigated the effects of the integrated training model over a 4-week period. In addition to training effects, Stoupas (2016) investigated the relationship of practitioners' attitudes toward EBP. Results not only indicated a significant increase in case conceptualization skills, but also a positive correlation between training effects and EBP attitudes.

Although case conceptualization training is not unfamiliar in the literature, the training of counseling students in case conceptualization is relatively new. This will be the third research investigation to use counselor trainees and the second study to use the Sperry and Sperry (2012) standardized case conceptualization training model. This study will expand upon the original research of the following:

- The Effect of Case Conceptualization Training on Competence and its Relationship to Cognitive Complexity (Smith Kelsey, 2014).
- The Effect of Case Conceptualization Training on Counselor Competence and the influence of Self-efficacy (Ladd, 2015)
- The Effects of Case Conceptualization Training Over Time and its Relationship to Practitioner Attitudes Towards Evidence-based Practice (Stoupas, 2016).

In the present study, both the experimental and comparison groups will receive the standardized training on case conceptualization. Only the experimental group will

receive the intervention of deliberate practice coaching. The comparison group will help to distinguish the effects of deliberate practice from an outcome that may be caused by other factors, such as natural history, observer expectation, or study participant expectation (Slavin, 1999). The CCEF 2.0 will be the instrument used to evaluate participants' written case conceptualizations.

Counselor Experience and Case Conceptualization. Researchers have found that counselor expertise significantly impacts the process and outcome of counseling (Wampold, 2001). The literature further shows that case conceptualization competency is a direct result of training and not practitioner experience (Betan & Binder, 2010; Eells et al., 2005; Eells et al., 2011). When compared to experienced and novice clinicians, Eells and colleagues (2005) demonstrated that expert clinicians possess a higher skill level of case conceptualization. The researchers found that of the 65 counselor (expert, experienced, and novice) sample, the experts' case conceptualizations contained more descriptive, diagnostic, inferential and treatment planning information (Eells et al., 2005). When compared to novice and experienced counselors, it seems that experts understand clients much more analytically. The authors further conclude that "years of clinical experience does not result in expertise" (Eells et al., 2005).

Sperry (2005a) states "the task of synthesizing disparate pieces of data into a meaningful and clinically useful case conceptualization is one that often seems beyond the capacity of many beginning counselors and therapists" (p. 73). Betan and Binder (2010) further state that "novices are at a disadvantage because they do not have sufficient clinical experience to help make their knowledge relevant to their work with patients" (p. 145). Different from their novice and experienced counterparts, expert

counselors are better able to categorize client information into a theoretical framework. This explains why the expert case conceptualizations in the Eells and colleagues (2005) study contained much more forward and inferential reasoning as opposed to the backward, deductive reasoning exhibited by those with less experience. Eells and colleagues (2005) conclude that "through deliberate practice… therapists develop the knowledge structures and representations that experts may possess" (p. 396). Therefore, it is conceivable that structured training programs and formative feedback enables those with less experience to achieve such skill and expertise. To further clarify, a comparative review of the three performance levels and their training implications follows. A review comparing the performance characteristics and training implications of novice, experienced, and expert counselors will help to further explain theses hypotheses.

Novice Counselors. The expected level of counseling performance of novice practitioners is less effective than that of expert clinicians (Sperry, 2010b). When presented with clinical information, novices fail to recognize patterns and have a tendency to present problems in fairly concrete, superficial terms (Eells et al., 2005). However, when compared to experienced counselors, Eells and colleagues (2005) state that novices have better case conceptualizations. According to the researchers, this is due to the novices having recently completed graduate-level training, while their experienced counterparts have not received such recent educational training (Eells et al., 2005).

Experienced Counselors. Hayes (1985) found that experts in different professional domains must achieve a minimum of 10 years' experience prior to attaining such a level of performance. However, Eells and colleagues (2005) state that experience alone, does not necessarily result in the achievement of expert performance. Although

experts often possess several years of practical experience, experienced counselors are not necessarily experts (Chi, Glaser, & Farr, 1988). Hence, "Twenty years of experience is not the same as one year of experience repeated twenty times" (Betan & Binder, 2010, p. 142). According to Mylopoulos and Regehr (2007), experienced clinicians may be familiar with the selection and application of technical interventions that they have routinely used, but may lack the knowledge and skill to address unfamiliar client presentations or problems. Therefore, although experience is necessary to be an expert, it still not sufficient enough. For this, one needs repeated, formative, and deliberate practice.

Expert Counselors. Research studies conducted in the cognitive science domain have shown that experts from many different fields process information differently than novices (Chi et al., 1988). In particular, experts tend to use problem solving skills that explain problems in theoretical terms (Chi et al., 1988). This high explanatory power stems from proficiency in pattern identification (Chase & Simon, 1973), as experts are able to quickly perceive large meaningful patterns (Chi et al., 1988). Through both experience and practice, experts excel in their particular domain via in-depth problem appraisal, identification of systematic patterns, and self-monitoring (Chi et al., 1988). Furthermore, Betan and Binder (2010) state that expert counselors (a) competently perform; (b) utilize good judgment; (c) are flexible; (d) incorporate fundamental clinical skills; (e) self-reflect; (f); self-evaluate and adjust accordingly. "Expertise requires not only a strong knowledge base, but also the ability to apply and adapt one's knowledge in a way that is meaningful and helpful to a particular client in the context of a unique therapeutic dyad in which distinct subjectivities, needs, cultural values and influences,

and interpersonal modes intersect" (Betan & Binder, 2010, p. 142). Such clinicians are readily able to assess, conceptualize, and properly diagnose in order to arrive at applicable treatment goals and effective, evidence-based interventions. Furthermore, they have the capacity to predict obstacles, realize when treatment is no longer effective, and adjust their approach, accordingly. As a result, expert practitioners conduct highly effective therapy (Sperry, 2010b).

Case Conceptualization Models

Kendjelic (1998) categorizes case conceptualizations with two models: (1) content and organization, and (2) research. Furthermore, there are a variety of theory-based case conceptualizations, all of which are grounded in research. The foremost of such models include (a) biopsychosocial, (b) behavioral, (c) cognitive-behavioral, (d) psychodynamic, (e) Adlerian, and (f) integrative. Following is a detailed description of each unique model.

Content and Organization Models. The objective of this type of case conceptualization is to collect and consolidate client information. In general, this is achieved from a biopsychosocial perspective (Ben-Aron & McCormick, 1980); however, this type of model lacks inferential and inductive reasoning. For this reason, this model will not be of interest to the present study.

Research Models. These type of case conceptualizations are utilized in the development of research. Exclusive of the biopsychosocial case conceptualization, research models are grounded in theory. Unlike content and organization models, these types of models assess client information, identify patterns, make inferences, and explain maladaptive patterns (Eells, 2007; Kendjelic, 1998). Research models are "structured,

involve levels of inference that are close to behavior, and often emphasize identifying central relationship conflicts or maladaptive concepts of the self or the world" (Kendjelic & Eells, 2007, pp. 66-67).

Cognitive-Behavioral Model. Based on Cognitive-Behavioral Therapy (CBT), this approach blends cognitive therapy with behavioral therapy (Wright, Basco, & Thase, 2005). It is the most commonly used therapeutic model and has been adapted to many different diagnostic conditions with culturally diverse client populations (Sperry & Sperry, 2012). This theory does not focus on past problems and employs a variety of cognitive and behavioral interventions to change maladaptive behaviors and faulty cognitions. Behaviorally, these maladaptive patterns can be classified as either behavioral excesses (e.g., rage) or deficits (e.g., social inhibition). In addition to these, cognitive-behavioral case conceptualizations contain client-specific information regarding clinical, cultural, and treatment formulation elements (Sperry & Sperry, 2012).

Behavioral Model. Grounded in Behavioral theory, these models conceptualize client problems based on their environment. Behavioral case conceptualizations are based on a thorough assessment of the client's problems. This specifically includes situations related to the presenting problem's onset, development, and predisposing factors (Wolpe & Turkat, 1985). After thoughtful and careful consideration of all factors, a hypothesis about the client's problem is then formulated and presented. This includes a clear depiction of the antecedents (i.e., precipitants) and consequences. The counselor then uses this information to develop a specific treatment plan or "behavioral plan."

Biopsychosocial Model. This model is unique among the others presented here because it is not based on one specific psychological theory. Different from the other

models, biopsychosocial case conceptualizations are not theory-based. Instead, this model concentrates on the relationship between biological, psychological, social, and cultural factors. Sperry, Gudeman, Blackwell, and Faulkner (1992) state that the biopsychosocial model rests on the following four main assumptions:

1. First, client problems can be attributed to many different factors, rather than a single cause.
2. Second, client problems are best seen in the context of these various factors.
3. Third, a client's problems are best understood as attempts to manage stressors according to his or her strengths, resources, and deficits.
4. Finally, the most effective form of treatment will include a combination of methods that are tailored to fit the individual client's particular circumstances, rather than employing one uniform approach for all.

Therefore, unlike theory-based models, it is more applicable to a variety of client cases (Sperry & Sperry, 2012), cultural backgrounds, and presenting problems.

Adlerian Model. Based on the work of Alfred Adler, this type of case conceptualization incorporates its theoretical principles. Adler believed that all individuals are motivated by a strong need belong and express social interest (Carlson, Watts, & Maniacci, 2006). Furthermore, Adlerian theory emphasizes developmental and environmental factors (e.g., family dynamics, birth order, and early childhood recollections). This psychological model is largely non-deterministic and has an optimistic, strengths-based view of people. Adlerian case conceptualizations reflect these factors by evaluating clients' family constellations (birth order and family values), early

recollections (indicates client's view of self, others, and the future), and lifestyle convictions (schemas; Sperry & Sperry, 2012).

Dynamic Model. The dynamic case conceptualization is grounded in psychodynamic theory, which stems from psychoanalysis. The belief is that clients are negatively affected by their maladaptive patterns regarding interpersonal skills (Levenson, 2010). These maladaptive patterns are cyclical and reflect the client's repetitive interactions with others, particularly inflexible and self-defeating expectations and appraisals (Butler, Strupp, & Binder, 1992). Often, these exchanges are characterized by rigidity, self-defeating expectations, self-criticism (Butler et al., 1992). Therefore, dynamic case conceptualizations concentrate on the areas of (a) acts of self, (b) expectations of others, (c) acts of others toward the self, and (d) acts of the self, toward the self. Dynamic case conceptualizations involve a comprehensive analysis of these four areas in order to explain the intrapersonal life of the client.

Integrative Model. In regards to client presentation and problems, not all case conceptualization models are created equal. Currently, there is no ruling as to which model is superior. However, if case conceptualization is "the heart of evidence-based practice" (Bieling & Kuyken, 2003, p. 53), then identification of "pattern" is the heart of an evidence-based case conceptualization. In order to achieve this, an integrative case conceptualization approach is necessary. Sperry (1989; 2010a) is credited with first describing an integrative approach to case conceptualization (Eells, 2012, p. xii). It offers a general, yet comprehensive framework for understanding a various problems and situations. Due to its integrative nature, the model is quite applicable with a variety of theoretical perspectives.

Each integrative case conceptualization consists of four key components with seventeen different elements. These allow counselors to better understand clients' problems with both high explanatory and predictive power. Furthermore, it enables counselors to select appropriate and effective interventions with both. The four key components include (a) diagnostic formulation, (b) clinical formulation, (c) cultural formulation, and (d) treatment formulation. Below, Table 1 provides a description of the four key components in a case conceptualization and Table 2 provides a description of the seventeen key elements to consider.

Table 1. Four Components of an Integrative Case Conceptualization

Component	Description
Diagnostic Formulation	Provides a description of the client's presenting situation and its perpetuants or triggering factors, as well as the basic personality pattern. Answers the "what" questions (i.e., "What happened?"). Usually includes a diagnostic and statistical manual (DSM) diagnosis.
Clinical Formulation	Provides an explanation of the client's pattern. Answers the "why" question (i.e., "Why did it happen?"). The central component in a case conceptualization, which links the diagnostic and treatment formulations.
Cultural Formulation	Provides an analysis of social and cultural factors. Answers the "What role does culture play?" question. Specifies cultural identity, level of acculturation and stress, explanatory model, and mix of cultural dynamics and personality dynamics.
Treatment Formulation	Provides an explicit blueprint for intervention planning; a logical extension of the diagnostic, clinical, and cultural formulations, which answer the "How can it change?" question. Contains treatment goals, focus, strategy and specific interventions, and anticipates challenges and obstacles in achieving those goals.

Note: From *Case Conceptualization: Mastering this Competency with Ease and Confidence* (Sperry & Sperry, 2012, p. 11).

Table 2. Key Elements of an Integrative Case Conceptualization

Element	Description
Presentation	Presenting problem and characteristic response to precipitants

Precipitant	Triggers that activate the pattern resulting in presenting problem
Pattern: Maladaptive	Inflexible, ineffective manner of perceiving, thinking, and acting
Predisposition	Factors fostering adaptive or maladaptive functioning
Perpetuants	Triggers that activate one's pattern resulting in presentation
Cultural Identity	Sense of belonging to a particular ethnic group
Culture: Acculturation and Acculturative Stress	Level of adaptation to the dominant culture; stress rooted acculturation, including psychosocial difficulties
Cultural Explanation	Beliefs regarding cause of distress, condition, or impairment
Culture vs. Personality	Operative mix of cultural and personality dynamics
Treatment Pattern	Flexible, effective manner of perceiving, thinking, and acting
Treatment Goals	Stated short and long-term outcomes of treatment
Treatment Focus	Central therapeutic emphasis providing directionality to treatment that is keyed to the adaptive pattern
Treatment Strategy	Action plan and vehicle for achieving a more adaptive pattern
Treatment Interventions	Specific change techniques and tactics related to the treatment strategy for achieving treatment goals and pattern change
Treatment Obstacles	Predictable challenges in the treatment process anticipated from the maladaptive pattern
Treatment: Cultural	Incorporation of cultural intervention, culturally sensitive therapy or interventions when indicated
Treatment Prognosis	Prediction of the likely course, duration, and outcome of a mental health condition with or without treatment

Note: From *Case Conceptualization: Mastering this Competency with Ease and Confidence* (Sperry & Sperry, 2012, p. 15).

The Sperry and Sperry (2012) integrative model was formulated to the ease the case conceptualization process. It offers a framework for collecting, organizing, and making sense of client data, while providing a direction for treatments that bring about

positive client outcomes (Sperry & Sperry, 2012). Based on any theoretical perspective, these conceptualizations are concise, accurate, and articulately written.

Evaluation of Integrative Case Conceptualizations

Critical to the development of effective training methods, it is essential to properly evaluate the quality of case conceptualizations. The Case Formulation Content Coding Method (CFCCM) developed by Eells and colleagues (1998) is one such method. This instrument is based on an analysis of prior case conceptualization research, which determined that most case conceptualizations have four key components (1) presenting symptoms and problems, (2) precipitating stressors and events, (3) predisposing life events and stressors, and (4) a mechanism that links these together, explaining the client's problems (Eells et al., 2005). The result was a 94-item instrument that used a Likert-type scale to evaluate the following criteria: (a) complexity, (b) precision of language, (c) overall coherence, (d) a priori structure, (e) goodness of fit of the formulation and treatment plan, and (f) elaboration of the treatment plan. Dr. Len Sperry (2012a; 2015) developed a less complicated instrument for properly evaluating case conceptualizations. The CCEF (Sperry, 2012a) is a 7-item instrument that uses a Likert-type scale to evaluate the following elements: (a) presentation, (b) precipitants, (c) maladaptive pattern, (d) predisposing factors, (e) treatment goals and interventions, (f) explanatory power, (g) completeness, and (h) coherence. The CCEF used in the Smith Kelsey (2014) and Ladd (2015) studies was found to be efficient and psychometrically sound. The CCEF 2.0 (Sperry, 2015) is the updated version of the aforementioned instrument. Recently, the CCEF 2.0 was first used and tested in the Stoupas (2016) study. The instrument possesses good psychometric properties with enhanced reliability and validity. In this study, the

CCEF 2.0 will be the instrument used to evaluate counselor trainees' case conceptualizations and will be further explained in Chapter Three.

Evidence-Based Practice

Case conceptualization is grounded in research and therefore, it is EBP. Definitively, EBP is conceptualized as a "three-legged stool." This encompasses (1) best available research evidence, (2) clinical expertise, and (3) client characteristics, such as values, culture, and expectations (see Figure 1 below; Spring, 2007):

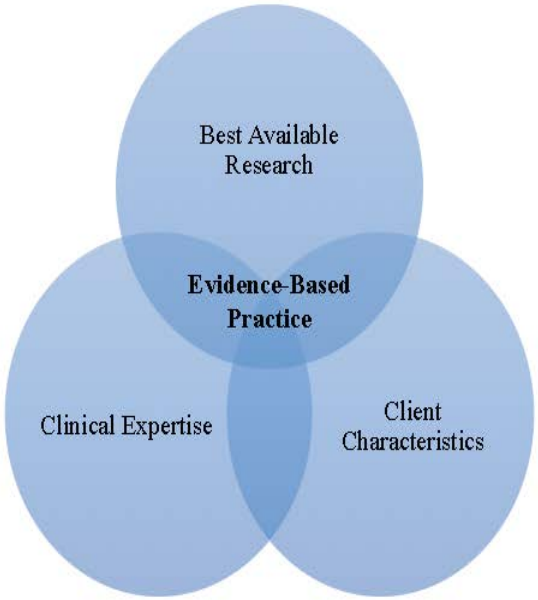


Figure 1. Evidence-Based Practice Elements

The first leg of the EBP stool represents evidence gained from scientific study. However, not all research is created equal. Therefore, studies exist on a hierarchy from more trustworthy to less reliable (Thyer & Pignotti, 2011). Data toward the top of the hierarchy are based on more reliable studies that mitigate error and confounding variables (Lilienfeld et al., 2013). Although such research may not be applicable to all clinical

scenarios, there are some guidelines to consider when integrating research into practice. Accordingly, the APA Presidential Task Force on Evidence-Based Practice (2006) suggests to consider the following: (a) the relative weight placed on different research methods; (b) the representativeness of samples used in the study; (c) whether results inform principles of change, intervention strategies, or specific protocols; (d) the generalizability and transportability from the laboratory to real clinical practice; (e) the extent to which judgments can be made about treatment choice when available relevant research is limited; (f) the ability of results gained from primarily white samples to be applied to minority and/or marginalized populations.

The second leg of the EBP stool is clinical expertise. Since counselors are scientist-practitioners, this leg supports the reality of actual clinical practice. According to the APA Presidential Task Force on Evidence-Based Practice (2006), this includes (a) assessment, diagnosis, case conceptualization, and treatment planning; (b) clinical decision making, treatment implementation, and monitoring client progress; (c) interpersonal expertise, such as forming strong therapeutic relationships; (d) continual self-reflection and acquisition of skills; (e) appropriate evaluation and use of research findings; (f) understanding the roles that individual differences and culture play in treatment response; (g) seeking other available resources as needed, such as alternative and/or adjunctive therapies; (h) being able to give a clear rationale for treatment strategies selected. Essentially, clinical expertise is comprised of all these components, which begins with case conceptualization and remains throughout treatment.

The third and final leg of the "stool" is based on client variables, such as culture, values, and expectations (APA, 2006; Spring, 2007). Counselors who maintain an EBP

approach realize the need for individualized treatment. This framework does not support a "one size fits all approach." Instead, an EBP philosophy appreciates and accounts for the unique qualities of each client.

Recently, an emphasis has been placed on counselor resistance to EBP. This opposition can be conceptualized in accordance with each leg of the EBP stool. The reasons for this resistance have been both documented and questioned by many researchers in the field, including Lilienfeld and colleagues (2013), Sperry and Sperry (2012), and Straus and McAlister (2000).

The fact remains that implementation of EBP is no easy task for "everyday" counselors. However, objection to such an important practice can potentially result in clinical malfeasance or harm to clients. According to the American Counseling Association's *Code of Ethics* (2014), counselors must "acquire and maintain a reasonable level of awareness of current scientific and professional information in their fields of activity…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). Essentially, this ethical code demands that counselors adopt practices that are both client appropriate and evidence-based.

Measurement of Evidence-Based Practice Attitudes. There are a few instruments that quantify counselors' attitudes about EBP (Aarons, 2004; Borntrager, Chorpita, Higa-McMillan, & Weisz, 2009; Upton & Upton, 2006). One such measure is the EBPAS (Aarons, 2004). Rather than focusing on counselors' preexisting knowledge of EBP, the EBPAS clearly measures distinct attitudes. Specifically, the 15-item self-report inventory determines counselors' EBP attitudes within four subscales that include

(1) *Requirement* (likelihood that a counselor will adopt EBP when required by a supervisor or organization); (2) *Appeal* (a counselor's interest in EBP); (3) *Openness* (how accepting a counselor is to new practices); (4) *Divergence* (level that a counselor's usual practice departs from research-based interventions).

There is evidence in the literature that the EBPAS has utility in counseling education and training. For example, Aarons (2004) states that "those still completing their education (e.g., interns) and transitioning into professional roles may be more flexible in regard to learning new interventions" (p. 63). Garland, Kruse, and Aarons (2003) claims that when compared to professionals (i.e., certified counselors), interns report more positive attitudes toward using evidence-based assessments. Interns represent providers whose training is still in progress, and therefore, may be less influenced by a long history of practice (Aarons, 2004). As such, it is probable that the EBPAS has value with counselor trainees.

The EBPAS was used with professionals in the Stoupas (2016) dissertation study on *The effects of case conceptualization training over time and its relationship to practitioner attitudes towards evidence-based practice*. For the purpose of this study, the EBPAS will be utilized to evaluate counselor trainees' attitudes toward EBP. Further details on the EBPAS and its psychometric properties are provided in Chapter Three.

Counselor Competence

Currently, we are in an era that demands accountability and EBP. Therefore, the training of counselors and the counseling profession, itself, have become increasingly competency-based (Sperry, 2010b, p. 1). Graduate programs in CES have an obligation to produce competent counselors, who possess "the knowledge and skills necessary to

address a wide variety of circumstances within the context of clinical mental health counseling profession" (CACREP, 2015, p. 23). It is further expected that faculty will provide the necessary education, training, and supervision that fosters such competence (Hoge et al., 2005). Ultimately, this serves to uphold the profession, maintain quality assurance standards, and most importantly, protect consumers.

"Competence involves a broad spectrum of personal and professional capacities relative to a given external standard or requirement, including critical thinking, analysis, and professional judgement in assessing a situation and making clinical decisions based on the assessment" (Sperry, 2010a, p. 4). Counselor competence is best defined as "the consistent and judicious use of knowledge, technical skills, clinical reasoning, emotions, values and reflection in clinical practice" (Sperry, 2010b, p. 2). Therefore, a competent counselor is one who has the ability to effectively and ethically apply such capacities within a clinical context.

Paramount in the ethical standards of clinical supervision is the training of competent counselors (Bernard & Goodyear, 2013). According to Loganbill, Hardy, and Delworth (1982) clinical supervision is an interpersonal relationship through which the supervisor assists the supervisee (i.e., counselor trainee) in the facilitation of professional growth and the development of clinical competence. Essentially, the purpose of clinical supervision is to facilitate competence in the counselor trainee. Therefore, the objective of supervision and training is to provide emerging counselors with as many opportunities to learn the attitudes, knowledge, and skills necessary to promote the development of counselor competence.

Deliberate Practice

The application of deliberate practice has proven to be effective in producing experts, such as eminent performing musicians, Olympic athletes, Grandmaster chess players and even world-renowned scientists. Furthermore, expert performance can be traced to active engagement in deliberate practice, where training is focused on improving particular tasks (Ericsson, 2008). This involves the provision of immediate feedback, time for problem-solving and evaluation, along with opportunities for repeated performance and further refinement (Ericsson, 2008).

Vital to the overall process is the delivery of "formative" feedback, which is consistent and goal-directed responses toward explicit case conceptualization elements. According to Shute (2008), formative feedback is information communicated to the learner that is intended to modify their thinking or behavior, for the purposes of learning improvement (p. 154). This type of feedback offers students evidence about their progression toward an intended goal or task. In order to maintain motivation and engagement, researchers suggest that a close match must be made between the expectations of goal obtainment and the actual goal, itself (Fisher & Ford, 1998; Ford, Smith, Weissbein, & Gully, 1998). However, if goals are too unrealistic and unattainable, the learner will likely experience failure, become discouraged, and ultimately, disengage.

The art of applying deliberate practice in an academic setting, involves engaging students in the following: (a) observation and review of their own work (i.e., self-assessment), (b) repetitive rehearsal of specific skills (i.e., skill repetition), (c) receipt of expert and immediate feedback (i.e., formative feedback), (d) setting incremental learning goals just beyond their ability (i.e., stretch goals), and (e) continuous performance

evaluation (i.e., progress monitoring; Ericsson, 2006; Rousmaniere, 2017; see Figure 2 below). However, most of the research and current literature has only applied deliberate practice to that of already eminent performers and professionals. Therefore, there is a strong need for its application to that of emerging professionals (i.e., students and counselor trainees).

Figure 2. Deliberate Practice Components

Definition of Deliberate Practice. This type of practice is an extremely focused process, in which individuals completely immerse themselves in a specific task. According to Ericsson and Lehmann (1996), it is defined as "tailored training activities designed by a coach or teacher to improve specific aspects of an individual's performance through repetition and successive refinement" (pp. 278–279). Ericsson, Krampe, and Tesch-Römer (1993) further state "deliberate practice is a highly structured activity with an explicit goal of improving one's performance…specific tasks are

invented to overcome weaknesses, and performance is carefully monitored to provide cues for ways to improve it further" (p. 368). Deliberate practice is an exhausting activity that can be sustained only for a limited amount of time each day (Ericsson et al., 1993). Therefore, extended periods of rest are a necessary component in its utility.

Importance of Deliberate Practice. Currently, researchers indicate that deliberate practice is the main and only demonstrated factor that leads to the development of highly effective psychotherapists (Chow et al., 2015; Love et al., 2016). Yet, Ericsson (2008) poses the question, whether it is possible or not to improve one's ability in planning and selecting the best course of action to take in a given situation. According to studies in medical education, the answer is that it is most certainly possible. With the benefit of hindsight, it should be possible to recreate original patient encounters in a time-constrained context and have the aspiring expert doctor make treatment decisions, while getting immediate feedback by comparing their decisions with those of expert physicians (Ericsson, 2008).

Ideally, in a learning environment based on simulations and re-created old cases, performers can wait until they are fully rested before confronting challenging situations. Based on his research, Ericsson (2008) states that students should be presented with cases just above their current level of ability, which includes known corrective actions—where retrospective analysis reveals the best course of action. Therefore, scenarios based on previous cases, should be able to be replicated for the purposes of skill and proficiency acquisition.

Exemplary training scenarios should be brief, focused, and include ample time for feedback, review, reflection, and revision. Each completed trial should be followed by

another similar brief task with feedback, until this type of task is completed with consistent success (Ericsson, 2008, p. 993). At this point of mastery, the activity should be embedded in more complex contexts and alternated with other types of cases until the skill has been integrated in the performer's repertoire (Ericsson, 2008, p. 993). Researchers have shown that training activities guided by these principles help the acquisition and maintenance of expert performance in sports, music, typing, and chess (Ericsson et al., 1993; Duvivier et al., 2011, p. 2). While Ericsson has discussed the use and effectiveness of deliberate practice in various domains, his theoretical examples have only been limited to that of professionals and very few students.

However, due to the complex nature involving a myriad of scenarios, the scientific study of expert performance and skill acquisition is difficult to reproduce. Yet, Ericsson (2008) uses the example of the Greeks' development of athletic competitions (the Olympics) with standardized events. Historically, Olympic events were used to determine and measure various aspects of soldiers' performance (e.g., strength, speed, and distance). For example, rather than having athletes run in natural terrain, they built straight, flat tracks that were indistinguishable, and devised methods for runners to start at the same time and cross the same finishing line (Ericsson, 2008). Ultimately, such precise and uniform conditions, allowed for both valid and reliable determination of competitor's abilities. Ericsson (2008) proposes that the same can be done in measuring the abilities of medical professionals and psychotherapists. This is due to these professionals' treatment of patients and clients with similarly reported symptoms and problems.

Subsequently, deliberate practice has been found to foster competency in a range of health care professions (Love et al., 2016, p. 17). For example, a number of studies have shown that requiring surgical trainees to review their surgeries with supervisors, significantly improves outcomes in later procedures (Bann, Khan, Datta, & Darzi, 2005; Love et al., 2016). Likewise, in the counseling profession, the amount of time spent targeted at improving therapeutic skills has been found to be a significant predictor of client outcomes (Chow et al., 2015). However, little empirical research exists about highly effective counselors and the factors that mediate the acquisition and maintenance of clinical competence (Ericsson, 1996; Ericsson, 2006; Ericsson et al., 1993; Chow et al., 2015).

The study of expertise in other fields provides a potential model for understanding the key mediating factors involved in the development of top-level performers in psychotherapy (Chow et al., 2015). However, deliberate practice is an exceedingly specific and demanding activity. Accordingly, the best available research clearly states, "Experience involving the routine and proficient execution of skills associated with a particular performance domain is not enough to lead to improvement" (Chow et al., 2015, p. 338). To be effective, Chow and colleagues (2015) insist that deliberate practice must be (a) targeted toward specific aspects just above one's current abilities, (b) based on progress monitoring and outcome assessment, and (c) carried out over time.

Further studies have shown that deliberate practice not only facilitates the development of eminent performance, but is also crucial to its maintenance (Chow et al., 2015). For example, not only is engaging in deliberate practice at the early skills-acquisition phase important, but it continues to be essential for older expert pianists to

maintain their level of performance (Krampe & Ericsson, 1996; Chow et al., 2015, p. 338). Still, despite the evidence, there is a dearth of research on deliberate practice coaching and its utility with counselor trainees.

Prior to their study, Chow et al. (2015) report that no study has examined a taxonomy of deliberate practice activities aimed toward improving therapists' effectiveness. They found that the amount of time therapists spent alone in deliberate practice was significantly related to outcomes (Chow et al., 2015). Consistent with results from studies conducted in other professional domains, these findings are promising.

To further illustrate the impact of deliberate practice, Chow et al. (2015) estimated that the accumulative time spent by the "most effective" therapists was, on average, about 2.8 times more hours per week than "other" therapists. Therefore, it leads one to hypothesize the impact of such deliberate practice on that of emerging therapists (i.e., counselor trainees). Fittingly, Chow et al. (2015) state their study provides preliminary evidence for the role that deliberate practice may take part in the development of highly effective therapists (p. 343). Therefore, there are implications to conduct further research in this area of training.

Measurement of Deliberate Practice. The research on instruments that measure factors of deliberate practice are limited. In fact, in all of the literature, only one such viable instrument was found. Initially developed by Moulaert et al. (2004), the Moulaert Questionnaire measures important aspects of deliberate practice. The questionnaire was piloted on 8 medical students. It was then further reviewed by 8 experts in the fields of medical education and expertise development (Moulaert et al., 2004, p. 1046). The authors state that the questionnaire takes about ten minutes to complete and is comprised

of 28 items on a 5-point Likert scale, where "1 = never" and "5 = always" (Moulaert et al., 2004). The items consist of various statements regarding study activities and personal study-related aspects (Moulaert et al., 2004).

Following the pilot study, Moulaert et al. (2004) tested the instrument on 777 undergraduate medical students at the Maastricht Medical School in the Netherlands, where factor analysis revealed four subscales: (1) planning, (2) study style, (3) motivation, and (4) self-reflection. Examples of the statements for each of the subscales include the following:

1. *Planning*, "When I have made a schedule I stick to it."
2. *Study style*, "I try to see how different parts of a subject are interconnected."
3. *Motivation*, "I work hard on my study."
4. *Self-reflection*, "When something goes wrong in my studies I try to find out what caused it."

In regards to specific aspects of deliberate practice, Moulaert and colleagues (2004) reported positive correlations between (a) self-study, (b) study resources, (c) planning, (d) study style, and (e) motivation.

The researchers concluded that clusters of the questionnaire's items were consistent with the theoretical framework of deliberate practice (Moulaert et al., 2004). Furthermore, Moulaert and colleagues (2004) found that high achieving students showed more characteristics of deliberate practice than that of low achieving students. Ultimately, not only did this study establish a practical measure of deliberate practice, but it further supports the literature that deliberate practice positively effects student achievement.

In a later study, the Moulaert Questionnaire was adapted and used on 875 medical students (years 1-3) attending the same medical school in the Netherlands. In examining the role of deliberate practice regarding the acquisition of clinical skills, Duvivier and colleagues (2011) revised the instrument, which included the addition of 7 items for a total of 35 items. Again, the questionnaire was comprised of study-related statements and took approximately ten minutes. Furthermore, it consisted of the same, 5-point Likert scale, where "1 = never" and "5 = always."

The factor analysis of the revised version revealed four distinct subscales and twenty-six items which deviate somewhat from the original questionnaire. In regards to the four subscales and their items, Duvivier et al. (2011) report that the analysis yielded the following: (1) planning (8 items), (2) concentration/dedication (4 items), (3) repetition/revision (i.e., review/evaluate; 5 items), and (4) study style/self-reflection (10 items). Examples of the statements for each of the subscales include the following:

1. *Planning*, "When I have made a schedule I stick to it."
2. *Concentration/Dedication*, "I take breaks when I am studying."
3. *Repetition/Revision*, "I revise skills during unsupervised practice sessions."
4. *Study style/Self-reflection*, "When something goes wrong in my studies I try to find out what caused it."

As illustrated in the examples above, statements for items pertaining to 'planning' and 'self-reflection' remained in the revised Moulaert Questionnaire. The results revealed that students' scores on the *Planning* subscale increased over time, whereas scores on the *Repetition/Revision* subscale tended to decrease (Duvivier et al., 2011). The authors

postulate that the decline was a result of inadequate feedback, as deliberate practice is predicated on formative feedback (Duvivier et al., 2011).

In regards to outcome assessment, clinical skills were evaluated using a clinical skill test that was part of the curriculum. Duvivier and colleagues (2011) found that students' results on the clinical skill test correlated positively with scores on the subscales of *Planning* and *Concentration/Dedication* in years 1 and 3, along with scores on the subscale of *Repetition/Revision* for year 1 students (p. 6). The researchers conclude that "the positive effects of deliberate practice (as measured by our questionnaire) on test results merit further study to clarify the usefulness of deliberate practice in clinical skills training…" (Duvivier et al., 2011, p. 6).

There is evidence in the literature that the Moulaert Questionnaire has utility in the education and development of counselor trainees. For example, Moulaert and colleagues (2004) state "planning, study style and motivation are important factors in learning" (p. 1051). While planning and study skills can be learned, motivation tends to be more innate. However, motivation can be augmented with the assistance of educators and teachers (Moulaert et al., 2004) and such efforts are enhanced through the measurement of deliberate practice.

Previously, the Moulaert Questionnaire has been used with medical students in varying levels of education and experience (Moulaert et al., 2004; Duvivier et al., 2011). The utility of the instrument in counselor education and training is evident in the literature. Duvivier and colleagues (2011) state that "educators can facilitate clinical skill development by equipping students with skills to use (aspects of) deliberate practice (p. 6). Researchers have further suggested its implementation in comparative studies

(Moulaert et al., 2004). For example, one group participates in deliberate practice (experimental) and another group only participates in standard training practices (comparison). Essentially, this will be the design of the present study, which will utilize a refined version of the Moulaert Questionnaire, uniquely adapted for the purpose of this investigation. The instrument will be utilized to evaluate the aspects of counselor trainees' deliberate practice of case conceptualization. Further details on the Moulaert Questionnaire and its psychometric properties are provided in Chapter Three.

Summary

"Life begins at the end of your comfort zone" (Walsch, 1999). Essentially, this the art of deliberate practice, and case conceptualization mastery, begins with deliberate practice. Clearly, the evidence states that deliberate practice leads to the development and performance of highly effective psychotherapists (Chow et al., 2015). Hypothetically, the use of deliberate practice in counselor training can contribute to the progression from novice to that of competent case conceptualizations. Accordingly, Chow and colleagues (2015) state that "it is possible to speculate on a differential effect of time spent engaging in deliberate practice during the early professional developmental phase of skills acquisition" (p. 342). Furthermore, since most clinicians spend more time in training during the initial phases of their careers, "it would be advisable for future studies to include beginning therapists" (Budge et al., 2013; Chow et al., 2015, p. 342). Ultimately, this would be in comparison to their study of professionals and the "maintenance" of psychotherapeutic competencies.

As evidenced in previous studies, case conceptualization can be learned via structured and standardized training. Development of an effective case conceptualization

is a necessary component to being a competent counselor. However, researchers indicate that counselors are not being properly trained in developing case conceptualizations. The review of the literature validates the need for evidence-based training and the utilization of an integrative model in case conceptualization. An integrative model allows counselors to approach a case from various theoretical perspectives, thereby, enhancing competence and producing positive outcomes.

No longer treated as a nuisance variable (Garfield, 1997; Chow et al., 2015, p. 343), the impact that a particular therapist has on clinical outcomes continues to be of great importance. In accordance with previous findings, Chow et al. (2015) state that their study's results are consistent with that of prior research. Clearly, therapists vary in their ability to engage and help clients (Chow et al., 2015, p. 343). Therefore, in regards to CES, more time and effort need to be spent in the application of evidence-based training procedures. It is both pertinent and significant to the future of the profession and the consumer market that such investigation occurs. Ultimately, if case conceptualization is "the heart of evidence-based practice" (Bieling & Kuyken, 2003, p. 53) and pattern is the heart of an evidence-based case conceptualization, then deliberate practice is an evidence-based training method in achieving such competency. The present study will examine the effects of case conceptualization training and deliberate practice coaching on counselor trainees' competence.

III. METHOD

Chapter One of this proposal introduced the constructs of case conceptualization and deliberate practice. Chapter Two presented a review of the literature associated with this study, which included articles about (1) case conceptualization, (2) training research, (3) evidence-based practice (EBP), and (4) deliberate practice. This third chapter describes the present study in detail, including (a) research questions and hypotheses, (b) variables, (c) study design, (d) participants, (e) instruments, (f) procedure, (g) data collection, and (h) data analysis.

Research Questions and Hypotheses

The study examined the following research questions:

- Research Question 1: Do participants coached in deliberate practice develop better written case conceptualizations than participants with no formal coaching?
    - Null Hypothesis 1 (Ho_1): Participants coached in deliberate practice will not develop better written case conceptualizations than participants with no formal coaching.
- Research Question 2: What is the effect of deliberate practice coaching on participants' competence in writing case conceptualizations?
    - Null Hypothesis 2 (Ho_2): There will be no effect of deliberate practice coaching on participants' competence in writing case conceptualizations.
- Research Question 3: Does a three-hour, initial training lecture increase counselor trainee competence in developing a case conceptualization?

    - Null Hypothesis 3 (Ho_3): A three-hour, initial training lecture will not increase counselor trainee competence in developing a case conceptualization.
- Research Question 4: Does a three-hour, initial training lecture reduce counselor trainee myths about case conceptualizations?
    - Null Hypothesis 4 (Ho_4): A three-hour, initial training lecture will not reduce counselor trainee myths about case conceptualizations.
- Research Question 5: Does a three-hour, follow-up training lecture increase counselor trainee competence?
    - Null Hypothesis 5 (Ho_5): A three-hour, follow-up training lecture will not increase counselor trainee competence.
- Research Question 6: Do the effects of case conceptualization training persist over time?
    - Null Hypothesis 6 (Ho_6): The effects of case conceptualization training will not persist over time.
- Research Question 7: What variables of attitudes toward evidence-based practice (appeal, requirement, openness, divergence) influence whether the effects of case conceptualization training persist over time?
    - Null Hypothesis 7 (Ho_7): These variables will have no influence on whether the effects of case conceptualization training persist over time.
- Research Question 8: What variables (aspects) of deliberate practice (planning, concentration/dedication, repetition/revision or review/evaluate, study style/self-

reflection) influence whether the effects of case conceptualization training persist over time?

- Null Hypothesis 8 (Ho_8): These variables (aspects) will have no influence on whether the effects of case conceptualization training persist over time.

Variables

The study examined the following variables:

Dependent Variables

- Counselor trainee case conceptualization competence, as measured by the CCEF 2.0
- Counselor trainee views about case conceptualization, as measured by the VACC

Independent Variables

- Three-hour, standardized case conceptualization training lecture
- Three-hour, standardized follow-up training lecture, focusing on culturally-sensitive treatment, strengths, predictive factors, and predictions
- Three, individual deliberate practice coaching sessions
- Counselor trainee variables (gender, age, race/ethnicity, graduate school completion, grade point average [GPA], counseling experience, attitudes toward evidence-based practice, and aspects of deliberate practice)

Mediating Variables

- Attitudes toward evidence-based practice, as measured by the EBPAS
- Aspects of deliberate practice, as measured by the Moulaert Questionnaire

Study Design

This study used a longitudinal, quasi-experimental design, in which participants were not randomized (Morgan, Gliner, & Harmon, 2000) into multiple interventions. These included (1) two, separate case conceptualization lectures and (2) three, individual deliberate practice coaching sessions. Separated by approximately four weeks apart, participants took part in two, separate case conceptualization interventions, which were presented as case conceptualization training lectures. These standardized trainings were based on the integrative case conceptualization model developed by Dr. Len Sperry (1989) and further expanded upon in Sperry (2010b), and later again by Sperry and Sperry (2012). The lectures taught participants about case conceptualizations and how to write them. This included elements such as presentation, precipitant, predisposing factors, and perpetuating factors. Based on the information presented, participants were asked to complete a total of four written case conceptualizations for homework. These assignments occurred periodically throughout the course of the study.

Case Conceptualization Lectures. In the first lecture, participants reviewed and signed all consent forms. These forms outlined confidentiality, the benefits and risks of the study, and other pertinent information. All participants were then given the same case vignette, which was developed specifically for this training and used in three previous studies (Ladd, 2015; Smith Kelsey, 2014; Stoupas, 2016). Based on the case vignette, participants were given 15 minutes to write an original case conceptualization. Then, participants completed the pre-test measures, which included the (1) Moulaert Questionnaire (Moulaert et al., 2004; Duvivier et al., 2011), (2) EBPAS (Aarons, 2004), and (3) VACC instrument (Sperry, 2012b).

The initial training was comprised of a ninety-minute pre-recorded video presented by Dr. Jonathan Sperry, co-author of the book *Case Conceptualization: Mastering this Competency with Ease and Confidence* (Sperry & Sperry, 2012). As implicated in the Ladd (2015) study, this format promotes standardization, helping to minimize any variation between the two lectures. All participants received booklets containing training materials related to the content. The training lecture began with a presentation about case conceptualization, associated myths, and the relationship to EBP. Focusing on the brief case conceptualization framework, the training then reviewed the elements and functions of this competency in detail. This included a (1) counseling session segment and (2) written case conceptualization (with high levels of explanatory and predictive power) based on the client from the segment. The training lecture also contained a second videotaped counseling session. This was then followed by a ten-minute interactive portion that was researcher-administered. During the interactive portion, participants were asked to consider each of the case conceptualization elements.

Following the taped portion of the training, participants were given another fifteen minutes to write a second case conceptualization based on the pre-test case vignette. Participants then completed the VACC (post-test) to measure the effect that the training had on their case conceptualization beliefs. Lastly, participants completed a Demographic Questionnaire and Training Lecture Questionnaire. Using the CCEF 2.0 (Sperry, 2015), both preliminary case conceptualization skill, and any changes between the pre and post-tests were measured. Further details and analysis of these instruments will be provided later in this chapter and in subsequent chapters.

The second training lecture occurred approximately four weeks following the first training. Similar to the first training lecture, participants were presented with a new case vignette and given fifteen minutes to write a case conceptualization. Following the training, these case conceptualizations were then scored using the CCEF 2.0 instrument. Scores from this second pre-test assessed for (1) the effects that endured from the first training and (2) what individual variables influenced this. The differences between the post-training CCEF 2.0 scores of the first lecture were then compared to the pre-training scores of the second lecture. Due to the approximate four-week interval between trainings, the two scores' relationship to one another established the endurance of training effects, over time.

In the second lecture, participants viewed a new, ninety-minute pre-recorded training presentation. This lecture was presented by Dr. Len Sperry, the other co-author of the book *Case Conceptualization: Mastering this Competency with Ease and Confidence* (Sperry & Sperry, 2012). Participants were given another booklet that contained lecture-related materials. The second lecture built upon the initial training and included new elements found in a full-scale case conceptualization. These elements included (a) client culture, (b) strengths and protective factors, (c) anticipating treatment obstacles, and (d) explanatory power.

Similar to the first training, this lecture included a new counseling session segment, along with an exemplar case conceptualization based on the segment. Afterwards, there was another ten-minute interactive portion that was again, researcher-administered. Following the training, participants then wrote another case conceptualization based on the earlier case vignette. Again, using the CCEF 2.0, these

case conceptualizations were scored, post-facto. Finally, participants completed a second Training Lecture Questionnaire and the Moulaert Questionnaire (post-test). This served as a progress monitoring tool for any changes in participants' involvement in aspects of deliberate practice.

The vignettes used for both the first and second lectures were developed specifically for these trainings. The first vignette was used in three previous studies (Ladd, 2015; Smith Kelsey, 2014; Stoupas, 2016). The second vignette was developed specifically for and used only in the Stoupas (2016) study. The vignettes included a summary of client data related to the case conceptualization elements and the client's *Diagnostic and Statistical Manual of Mental Disorders, Fifth edition* (DSM-5) diagnoses. These vignettes have been evaluated and substantiated by counseling professionals. Their conclusions are that the training content is free of error and bias.

To limit the potential problems caused by large groups, such as participant confusion, logistical challenges, distractions, and increased demand on facilitator attention, training lectures consisted of approximately thirty students and occurred during scheduled classroom lectures. The lectures were conducted in large classroom settings, located on the campuses of each respective university. The study design of the training lectures and the material presented in the trainings are depicted in Figure 3 below:

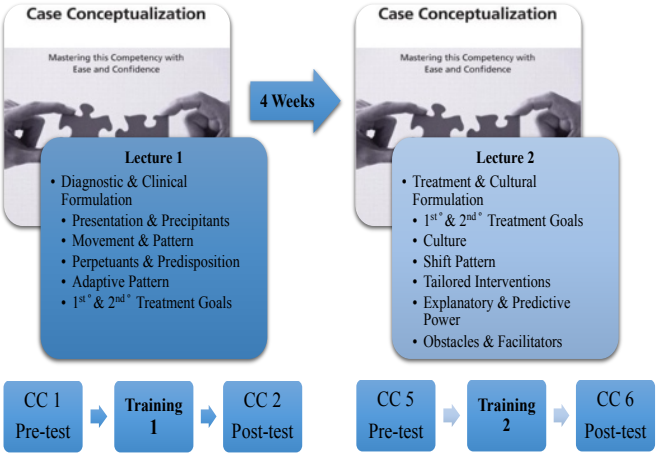


Figure 3. Case Conceptualization Training Study Design

Deliberate Practice Coaching Sessions. Conducted by this doctoral candidate, the supplemental intervention of deliberate practice coaching occurred in three, fifteen-minute (approximately), individually-based sessions with each participant in the deliberate practice coaching sample (n = approximately 35). Each session comprised the five components of deliberate practice: (1) self-assessment, (2) skill repetition, (3) formative feedback, (4) stretch goals, and (5) progress monitoring.

Throughout the study, all participants were asked to complete a total of four case conceptualizations for homework. The first homework was assigned following the initial training. Based on a statement sheet of a standardized case, participants were asked to complete a brief case conceptualization for homework. The completed case conceptualization assignment was then reviewed in the first deliberate practice coaching session. This only took place with the experimental group.

The first deliberate practice coaching session occurred approximately two weeks following the first lecture. The session protocol included the following:

- Review of the first homework assignment with a brief discussion of case conceptualization strengths and weaknesses.
- Review of the evaluated Moulaert Questionnaire (pre-test) and a brief discussion of deliberate practice strengths and weaknesses.
- Based on the in-session discussion, participants then participated in a structured and individualized case conceptualization exercise.

Grounded in the five components of deliberate practice, the in-session exercise served as a "stretch goal" in order to foster case conceptualization competence. Vital to the process was the incorporation of formative feedback, which was individually tailored to each participant's progress.

At the end of the second training lecture, participants were asked to complete another case conceptualization for homework. Based on a statement sheet of a standardized case, this assignment included the new elements found in a full-scale case conceptualization. These elements included (a) client culture, (b) strengths and protective factors, (c) anticipating treatment obstacles, and (d) explanatory power. Each participant in the deliberate practice coaching sample then reviewed the completed assignment in their second deliberate practice coaching session.

The second deliberate practice coaching session occurred approximately the week following the second lecture. The session protocol included the following:

- Review of the homework assignment with a follow-up discussion of case conceptualization strengths and weaknesses.

- Review of the evaluated Moulaert Questionnaire (post-test) and a follow-up discussion of deliberate practice strengths and weaknesses.
- Based on the in-session discussion, participants then participated in another structured and individualized case conceptualization exercise.

The in-session exercise served as another "stretch goal," building on the initial one established in the first deliberate practice session. Based on the components of deliberate practice, this further enhanced participants' case conceptualization competence. Individually based on each participant's progress, the incorporation of formative feedback was fundamental to the process. The second session then concluded with the distribution of the third homework assignment. Based on a statement sheet of a standardized case, the assignment was in the form of another full-scale case conceptualization. To further progress competency and skill level, participants were asked to focus on specific elements of personal struggle and difficulty.

The third and final deliberate practice coaching session occurred approximately one week after the second deliberate practice coaching session. The session protocol included the following:

- Review of the third homework assignment with a follow-up discussion of case conceptualization strengths and weaknesses.
- Concluding discussion of deliberate practice strengths and weaknesses accompanied with motivational interviewing.
- Based on the in-session discussion, participants then participated in a structured and individually tailored review of their overall case conceptualization competence.

The in-session discussion and review served as a final "stretch goal," building on the previous two sessions. Based on the five components of deliberate practice, this helped to solidify participants' case conceptualization competence. Individually based on each participant's progress, the incorporation of formative feedback and motivational interviewing helped to facilitate the process. The third session then concluded with the third and final administration of the Moulaert Questionnaire (post-post-test). This served as an outcome measure for any changes in participants' involvement in deliberate practice. The study design of the sessions is depicted in Figure 4 below:

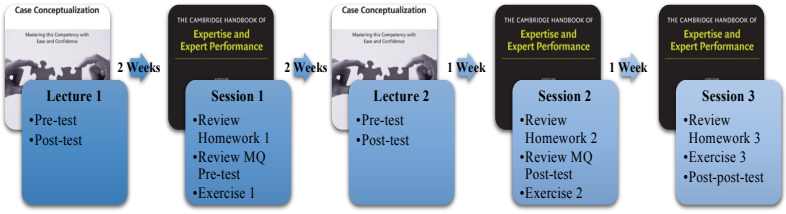


Figure 4. Deliberate Practice Coaching Study Design

Participants

Participants were master's-level, pre-practicum students (i.e., counselor trainees) enrolled in an introductory counseling theories and techniques course. Both, the experimental and comparison group were recruited from two South Florida universities

(one large, public university and one small, private university). Only one of the universities was accredited by CACREP. Both groups received two, separate trainings on a (1) brief case conceptualization and (2) full case conceptualization. Participants in both groups formulated written case conceptualizations based on standardized case vignettes and completed five instruments (pre and post-tests). These included the (1) Demographic Questionnaire, (2) Moulaert Questionnaire, (3) EBPAS, (4) VACC, and (5) Training Lecture Questionnaire. Pre-test and post-test results were then compared between groups. The experimental group also received the coaching intervention of deliberate practice. The intervention comprised of three, fifteen-minute individual sessions, which occurred between the training lectures.

This study utilized a non-random, convenience sample of the graduate counseling students (i.e., counselor trainees) enrolled in one of the two South Florida universities. Participants were recruited by means of departmental contacts within each of the two counseling programs. According to a G-Power a priori analysis, a minimum sample size of 50 was needed to detect an effect size of 0.5 with a power of 0.95 and an alpha of .05. However, a sample size of approximately 84 participants was achieved with 35 participants in the experimental group and 49 participants in the comparison group. This total was 14 more participants than the initially proposed total of 70, which was due to a surplus of recruits, and conducted to maintain the statistical power, while furthering the generalizability of the results. Distribution of the total sample is depicted in Figure 5 below:

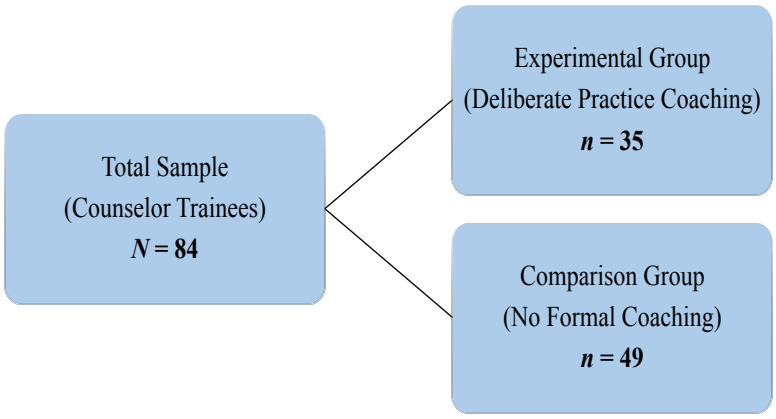


Figure 5. Two-Arm Sample Distribution

Participants were informed that the purpose of the study was to measure the effects of a case conceptualization training on counselor competence, while investigating the influence of other variables. They were informed of the risks and benefits of participation, and that their participation was voluntary. Prior to the training, they were asked to read and sign an Institutional Review Board (IRB)-approved informed consent form, also known as an "adult consent form" (see Appendix F). Those who gave consent and participated in the study received the following incentives: (1) two, spiral-bound booklets containing the content presented in each lecture, and (2) complimentary coffee, water, and snacks during each lecture. Furthermore, participants were informed that they were free to withdraw from the study at any time. Participant confidentiality was protected according to the procedures outlined in the following sections.

Instruments

Case Conceptualization Evaluation Form (CCEF) 2.0. Case conceptualizations were evaluated using the CCEF 2.0. Developed by Sperry (2015), this ten-item instrument is an updated version of the original seven-item instrument (CCEF). It is designed to evaluate the quality of case conceptualizations according to the Sperry (1989; 2010b) integrative model. The ten items correspond to ten of the key elements found in the model. The instrument can further be used to evaluate case conceptualizations from the various different theoretical models. The content elements in the CCEF 2.0 include (a) *presentation*, (b) *precipitants*, (c) *maladaptive pattern*, (d) *predisposing factors*, (e) *treatment goals and interventions*, (f) *explanatory power,* (g) *completeness,* (h) *coherence,* (i) *cultural sensitivity,* (j) *tailoring power,* and (k) *predictive power*. Each item is rated on a 0-10 Likert-type scale, where 0 represents failure to identify the item and 10 represents full and accurate articulation of the item. For example, in item 1 on the CCEF 2.0, "0 = fails to identify presentation and/or precipitant and/or link between both" and "10 = fully and accurately identifies presentation and precipitant and link between both." To obtain the overall score, the average of each of the 10 items is taken. Therefore, the range of possible CCEF 2.0 scores are 0 to 10. The gain score range is 0 to 100.

Smith Kelsey (2014) compared the CCEF to the Case Formulation Content Coding Method (CFCCM) designed by Eells and colleagues (1998). The results indicated that the CCEF better discriminated between items and was found to be a superior instrument. In comparison to the CFCCM alphas of .708 (pre-test) and .703 (post-test), Smith Kelsey (2014) reported a reliability analysis with Cronbach's alphas of .709 (pre-test) and .815 (post-test). Smith Kelsey (2014) further expressed good construct and face

validity, as CCEF scores were related to CFCCM scores, and the instrument represents all of the case conceptualization elements. It is also worth noting that the 10-item CCEF 2.0 takes approximately 15 minutes to complete, whereas the 94-item CFCCM takes between 45-60 minutes to score.

In a subsequent study, Ladd (2015) used the CCEF to evaluate the case conceptualizations of graduate counseling students. Similarly, Ladd (2015) found it to be both reliable and convenient to use. The reliability analysis resulted in an overall alpha of .969 (Ladd, 2015). In regards to the experimental group of 75 counseling students, Ladd (2015) reported that the original CCEF (7-item instrument) had a pre-test *M* of 8.23 (out of 70, *SD* = 7.09) and a post-test *M* of 44.12 (out of 70, *SD* = 9.84).

In comparison to the CCEF, Stoupas (2016) indicated improved psychometrics on the CCEF 2.0. Stoupas (2016) used two independent raters to evaluate all four of the case conceptualizations. Between the average scores of the two raters, the analysis revealed an overall highly reliable intraclass correlation across all four cases at .920 with a Cronbach's alpha of .87 (Stoupas, 2016). Unlike the original 7-item instrument, the CCEF 2.0 contains 10 items. Therefore, these numbers were expected to somewhat deviate from the Smith Kelsey (2014) and Ladd (2015) studies. The developer of the instrument, Sperry (2015) has permitted it to be used in this study.

Views About Case Conceptualization (VACC). Developed by Dr. Len Sperry (2012b), this six-item instrument was used to evaluate participants' views about case conceptualization. Items 1 through 5 use a seven-point Likert-type scale, where "1 = completely agree" and "7 = completely disagree." Items 1 through 5 on the VACC include (1) *Case conceptualizations are not clinically useful*; (2) *There are other clinical*

skills that are more important than case conceptualizations; (3) *Formulating and writing case conceptualizations is too time consuming*; (4) *Learning how to write case conceptualizations is too difficult*; (5) *A case conceptualization is basically a case summary*. The score range for these five items is 5-35. The overall score is obtained by totaling each item. The sixth question is multiple choice and follows accordingly: "My knowledge and experience with formulating and writing case conceptualizations is…" Participants were then asked to select either (a) *no knowledge and no experience*; (b) *some knowledge and no experience*; (c) *some knowledge and some experience*; (d) *considerable knowledge and some experience*; (e) *considerable knowledge and considerable experience.*

Participants completed this instrument twice. This included (1) before the first lecture and (2) after the first lecture. The pre and post-test comparisons were used to measure the differences in their views following the first training. Due to the importance and definition of case conceptualization having already been established in the first training, the VACC was not used again in the second lecture.

Prior studies conveyed good face validity and internal consistency on all of the items (Ladd, 2015; Smith Kelsey, 2014; Stoupas, 2016). Smith Kelsey (2014) reported Cronbach's alphas of .863 (pre-test) and .707 (post-test). The Ladd (2015) study reported a Cronbach's alpha of .512 for the overall instrument, which is below the .70 standard. However, Lance, Butts, and Michaels (2006) contend that reliability depends on how an instrument is used. Tavakol and Dennick (2011) state that alpha scores are also affected by an instrument's number of items. Therefore, it is to be expected that alpha scores will be lower for a six-item instrument, such as the VACC. This is because hypothetically,

scores should increase with the addition of more items. Most recently, Stoupas (2016) reported a Spearman-Brown reliability coefficient of .727. The developer of the instrument, Sperry (2012b) has granted permission for it to be used in this study.

Evidence-Based Practice Attitude Scale (EBPAS). Developed by Aarons (2004), this fifteen-item instrument was used to assess counselor trainees' attitudes toward EBP. The EBPAS consists of four subscales, including (1) *Appeal* (the intuitive appeal of learning new practices); (2) *Requirement* (the likelihood of adopting EBPs, if required to do so by a supervisor, organization, or state); (3) *Openness* (overall acceptance of new practices); (4) *Divergence* (perceived difference between current clinical practice and research-based interventions). The *Requirement* subscale has three items, while the remaining subscales (*Appeal*, *Openness*, *Divergence*) have four items, each.

Respondents are asked to rate their "feelings about using new types of therapy, interventions, or treatment." This is accomplished with a five-point Likert scale, ranging from "0 = not at all" to "4 = to a very great extent" on all fifteen items. Items 1 through 8 ask respondents to rate their level of agreement with a statement about EBP. Examples of these statements include "I like to use new types of therapy/interventions to help my clients" (*Openness*) and "I know better than academic researchers how to care for my clients" (*Divergence*). Items 9 through 15 ask respondents to rate their likelihood of adopting a new therapy or intervention, given various circumstances. These include statements like "if it was required by your supervisor" and "if it was being used by colleagues who were happy about it."

The subscale scores are obtained by computing the mean score for the items related to each subscale. The total EBPAS score is the average of each subscale. EBPAS subscale scores can be calculated individually by computing the mean score for items in each subscale. The EBPAS total score is obtained by first, reverse scoring items from the *Divergence* subscale, and then, averaging the subscale scores. Scores for both the total EBPAS and the subscales, range from 0 to 4.

In Aarons' (2004) original sample of 322 clinicians, the mean score for the total instrument was 2.30 (*SD* = 0.45). Subscale means were also reported, as follows: *Requirements*, 2.47 (*SD* = 0.88); *Appeal*, 2.90 (*SD* = 0.67); *Openness*, 2.49 (*SD* = 0.75); *Divergence*, 1.34 (*SD* = 0.67). Aarons (2004) further reported that the EBPAS demonstrated good internal consistency, with a Cronbach's alpha of .77 for the total instrument and subscale alphas as follows: *Requirements*, .90; *Appeal*, .80; *Openness*, .78; *Divergence*, .59.

Aarons (2004) commented on the lower score of the *Divergence* subscale, concluding that this would not have improved by removing items. In a subsequent study, Aarons et al. (2010) established national means with a group of 1,089 mental health service providers. In this study, the *Divergence* subscale alpha increased to .67 (Aarons et al., 2010). The national norms established by Aarons et al. (2010) were the following: Total EBPAS 2.33 (*SD* = 0.45); *Requirement*, 2.41 (*SD* = 0.99); *Appeal*, 2.91 (*SD* = 0.68); *Openness*, 2.76 (*SD* = 0.75); *Divergence*, 1.25 (*SD* = 0.70).

In Stoupas' (2016) study of various clinicians, the reported alpha reliability coefficient was .683 for the first administration (*N* = 104) and .762 for the second administration, four weeks later (*N* = 74). The combined EBPAS alpha for both

administrations was .802 (Stoupas, 2016). Respectively, Stoupas (2016) reported Cronbach's alphas for each of the subscales on both the first and second administrations, as follows: *Appeal*, .758 (first) and .673 (second); *Requirements*, .871 (first) and .968 (second); *Openness*, .760 (first) and .840 (second); *Divergence*, .691 (first) and .671 (second). Stoupas (2016) concluded that these results were similar to those found in Aarons' (2004) original study of clinicians.

For the present study, participants completed the EBPAS twice. This occurred prior to the start of the first training and served as a diagnostic tool. The pre-test EBPAS score helped to determine if participants' attitudes toward EBP are associated with other study variables and training effects. The second administration (post-test) occurred following the second training, which was compared to participants' pre-test EBAS scores. Permission to use the EBPAS has been obtained from the developer, Gregory Aarons (see Appendix B).

Moulaert Questionnaire. Originally developed by Moulaert et al. (2004) and then adapted by Duvivier et al. (2011), this 26-item instrument is a valid and reliable measure of deliberate practice. Exclusively for the purpose of this study, it was further adapted by this author and was used to evaluate aspects of counselor trainees' deliberate practice. The originally revised instrument adapted three of the four original subscales and the factor analysis resulted in a total of twenty-six items from the original thirty-five items. Of the original subscales, the only one that remains in the new version is the 'planning' subscale. The amended subscales include (1) concentration/dedication, (2) repetition/revision (i.e., review/evaluate), and (3) study style/self-reflection. As outlined

by Duvivier et al. (2011), the Moulaert Questionnaire now consists of the following four subscales:

1. *Planning* (higher scores indicate a stronger tendency to organize work in a structured way);
2. *Concentration/Dedication* (higher scores indicate a shorter attention span);
3. *Repetition/Revision* (higher scores indicate a stronger tendency to practice);
4. *Study style/Self-reflection* (higher scores indicate a stronger tendency to self-regulate learning).

Respondents are asked to indicate their level of participation on various study activities and personal study-related aspects. This is accomplished with a five-point Likert scale, ranging from "1 = never" to "5 = always." Each of the items ask respondents to answer statements directly related to aspects of deliberate practice. Examples of these statements include "When I have made a schedule I stick to it." (*Planning*); "I take breaks when I am studying." (*Concentration/Dedication*); "I revise skills during unsupervised practice." (*Repetition/Revision*); "When something goes wrong in my studies I try to find out what caused it." (*Study style/Self-reflection*).

In the Duvivier et al. (2011) study of 875 medical students, subscale means were reported as follows: *Planning*, 3.07 (*SD* = 0.73); *Concentration/Dedication*, 2.89 (*SD* = 0.71); *Repetition/Revision*, 2.79 (*SD* = 0.70); *Study style/Self-reflection*, 3.61 (*SD* = 0.45). Duvivier et al. (2011) also indicated that the Moulaert Questionnaire demonstrated good internal consistency, with subscale alphas as follows: *Planning*, .76; *Concentration/Dedication*, .57; *Repetition/Revision*, .67; *Study style/Self-reflection*, .73.

Duvivier and colleagues (2011) commented on the deficient result of the *Repetition/Revision* subscale, concluding that it was not related to any of the particular items. In fact, the authors declare that the low score was a direct result of inadequate feedback (Duvivier et al., 2011). As evidenced in the literature, formative feedback is a significant factor of deliberate practice. Despite this shortcoming, Duvivier et al. (2011) support the utility of the questionnaire as the results positively correlated with the other three subscales, especially the *Planning* and *Concentration/Dedication* scales.

For the purpose of this study, the comparison group completed the Moulaert Questionnaire twice (pre and post-test), while the experimental group participants completed the Moulaert Questionnaire three times, as follows:

1. Prior to the beginning of the first lecture (pre-test)
2. At the conclusion of the second lecture; approximately four weeks after the first lecture (post-test)
3. After the third and final deliberate practice coaching session (post-post-test)

Based on progress monitoring and outcome assessment, these three indicators were compared over time to assess for any changes. Furthermore, it helped to clarify if any of these changes were associated with other study variables. Authorization to adapt and use the Moulaert Questionnaire has been obtained from its developers, Drs. Robbert Duvivier and Véronique Moulaert (see Appendix A).

Demographic Questionnaire. All participants completed a questionnaire that collected demographic-related information (see Appendix C). This included (a) gender, (b) age (in 10-year increments from 18-27 to 68+), (c) race/ethnicity, (d) graduate school completion (total number of credits completed), (e) grade point average (GPA; in 0.5

increments from 0.0 to 4.0), and (f) counseling experience (total number of years and months). This information was used as an additional variable and examined in the analyses.

Training Lecture Questionnaire. The ten-item questionnaire (see Appendix D) evaluated participants' views about the case conceptualization training lectures. The instrument is based on a five-point Likert scale, where "1 = strongly disagree" and "5 = strongly agree." Items include statements about the pace of the lecture, whether the lecture fulfilled expectations, and how well the lecture stimulated learning.

This was similar to the questionnaire used in the Stoupas (2016) study, which was based on an original, nine-item version used in two prior studies (Ladd, 2015; Smith Kelsey, 2014). However, the current version contains two new items, asking participants to rate the following: (1) *level of confidence in using what they learned* and (2) *level of importance in using what they learned*. The purpose of the instrument was two-fold. First, the data concerning participants' level of confidence and perceived importance were used to analyze their relationship to the training effects. Second, the information collected served to aid in the quality enhancement and improvement of future trainings.

Procedure and Data Collection

IRB permission (see Appendix E) to conduct this research was obtained from each of the two universities' boards prior to participant recruitment and data collection. The training lectures were administered according to the class schedules and the study protocol. This doctoral candidate and a trained, IRB-approved assistant administered and collected all pretests, posttests, and questionnaires. To protect participant confidentiality, participant numbers were printed on each of the forms used in this study. Numbers were

only linked to participants' names on the consent form. All participant information and forms were kept in a double-locked, secure location. Throughout the scoring process, these were only accessible to the study's principal investigator, co-investigators, and trained raters.

Lecture Facilitators. The two presenters of the recorded lectures were the co-authors of the book *Case Conceptualization: Mastering this Competence with Ease and Confidence* (Sperry & Sperry, 2012). The training and its materials were based on the book. Both facilitators are experts in the field with extensive knowledge in case conceptualization and EBP.

One of the facilitators is an Associate Professor, who teaches counseling courses at a private university in South Florida. He holds an Ed.S. in Mental Health Counseling and a Ph.D. in CES from a CACREP-accredited CES program.

The other facilitator is a Professor of Clinical Mental Health Counseling at a CACREP-accredited public university in South Florida. He holds multiple degrees, including an M.D. and Ph.D., and has published numerous books and articles on case conceptualization (see references).

The doctoral candidate and author of this dissertation facilitated the following: (a) introduction to the training, (b) interactive portion of the training, (c) question and answer portion at the end of the lecture, and (d) three deliberate practice coaching sessions. He is a Caucasian, American male in his early thirties with an M.S. in Mental Health Counseling and is a licensed mental health counselor (LMHC) in the state of Florida.

Raters. This doctoral candidate scored the data from the VACC, EBPAS, Moulaert Questionnaire, Demographic Questionnaire, and Training Lecture

Questionnaire, as these instruments are solely objective. The CCEF 2.0, however, is a subjective assessment, as it involves assigning scores to various elements of written case conceptualizations. Therefore, two independent raters were trained to score participants' case conceptualizations using this instrument. This was done to reduce the possibility of rater and researcher bias that would confound the results.

The extensive rater training consisted of information about the case conceptualization integrative model and numerous sample case conceptualizations with varying degrees of completeness and complexity. The training further included various practice ratings, accompanied with extensive discussion of the raters' rationale. Raters were instructed to objectively score participants' case conceptualizations based on their specific training.

Prior to scoring participant case conceptualizations, inter-rater reliability was established using sample cases. This was done by computing for Cronbach's alpha using the Statistical Package for the Social Sciences (SPSS, v.24) to measure the degree of association between the two raters' CCEF 2.0 pre and post-test scores on the sample case conceptualizations. In the social sciences, a reliability (inter-rater) coefficient of .70 or more is considered to be acceptable (Lance et al., 2006).

Data Analysis

The data from this study was analyzed using (1) repeated measures MANOVA, (2) paired samples *t*-tests, (3) frequency distribution, and (4) correlation analysis. The following research questions were measured by the CCEF 2.0 and analyzed with repeated measures MANOVA and paired samples *t*-tests:

- Research Question 1: Do participants coached in deliberate practice develop better written case conceptualizations than participants with no formal coaching?
- Research Question 2: What is the effect of deliberate practice coaching on participants' competence in writing case conceptualizations?
- Research Question 3: Does a three-hour, initial training lecture increase counselor trainee competence in developing a case conceptualization?
- Research Question 5: Does a three-hour, follow-up training lecture increase counselor trainee competence?
- Research Question 6: Do the effects of case conceptualization training persist over time?

MANOVA is an inferential statistic and procedure that removes variances in the pre-test from variances in the post-test. Another type of inferential statistic, a *t*-test determines if there is a significant difference between the means of two groups that may have unknown variances. The gain score on the CCEF 2.0 (0-100 possible points across 10 items) was obtained by subtracting pre-test scores from post-test scores and homework assignment scores.

The following research question was investigated using a paired samples *t*-test and frequency distribution:

- Research Question 4: Does a three-hour, initial training lecture reduce counselor trainee myths about case conceptualizations?

Again, a *t*-test is an inferential statistic used to find significant differences between the means of two groups. A frequency distribution is an overview of the values and total occurrences for a variable. Items 1 through 5 on the VACC (pre and post-test) were

analyzed with a paired samples *t*-test and item 6 on the VACC (pre and post-test) was analyzed with a frequency distribution.

The following research questions were investigated with paired samples *t*-tests and correlation analysis:

- Research Question 7: What variables of attitudes toward evidence-based practice influence (appeal, requirement, openness, divergence) whether the effects of case conceptualization training persist over time?
- Research Question 8: What variables (aspects) of deliberate practice (planning, concentration/dedication, repetition/revision or review/evaluate, study style/self-reflection) influence whether the effects of case conceptualization training persist over time?

The variables referred to in research question 7 were measured using the EBPAS and the variables (aspects) referred to in research question 8 were measured using the Moulaert Questionnaire (adapted). Furthermore, additional analyses of the data were performed using correlation analysis. This determined if (1) counselor trainees' attitudes toward EBP acted as a mediating variable in the relationship between case conceptualization training and counselor competence or skill level; (2) aspects of deliberate practice acted as a mediating variable in the relationship between case conceptualization training and counselor competence or skill level.

According to Baron and Kenny (1986), moderation or "a moderator variable affects the direction or strength, or both of the relationship between an independent and dependent variable," which affects the relationship between two other variables in correlation analysis (p. 1174). Mediation occurs when one variable affects another

variable and as a result, affects a third variable (Baron & Kenny, 1986). For example, the experience of bullying may lead to negative views of others, resulting in social inhibition. The relationship between bullying and social inhibition (path c) is mediated by the relationships between bullying and negative views of others (path a) and between negative views of others and social inhibition (path b). Using the same example, *total* mediation is when no social inhibition occurs as a result of bullying without the negative views of others. However, there can also be a direct relationship between the independent and dependent variables (path c), with *partial* mediation by a third variable. These scenarios of the moderator and mediator variable distinction are depicted in Figures 6 and 7 below:

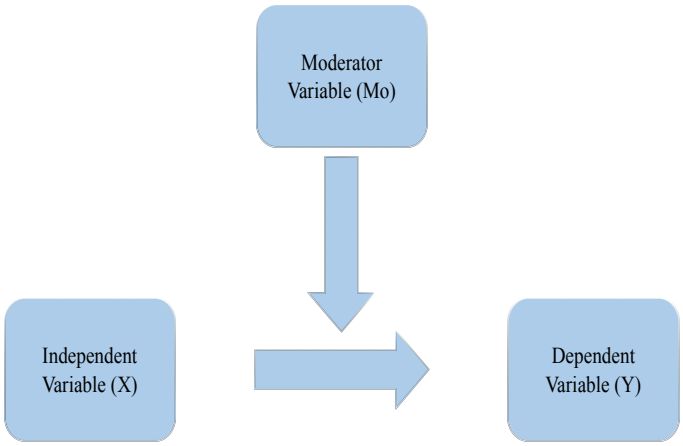


Figure 6. Moderation

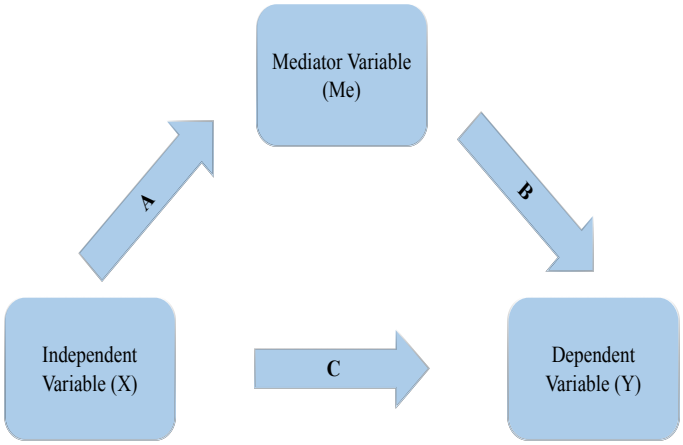


Figure 7. Mediation

There are numerous ways to measure the mediating effects of variables (Baron & Kenny, 1986; Hayes, 2009; Sobel, 1982) and researchers suggest using a four-step process (Baron & Kenny, 1986; James & Brett, 1984; Judd & Kenny, 1981). This process requires performing regression analyses to determine the significance of coefficients. Accordingly, the following four-step procedure was used to determine whether or not counselor trainees' attitudes toward EBP mediated the relationship between case conceptualization training and outcome (CCEF 2.0 scores):

- Step 1. Simple regression analysis to test for the training, predicting counselor trainee competence (measured by CCEF 2.0 score) in a direct effect, alone (path c);
- Step 2. Simple regression analysis to test for the training, predicting EBPAS score, alone (path a);

- Step 3. Simple regression analysis to test for EBPAS score, predicting counselor trainee competence, alone (path b);
- Step 4. Multiple regression analysis with training and EBPAS, predicting counselor trainee competence.

If at least one relationship in Steps 1-3 is not significant, then it is possible to conclude that counselor trainees' attitudes toward EBP are not a mediating variable. However, if all of the relationships in Steps 1-3 are significant, then Step 4 will be performed.

The research seems to support the initial hypothesis that counselor trainees' attitudes toward EBP will mediate the association between case conceptualization training and post-test CCEF 2.0 scores. For example, Aarons, Sommerfeld, and Walrath-Greene (2009) found that organizational support for EBP partially mediated the association between organization type and practitioners' attitudes about EBP. In a later study of substance abuse counselors' attitudes and implementation of EBPs, Smith and Manfredo (2011) found a mediating relationship in counselors who reported a more positive attitude toward EBP implementation on the *Requirement* scale.

As outlined above, the same four-step process was used to determine whether or not aspects of deliberate practice mediated the relationship between case conceptualization training and outcome (CCEF 2.0 scores):

- Step 1. Simple regression analysis to test for the training, predicting counselor trainee competence (measured by CCEF 2.0 score) in a direct effect, alone (path c);
- Step 2. Simple regression analysis to test for the training, predicting Moulaert Questionnaire score, alone (path a);

- Step 3. Simple regression analysis to test for Moulaert Questionnaire score, predicting counselor trainee competence, alone (path b);
- Step 4. Multiple regression analysis with training and Moulaert Questionnaire, predicting counselor trainee competence.

If at least one relationship in Steps 1-3 is not significant, then it is possible to conclude that aspects of deliberate practice coaching are not a mediating variable. However, if all of the relationships in Steps 1-3 are significant, then Step 4 will be performed.

The literature appears to validate the hypothesis that aspects of deliberate practice will mediate the relationship between case conceptualization training and post-test CCEF 2.0 scores. Duvivier and colleagues (2011) found that aspects of deliberate practice partially mediated the association between students' clinical skill development and scores on a clinical skills test. Duvivier et al. (2011) especially noticed this relationship in the medical students who reported higher scores on the *Planning*, *Concentration/Dedication*, and *Repetition/Revision* subscales. Furthermore, deliberate practice has been found to foster competency in a range of health care professions (Love et al., 2016, p. 17), as a number of studies in the surgical training literature indicate a mediating relationship in trainees who participate in deliberate practice (Bann et al., 2005; Love et al., 2016, p. 17).

Summary

This longitudinal, quasi-experimental study measured the effects of a two-part, case conceptualization training and the supplemental intervention of deliberate practice coaching on counselor trainees' case conceptualization competence, as measured by the CCEF 2.0. It further evaluated the relationship between participant demographic variables. These included attitudes toward EBP and responses to the case

conceptualization training, along with aspects of deliberate practice. The preceding chapter described the proposed study's research questions and hypotheses, variables, design, participants, instruments, procedure, data collection, and analysis. The next chapter will present the results of this investigation.

IV. RESULTS

This study investigated the effects of a bipartite, standardized case conceptualization training lecture series and a structured deliberate practice coaching regimen on counselor trainees' capacity to construct coherent case conceptualizations. The study also examined whether or not these effects persist over time. Further analyses were conducted in regard to the mediating effects for aspects of deliberate practice and attitudes toward evidence-based practice (EBP). This chapter will outline these findings and explain the specific results of all identified hypotheses.

First, descriptive statistics will explain the demographic configuration of the sample with related frequencies. This will be followed by a report of the instrumental psychometric properties and the results of the study's principal analyses. Finally, the key findings of the study will be coherently and concisely explained.

Sample Population and Group Characteristics

A total of 84 participants ($N = 84$) were obtained from the Mental Health Counseling programs of two South Florida universities (one large, public university with a CACREP-accredited program and one small, private university with a CACREP "equivalent" program), which was precisely 14 more participants than the proposed total of 70 participants. This was due to a surplus of available participants, which was IRB-approved via a protocol amendment. All participants were master's-level, pre-practicum students (i.e., counselor trainees) enrolled in an introductory counseling theories and

techniques course. By utilizing a non-random, convenience sampling method of the participants, two groups (experimental and comparison) were formed. The experimental group (n = 35) received both the case conceptualization training and deliberate practice coaching, while the comparison group (n = 49) only received the case conceptualization training. The total sample (both groups) were diverse and varied in their demographic characteristics. All participants received and completed the demographics questionnaire, which included the following: (a) gender, (b) age, (c) race/ethnicity, (d) graduate school completion, (e) GPA, and (f) counseling experience. Table 3 below depicts these demographic characteristics for both groups.

Table 3. Demographic Distribution of Total Sample

Category	Frequency	Percent	Cumulative Percent
Group			
Experimental (Deliberate Practice)	35	41.7	14.3
Comparison	49	58.3	100.0
Total	84	100.0	
Gender			
Male	12	14.3	14.3
Female	72	85.7	100.0
Total	84	100.0	
Age			
18 – 27	53	63.1	63.1
28 – 37	11	13.1	76.2
38 – 47	12	14.3	90.5
48 – 57	5	6.0	96.4
58 – 67	3	3.6	100.0
Total	84	100.0	
Race/Ethnicity			
African American/Black	11	13.1	13.1
Caucasian/White	47	56.0	69.0
Hispanic/Latino	22	26.2	95.2
Other	4	4.8	100.0
Total	84	100.0	
Graduate School Completion			
0.0	20	24.4	24.4
6.0	3	3.7	28.0
9.0	6	7.3	35.4
12.0	7	8.5	43.9

15.0	3	3.7	47.6
16.0	1	1.2	48.8
18.0	24	29.3	78.0
21.0	2	2.4	80.5
24.0	4	4.9	85.4
26.0	1	1.2	86.6
27.0	1	1.2	87.8
30.0	1	1.2	89.0
31.0	1	1.2	90.2
33.0	2	2.4	92.7
36.0	3	3.7	96.3
40.0	2	2.4	98.8
50.0	1	1.2	100.0
Total	82	100.0	
Grade Point Average (GPA)			
3.1 – 3.5	12	14.3	14.3
3.6 – 4.0	72	85.7	100.0
Total	84	100.0	
Counseling Experience			
0.00	62	73.8	73.8
0.17	1	1.2	75.0
0.25	1	1.2	76.2
0.33	1	1.2	77.4
0.42	1	1.2	78.6
0.50	1	1.2	79.8
0.58	1	1.2	81.0
0.67	1	1.2	82.1
1.00	3	3.6	85.7
1.25	1	1.2	86.9
1.50	1	1.2	88.1
2.00	2	2.4	90.5
3.17	1	1.2	91.7
4.00	1	1.2	92.9
4.90	1	1.2	94.0
5.17	1	1.2	95.2
5.58	1	1.2	96.4
6.00	1	1.2	97.6
10.50	1	1.2	98.8
15.25	1	1.2	100.0
Total	84	100.0	

Note: Age is according to 10-year intervals from 18 to 67; Graduate School Completion refers to the number of credits completed in a master's-level counseling program; GPA is according to the current average in a master's-level counseling program; Counseling Experience refers to years and months (e.g., 0.25 = 0 years and 3 months of counseling experience).

As stated earlier, 41.7% ($n = 35$) of the total sample were included in the experimental group ($n = 35$), while 58.3% ($n = 49$) represented the comparison group. Out of the 84 total participants, 14.3% ($N = 12$) were male and 85.7% were female ($N = 72$). The largest age group at 63.1% ($N = 53$) was that of 18 to 27 years of age. The smallest age group at 3.6% ($N = 3$) was that of 58 to 67 years of age. The study sample was diverse, as evidenced by the variety in their race and ethnicity. Of the 84 participants, over half (56%) identified as Caucasian/White, which was followed by 26.2% Hispanic/Latino, 13.1% African American/Black, and 4.8% Other. Although participants who selected "other" were allowed to specify their racial/ethnic identity, these findings were not analyzed or reported.

Participants' graduate school completion in a master's-level counseling program ranged from 0 credits at 24.4% ($N = 20$) to 50 credits at 1.2% ($N = 1$). The most frequent entry (subcategory) in this category was that of 18 credits at 29.3% ($N = 24$), which was only slightly more than that of 0 credits. The other entries (subcategories) were not as frequent, with 8.5% ($N = 7$) of participants indicating the completion of 12 credits, 7.3% ($N = 6$) of participants indicating the completion of 9 credits, 4.9% ($N = 4$) of participants indicating the completion 24 credits, 3.6% ($N = 3$) of participants each respectively indicating the completion of 6, 15, and 36 credits, and 2.4% ($N = 2$) of participants each respectively indicating the completion of 21, 33, and 40 credits. The remaining entries (subcategories) were much less significant with only 1 (1.2%) participant per subcategory indicating the specific number of credits completed, which ranged from 16 credits to 50 credits.

At the time of the study, participants were asked to indicate their current GPA in a master's-level counseling program. The subcategory options were in intervals of 0.5 and ranged from 0.0 – 0.5 to 3.6 – 4.0 on a 4.0 grading scale. However, out of all of the participants, only the subcategories of 3.1 – 3.5 and 3.6 – 4.0 were selected. This indicated that an overwhelming majority of participants at 85.7% ($N = 72$) had a GPA in the range of 3.6 – 4.0, while the remaining participants at 14.3% ($N = 12$) had a GPA in the range of 3.1 – 3.5.

The questionnaire also asked participants to indicate their total counseling experience in years and months. The result was that most of the participants at 73.8% ($N = 62$) had no (0 years and months) counseling experience, while 3.6% ($N = 3$) had a year of counseling experience, and 2.4% ($N = 2$) had 2 years of counseling experience. Other than the aforementioned entries (subcategories), all of the other answers (subcategories) corresponded with only 1 (1.2%) participant each. These ranged from approximately 2 months (.17) to 15 years and 3 months (15.25) of counseling experience.

Lastly, the Demographic Questionnaire asked participants two dichotomous (yes or no) questions. These questions included (1) whether or not they consider themselves "religious and/or spiritual" and (2) if they hold "paranormal beliefs (e.g., ESP, ghosts, psychic abilities, etc.)." These last two questions were theoretically based and added for hypothetical reasons. However, post-hoc analysis revealed that there were no theoretical or practical implications found. Therefore, these items are not included in this section and the results will not be reported, or discussed any further.

Instrument Psychometrics

The instruments utilized in this study included the following: (1) CCEF 2.0, (2) VACC, (3) EBPAS, (4) Moulaert Questionnaire, (5) Demographic Questionnaire, and (6) Training Lecture Questionnaire. Of these 6 instruments, only the psychometric properties of the CCEF 2.0 were performed and analyzed. The psychometric properties of the VACC and EBPAS have been well-established from previous studies, and further analysis was not a goal of this project.

It is worth noting that this author developed, and was the first to use a refined version of the Duvivier et al. (2011) Moulaert Questionnaire. However, the instrument's psychometrics were not a focus of this study and only a summary of the adaptations made will be discussed. The development and use of such a novel instrument were strictly done out of necessity, as no such measurement existed in the CES literature. As for the Demographic Questionnaire and Training Lecture Questionnaire, further psychometric testing was also deemed unnecessary at this present time. This is because responses to their items were strictly achieved for demographics, quality control, and posterity.

Case Conceptualization Evaluation Form (CCEF) 2.0. Developed by Sperry (2015), this 10-item instrument is an updated and refined version of the original 7-item instrument (CCEF). It is designed to evaluate the quality of case conceptualizations according to the Sperry (1989; 2010b) integrative model, which was the model used in this study's training lectures. The CCEF 2.0 items correspond with all of the model's content elements, including the following: (a) *presentation*, (b) *precipitants*, (c) *maladaptive pattern*, (d) *predisposing factors*, (e) *treatment goals and interventions*, (f) *explanatory power,* (g) *completeness,* (h) *coherence,* (i) *cultural sensitivity,* (j) *tailoring*

power, and (k) *predictive power*. Each item is rated on a 0-10 Likert-type scale, where 0 represents failure to identify the item and 10 represents full and accurate articulation of the item. To obtain the overall score, the average of each of the 10 items is taken, with a total gain score range of 0 to 100.

Reliability. For inter-rater reliability purposes, six independent and objective raters were hired to evaluate and score all of the participants' written case conceptualizations (8 case conceptualizations for each participant for a total of 672 case conceptualizations) using the CCEF 2.0. These individuals were not affiliated with the study and they were all trained experts in the Sperry (1989; 2010b) integrative model. Furthermore, all of the raters were highly skilled and experienced in the evaluation of case conceptualizations via the CCEF 2.0.

These objective experts were paired into groups of two for a total of three pairs. In rating each assigned case conceptualization, all three of the pairs remained constant throughout the entire rating process. Individually, each rater within a pair provided scores for each of the ten CCEF 2.0 items and a total CCEF 2.0 score for every assigned case conceptualization (i.e., two total scores for the same participant's case conceptualization). These were then all collected and calculated using an average score for each of the ten CCEF 2.0 items and a single average total CCEF 2.0 score. Therefore, for each of the participants' case conceptualizations, three separate total scores were achieved and analyzed. This included a Rater A score, a Rater B score, and the average of both raters' (A and B) scores. The sole purpose for this type of analysis and procedure was conducted to prevent rater bias and preserve the integrity of the study.

Cronbach's alpha was the coefficient used to measure internal consistency, while establishing an inter-rater reliability index for the CCEF 2.0 scores. The index achieved for all six of the raters was a Cronbach's alpha of approximately .89. To be deemed acceptable, a scale should have at least a Chronbach's alpha of .7 (Brace, Kemp, & Snelgar, 2016, p. 348) with higher values indicating "good" (≥ .8) and "excellent" (≥ .9) internal consistency. In order to maintain such "good" internal consistency, the analysis was repeated periodically throughout the entire rating process. These repeated measures resulted in a stable index and good internal consistency being sustained during the rating of all 672 case conceptualizations. Tables 4 and 5 below depict the results of the initial inter-rater reliability statistical index that was established amongst all six raters.

Table 4. Reliability Statistics

Cronbach's α	Cronbach's α Based on Standardized items	*N* of Items
.888	.894	6

Note: Chronbach's α (alpha) refers to the coefficient for measuring or estimating the reliability and internal consistency of a scale. *N* of items refers to the number of raters.

Table 5. Item Statistics

Rater	*M*	*SD*	*N*
A	33.67	17.09	3
B	33.67	35.84	3
C	39.33	12.89	3
D	25.67	22.47	3
E	25.67	17.04	3
F	39.33	13.20	3

Note: N refers to the number of data points (i.e., case conceptualizations and CCEF 2.0 scores). The *M* (mean) and *SD* (standard deviation) refer to the scores of the case conceptualizations.

Moulaert Questionnaire. Developed by Duvivier et al. (2011), this valid and reliable measure of deliberate practice is a 26-item adaptation of the original Moulaert et al. (2004) instrument. For the intentions of the current study, this author further refined

the instrument for it to be used in the context of CES (evaluating aspects of counselor trainees' deliberate practice). However, in order to maintain the integrity of the Duvivier et al. (2011) instrument, these alterations were extremely minor. For example, the fourth item in the questionnaire used for this project reads, "After studying the material, I can explain it clearly." While the same item from the Duvivier et al. (2011) version reads, "After studying a subject I am able to explain it clearly." These small changes did not affect the reliability or validity of the overall questionnaire.

As outlined by Duvivier et al. (2011), the four subscales of the Moulaert Questionnaire indicate the following: higher scores in *planning* indicate a stronger tendency to organize work in a structured way; higher scores in *concentration/dedication* indicate a shorter attention span; higher scores in *review/evaluate* indicate a stronger tendency to practice; higher scores in *study style/self-reflection* indicate a stronger tendency to self-regulate learning. In the Duvivier et al. (2011) study of 875 medical students, subscale means were reported as follows: *Planning*, 3.07 (*SD* = 0.73); *Concentration/Dedication*, 2.89 (*SD* = 0.71); *Repetition/Revision*, 2.79 (*SD* = 0.70); *Study style/Self-reflection*, 3.61 (*SD* = 0.45). Duvivier et al. (2011) also indicated that the Moulaert Questionnaire demonstrated good internal consistency, with subscale alphas as follows: *Planning*, .76; *Concentration/Dedication*, .57; *Repetition/Revision*, .67; *Study style/Self-reflection*, .73. In terms of the four subscales, nothing was changed except for an explanation of the vernacular used in one of the scales. The words, "repetition/revision" in the language of origin (Dutch) roughly translates to "review/evaluate" in English used within the United States. Therefore, a parenthetical note was made to inform readers of this translation and minor addition.

In regard to administration, respondents were asked to indicate their level of participation on various study activities and personal study-related aspects. This was accomplished with a Likert scale that ranged from "1 = Strongly Disagree" to "5 = Strongly Agree." Each of the items asked respondents to answer statements directly related to aspects of deliberate practice. Examples of these statements include "When I have made a schedule I stick to it." (*Planning*); "I take breaks when I am studying." (*Concentration/Dedication*); "I review the material during unsupervised sessions." (*Review/Evaluate*); "When something goes wrong in my studies I try to find out what caused it." (*Study style/Self-reflection*). All participants (experimental and comparison) in this study completed the Moulaert Questionnaire two times (pre and post-test), while just the experimental group completed an additional post-post-test. These indicators were then compared over time to assess for any changes.

Hypothesis Testing

Hypotheses 1, 2, 3, 5, and 6 pertaining to the effects of case conceptualization training and deliberate practice coaching on counselor trainee competence were analyzed using repeated measures MANOVA and paired samples *t*-tests. For these questions, a total of eight CCEF 2.0 scores from eight case conceptualizations (one for each participant) were coded and used in the analysis. These included the following: (1) Case of Katie pre-test (case conceptualization [CC 1]); (2) Case of Katie post-test (CC 2); (3) Case of Maria (CC 3); (4) Case of Joanna (CC 4); (5) Case of Michael pre-test (CC 5); (6) Case of Michael post-test (CC 6); (7) Case of Evan (CC 7); (8) Case of Paige (CC 8). To further illustrate the sequence, CC 1 and CC 2 were the pre and post-test scores from the first training lecture; CC 5 and CC 6 were the pre and post-test scores from the

second training lecture; CC 3, CC 4, CC 7, and CC 8 were all four of the case conceptualization homework assignments, which occurred in between the two training lectures (CC 3 and CC 4 after the first training; CC 7 and CC 8 after the second training).

Hypothesis 4 concerning counselor trainee myths about case conceptualization was analyzed with a paired samples *t*-test and frequency distribution. For this hypothesis, only scores on the VACC instrument were used in the analysis. This included two (pre and post-test) administrations, which occurred before and after the first training lecture. The paired samples *t*-test was utilized for items 1 through 5 (pre and post-test) and a frequency distribution was used for item 6 (pre and post-test).

Hypotheses 7 and 8 regarding the influence of participant variables and potential mediating variables of "attitudes toward EBP" and "aspects of deliberate practice" were analyzed using paired samples *t*-tests and correlation analysis. In addition to CCEF 2.0 scores, these two questions utilized data from other sources. This included information from the training and coaching, along with data related to the participant variables. All of the procedures and corresponding analyses for each hypothesis will be explained further in the following section.

Hypothesis 1. Do participants coached in deliberate practice develop better written case conceptualizations than participants with no formal coaching? Null Hypothesis 1 (Ho_1) stated that "Participants coached in deliberate practice will not develop better written case conceptualizations than participants with no formal coaching," as measured by the CCEF 2.0.

Participants' CCEF 2.0 scores for the first and last case conceptualizations were obtained by averaging the sum of the ten instrument-item scores given by the two raters.

The data for this question came from the Case of Katie pre-test (first case conceptualization and Training Lecture 1 pre-test or CC 1) and Case of Paige homework assignment (last case conceptualization and homework assignment or CC 8). The case conceptualization competence of those who "were not" coached in deliberate practice (i.e., comparison group) was examined in contrast to those who "were" coached in deliberate practice (i.e., experimental group). This means that the focus was on comparing the case conceptualization competence of all eighty-four participants based on their group (i.e., experimental group, $n = 35$ vs. comparison group, $n = 49$).

These were then analyzed using repeated measures MANOVA. Mauchly's Test of sphericity was significant (Mauchly's $W = .06$), which indicated a violation and need for further analysis. Accordingly, this led to the calculation of z scores; however, the results did not change. Therefore, based on the suggestions of Haverkamp and Beauducel (2017), the raw scores are being reported, despite the violation of the sphericity assumption. The results indicated that both groups' mean CCEF 2.0 scores significantly increased from CC 1 (first training lecture pre-test) to CC 8 (last case conceptualization homework assignment). The comparison group's overall mean score improvement was approximately 40 points (out of 100) and the experimental group's overall mean score improvement was approximately 63 points (out of 100), F (4.256, 348.974) = 32.102, $p <$ .001. The partial eta-squared effect size from CC 1 to CC 8 for both groups was .281. According to Cohen (1988), this is considered a very large effect size, as an effect size of 0.01 is generally considered small, while 0.09 is considered medium, and any number equal to or greater than 0.25 is deemed large. For further information on the group comparisons, refer to Table 6.

Table 6. CCEF 2.0 Means: CC 1 and CC 8

CC	Group	*N*	*M*	*SD*	*F*	Sig.	ηp^2
1	Comparison	49	6.54	3.80			
1	Experimental	35	7.00	3.67			
8	Comparison	49	46.84	5.25			
8	Experimental	35	69.80	12.98	32.102	.000	.281

Note: Case conceptualization (CC) 1 is the first case conceptualization, which is also known as the Training Lecture 1 pre-test or the Case of Katie pre-test. CC 8 is the last case conceptualization, which is also referred to as the Case of Paige. *F* is the statistic used to determine the variation between the means. Sig. refers to the "probability value" or p-value for the level of statistical significance. ηp^2 refers to the measure of effect size, partial eta-squared.

These findings distinctly show that both groups significantly increased their case conceptualization competence. However, from CC 1 to CC 8, the CCEF 2.0 mean score improvement difference between the two groups was approximately 23 points (40.3 points for comparison group and 62.8 points for the experimental group). As a result, participants who received just the case conceptualization training (i.e., comparison group) did not outperform those who received both the case conceptualization training and deliberate practice coaching (i.e., experimental group). Thus, Null Hypothesis 1 (Ho_1) stating that "Participants coached in deliberate practice will not develop better written case conceptualizations than participants with no formal coaching" was rejected (Reject Ho_1).

Hypothesis 2. What is the effect of deliberate practice coaching on participants' competence in writing case conceptualizations? Null Hypothesis 2 (Ho_2) stated that "There will be no effect of deliberate practice coaching on participants' competence in writing case conceptualizations," as measured by the CCEF 2.0.

This question is strictly referring to the case conceptualization competence of just the thirty-five participants who were coached in deliberate practice (i.e., experimental group). In order to measure their competence level, only the CCEF 2.0 scores for the

experimental group were obtained by averaging the sum of the two raters' scores for the ten items. Like the previous hypothesis, the data came from two case conceptualizations, which included the following: (1) the Case of Katie pre-test (first case conceptualization and Training Lecture 1 pre-test or CC 1), occurring prior to any training or coaching and (2) the Case of Paige homework assignment (last case conceptualization and homework assignment or CC 8), occurring after the third and final deliberate practice coaching session).

The analysis for this question included the use of a paired samples *t*-test. As previously stated, the experimental group participants' mean CCEF 2.0 scores showed marked improvement from CC 1 (first training lecture pre-test) to CC 8 (last case conceptualization and homework assignment). In this case however, the overall mean score improvement of approximately 63 points (out of 100) resulted in t (34) = -28.387, $p < .001$. Therefore, scores from the experimental group participants' CC 1 to CC 8 significantly increased. For further information, see Table 7 below.

Table 7. Experimental Group CCEF 2.0 Means: CC 1 and CC 8

CC	*N*	*M*	*SD*	*t*	*df*	Sig. (2-tailed)
1	35	7.00	3.67			
8	35	69.80	12.98	-28.387	34	.000

Note: CC 1 is the first case conceptualization, which is also known as the Training Lecture 1 pre-test or the Case of Katie pre-test. CC 8 is the last case conceptualization, which is also referred to as the Case of Paige. $df = N - 1$, which refers to the "degrees of freedom" or the number of values in the final analysis.

These results clearly demonstrate that participants who received deliberate practice coaching were able to dramatically increase their level of competence in writing case conceptualizations. Therefore, Null Hypothesis 2 (Ho_2) stating that "There will be no effect of deliberate practice coaching on participants' competence in writing case conceptualizations" was rejected (Reject Ho_2).

Hypothesis 3. Does a three-hour, initial training lecture increase counselor trainee competence in developing a case conceptualization? Null Hypothesis 3 (Ho_3) stated that "A three-hour, initial training lecture will not increase counselor trainee competence in developing a case conceptualization," as measured by the CCEF 2.0.

The procedure for this question is similar to the process used for the last hypothesis. However, the differences are that (1) the entire sample ($N = 84$) was included and (2) attention was solely on just the first training lecture, which only concentrated on the brief case conceptualization model. The brief framework exclusively covered the primary case conceptualization components of presentation, precipitant, predisposing factors, perpetuating factors, and appropriate treatment interventions. Therefore, the CCEF 2.0 scores analyzed were only from brief case conceptualizations.

The participants' CCEF 2.0 scores for the first and second case conceptualizations were obtained via the same averaging method used in the previous two questions. The data came from the Case of Katie pre-test (Training Lecture 1 pre-test or CC 1) and Case of Katie post-test (Training Lecture 1 post-test or CC 2). In this question, the case conceptualization competence of all eighty-four participants was examined for just the two case conceptualizations completed in the first lecture. Therefore, none of the experimental group participants have been exposed to deliberate practice coaching, yet. Accordingly, the two groups are therefore, considered equal in terms of training (one lecture) and coaching (zero sessions).

Like Hypothesis 2, this was analyzed using a paired samples *t*-test. The results indicate that the participants' total mean CCEF 2.0 scores significantly increased from CC 1 (first training lecture pre-test) to CC 8 (first training lecture post-test) for an overall

mean score improvement of approximately 12 points (out of 100), t (83) = -19.502, $p <$ .001. For further information, see Table 8 below.

Table 8. CCEF 2.0 Means: CC 1 and CC 2

CC	*N*	*M*	*SD*	*t*	*df*	Sig. (2-tailed)
1	84	6.73	3.73			
2	84	19.10	5.74	-19.502	83	.000

Note: CC 1 is the first case conceptualization, which is also known as the Training Lecture 1 pre-test or the Case of Katie pre-test. CC 2 is the second case conceptualization, which is also referred to as the Training Lecture 1 post-test or the Case of Katie post-test.

These results indicate that the first training lecture, which focuses on the brief case conceptualization model made a significant difference in participants' level of competence in writing case conceptualizations. Therefore, Null Hypothesis 3 (Ho_3) stating that "A three-hour, initial training lecture will not increase counselor trainee competence in developing a case conceptualization" was rejected (Reject Ho_3).

Hypothesis 4. Does a three-hour, initial training lecture reduce counselor trainee myths about case conceptualizations? Null Hypothesis 4 (Ho_4) stated that "A three-hour, initial training lecture will not reduce counselor trainee myths about case conceptualizations," as measured by the VACC. This will be thoroughly examined by comparing participants' pre and post-test scores on the VACC instrument.

The VACC is a 6-item hybrid instrument, where items 1 through 5 use a Likert-type scale and item 6 is a multiple choice question with five different options. For items 1 through 5, scores range from 1 (completely agree) to 7 (completely disagree) for a total range of 5 to 35. For item 6, the question states the following: "My knowledge and experience with formulating and writing case conceptualizations is…" The five options then include the following: (a) *no knowledge and no experience*; (b) *some knowledge and no experience*; (c) *some knowledge and some experience*; (d) *considerable knowledge*

and some experience; (e) *considerable knowledge and considerable experience.* The analysis for this research question focused on these five items and the sixth multiple choice question. Since all eighty-four participants completed the VACC twice (pre-test prior to Training Lecture 1 and post-test following Training Lecture 1), comparisons will be analyzed to measure the differences in their views following the first training lecture. Lower scores on the instrument suggest more negative views about case conceptualizations, while higher scores indicate more positive views about case conceptualizations.

To test this hypothesis, a paired samples *t*-test was used to compare the means of the pre and post-test VACC scores on items 1 through 5. An additional frequency distribution was conducted to analyze the pre and post-test responses on item 6 of the VACC. Both of these analyses were applied for the entire sample ($N = 84$). Following the first training lecture from pre-test to post-test, participants' average VACC scores on items 1 through 5 significantly increased by approximately 4 points (out of 25), $t\ (83) = -8.53$, $p < .001$. Also, based on the responses to item 6, participants increased their "knowledge and experience with formulating and writing case conceptualizations." Therefore, these findings indicate that trainees' myths about case conceptualization had decreased, while their positive views increased. For further information, refer to Tables 9 and 10 below.

Table 9. VACC Items 1 through 5 Means: Pre-test and Post-test

Test	*N*	*M*	*SD*	*t*	*df*	Sig. (2-tailed)
Pre	84	25.54	3.47			
Post	84	29.67	4.37	-8.53	83	.000

Note: The Views About Case Conceptualization (VACC) pre-test occurred prior to Training Lecture 1 and the VACC post-test occurred after Training Lecture 1.

Table 10. VACC Item 6 Frequencies: Pre-test and Post-test

Item Response	Frequency	Percent	Cumulative Percent
Pre-test			
No know. & exp.	25	29.8	29.8
Some know. & no exp.	25	29.8	59.5
Some know. & exp.	34	40.5	100.0
Total	84	100.0	
Post-test			
No know. & exp.	1	1.2	1.2
Some know. & no exp.	10	11.9	13.1
Some know. & exp.	43	51.2	64.3
Considerable know. & some exp.	27	32.1	96.4
Considerable know. & exp.	3	3.6	100
Total	84	100.0	

Note: The Views About Case Conceptualization (VACC) pre-test occurred prior to Training Lecture 1 and the VACC post-test occurred after Training Lecture 1. "know." = knowledge; "exp." = experience.

According to these results, there was a significant change in participants' VACC scores. Based on this change, one can conclude that case conceptualization training does impact participants' views about this competency, while decreasing any associated myths. Thus, Null Hypothesis 4 (Ho_4), which states that "A three-hour, initial training lecture will not reduce counselor trainee myths about case conceptualizations" was rejected (Reject Ho_4).

Hypothesis 5. Does a three-hour, follow-up training lecture increase counselor trainee competence? Null Hypothesis 5 (Ho_5) stated that "A three-hour, follow-up training lecture will not increase counselor trainee competence," as measured by the CCEF 2.0.

The procedure for this question is similar to the process used for hypotheses 2 and 3. However, the difference is that attention will solely be on just the second training lecture, which introduced participants to the full case conceptualization model. The framework of the full-scale model encompasses all of the components of a brief case

conceptualization with the addition of more complex elements, such as culture, strengths and protective factors, and predictive ability. Therefore, the CCEF 2.0 scores being investigated will only be from full case conceptualizations.

The participants' CCEF 2.0 scores for the fifth and sixth case conceptualizations were obtained via the same averaging method used in the first three questions. The data came from the Case of Michael pre-test (Training Lecture 2 pre-test or CC 5) and Case of Michael post-test (Training Lecture 2 post-test or CC 6). Therefore, the investigation was on the case conceptualization competence of all eighty-four participants' case conceptualizations only completed during the second lecture. At this point in the study, the experimental group participants have been exposed to the first of three deliberate practice coaching sessions. Accordingly, the two groups are no longer considered equal in terms of coaching; however, this is not of concern for this particular question.

As previously executed, this was analyzed using a paired samples *t*-test. The results indicate that the participants' total mean CCEF 2.0 scores significantly increased from CC 5 (Training Lecture 2 pre-test) to CC 6 (Training Lecture 2 post-test) for an overall mean score improvement of approximately 31 points (out of 100), t (83) = -23.286, $p < .001$. For further information, see Table 11 below.

Table 11. CCEF 2.0 Means: CC 5 and CC 6

CC	*N*	*M*	*SD*	*t*	*df*	Sig. (2-tailed)
5	84	23.34	8.06			
6	84	54.14	10.73	-23.286	83	.000

Note: CC 5 is the fifth case conceptualization, which is also known as the Training Lecture 2 pre-test or the Case of Michael pre-test. CC 6 is the sixth case conceptualization, which is also referred to as the Training Lecture 2 post-test or the Case of Michael post-test.

The outcome reveals that the second training lecture, concentrating on the full case conceptualization model increased participants' level of case conceptualization

competence. Therefore, Null Hypothesis 5 (Ho_5), which states that "A three-hour, follow-up training lecture will not increase counselor trainee competence" was rejected (Reject Ho_5).

Hypothesis 6. Do the effects of case conceptualization training persist over time? Null Hypothesis 6 (Ho_6) stated that "The effects of case conceptualization training will not persist over time," as measured by the CCEF 2.0. Therefore, the analysis for this question will focus on the overall change of participants' CCEF 2.0 scores "over time."

The procedure for this question analyzed the difference in participants' CCEF 2.0 scores from the Training Lecture 1 post-test (CC 2) and Training Lecture 2 pre-test (CC 5). This "difference" is considered the persistence of the training effects between the two lectures (Training Lecture 1 on the "brief" case conceptualization model and Training Lecture 2 on the "full" case conceptualization model). Therefore, the "persistence of training effects" will be defined as the difference between CCEF 2.0 scores on CC 2 and CC 5, as there was no additional training between these points (approximately four weeks). Due to this lapse in time, the assumption is that participants' CCEF 2.0 scores should diminish and not improve. Essentially, the greater the decline means less persistence, and the smaller the decline or no difference means more persistence.

Once again, the process focused on the training effects for the entire sample (N = 84) or both groups (experimental and comparison). Like the previous question, the two groups are no longer considered equal in terms of "coaching;" however, this is not a concern for this question, as the hypothesis is solely focusing on the "persistence of training effects." Therefore, any gains or losses in the participants' CCEF 2.0 scores from CC 2 to CC 5 should only be due to the effects of the training. This is because both

groups have been exposed to the same amount of training with the same interval (approximately four weeks) in training.

Like the prior analyses, participants' CCEF 2.0 scores were calculated by averaging the sum of the ten-instrument items given by the two raters. For this question, the scores only came from two case conceptualizations, which were the Case of Katie post-test (Training Lecture 1 post-test or CC 2) and Case of Michael pre-test (Training Lecture 2 pre-test or CC 5). As stated earlier, while the experimental group participants have already been exposed to the first of three deliberate practice coaching sessions, their scores were included in the analysis.

As done previously, this was then analyzed with a paired samples *t*-test. According to the results, participants' total mean CCEF 2.0 scores significantly increased from CC 2 (first training lecture post-test) to CC 5 (second training lecture pre-test) for an overall mean score improvement of approximately 4 points (out of 100), $t\ (83) = -4.205$, $p < .001$. For further information, refer to Table 12 below.

Table 12. Comparison Group CCEF 2.0 Means: CC 2 and CC 5

CC	*N*	*M*	*SD*	*t*	*df*	Sig. (2-tailed)
2	84	19.10	5.74			
5	84	23.34	8.06	-4.205	83	.000

Note: CC 2 is the second case conceptualization, which is also known as the Training Lecture 1 post-test or the Case of Katie post-test. CC 5 is the fifth case conceptualization, which is also referred to as the Training Lecture 2 pre-test or the Case of Michael pre-test.

Based on these findings, the effects of just the case conceptualization training between two lectures (the first focusing on a "brief" case conceptualization model and the second focusing a "full" case conceptualization model) do endure over a period of approximately four weeks. Thus, Null Hypothesis 6 (Ho_6), which states that "The effects of case conceptualization training will not persist over time" was rejected (Reject Ho_6).

Hypothesis 7. What variables of attitudes toward evidence-based practice (appeal, requirement, openness, divergence) influence whether the effects of case conceptualization training persist over time? Null Hypothesis 7 (Ho_7) stated that "These variables will have no influence on whether the effects of case conceptualization training persist over time," as measured by the scores on the CCEF 2.0 and EBPAS.

The course of action for this question focused on the training effects from Training Lecture 1 post-test (CC 2) and Training Lecture 2 pre-test (CC 5) for the entire sample (experimental group and comparison group). As stated previously, the definition for "persistence of the training effects" is the difference in CCEF 2.0 scores for CC 2 and CC 5. Again, the assumption is that participants' CCEF 2.0 scores will decrease and not increase. Therefore, more of a decline indicates less persistence, and less of a decline or no difference indicates more persistence.

These effects were further examined alongside variables related to attitudes toward EBP, as measured by the EBPAS (pre and post-test). These variables coincided with four subscales, which included the following: (1) *Requirement* (likelihood that a counselor will adopt EBP when required by a supervisor or organization); (2) *Appeal* (a counselor's interest in EBP); (3) *Openness* (how accepting a counselor is to new practices); (4) *Divergence* (level that a counselor's usual practice departs from research-based interventions). Respectively, the EBPAS pre and post-test measures occurred prior to Training Lecture 1 and following Training Lecture 2. Therefore, participants received the pre-test prior to having any case conceptualization exposure and were administered the post-test following experience with both the brief and full case conceptualization models.

To examine this hypothesis, a paired samples *t*-test was used to compare the means of the pre and post-test EBPAS scores for the entire sample ($N = 84$), which was followed by correlation analysis. The results for the paired samples *t*-test revealed that out of the four subscales, only the subscale of "openness" was significant, $t\ (83) = -5.280$, $p < .001$. However, correlation analysis did not reveal any significant relationships among the variables associated with attitudes toward EBP. According to Baron and Kenny (1986), it is possible to conclude that mediation is not occurring if at least one relationship is not significant. Although scores on the EBPAS subscale of "openness" were related to the effects of case conceptualization training, it appears that attitudes toward EBP do not completely mediate the relationship between the training and its persistence, as evidenced by the lack of findings from correlation analysis. For further information, see Table 13 below.

Table 13. EBPAS Subscale Means: Pre-test and Post-test

Subscale	*N*	*M*	*SD*	*t*	*df*	Sig. (2-tailed)
Requirement						
Pre-test	84	3.07	0.96			
Post-test	84	3.20	0.78	-1.054	83	.295
Appeal						
Pre-test	84	3.12	0.71			
Post-test	84	3.18	0.68	-0.786	83	.434
Openness						
Pre-test	84	2.39	1.25			
Post-test	84	3.10	0.71	-5.280	83	.000
Divergence						
Pre-test	84	1.03	0.65			
Post-test	84	1.08	0.72	-0.551	83	.583

Note: "Requirement" refers to the likelihood that a counselor will adopt EBP when required by a supervisor or organization. "Appeal" refers to a counselor's interest in EBP. "Openness" refers to how accepting a counselor is to new practices. "Divergence" refers to the level that a counselor's usual practice departs from research-based interventions.

These findings indicate that as a result of case conceptualization training, counselor trainees became more "open" to EBP and accepting of new practices.

However, additional analyses did not yield any further results. Thereby, indicating that the variable of "openness," along with the other variables associated with attitudes toward EBP do not have a direct impact on the effects of case conceptualization training and its persistence. Therefore, Null Hypothesis 7 (Ho_7), which states that "These variables will have no influence on whether the effects of case conceptualization training persist over time," was partially rejected (Partially Reject Ho_7).

Hypothesis 8. What variables (aspects) of deliberate practice (planning, concentration/dedication, repetition/revision or review/evaluate, study style/self-reflection) influence whether the effects of case conceptualization training persist over time? Null Hypothesis 8 (Ho_8) stated that "These variables (aspects) will have no influence on whether the effects of case conceptualization training persist over time," as measured by the scores on the CCEF 2.0 and Moulaert Questionnaire.

Like the prior hypothesis, the procedure for this question centered on the training effects from Training Lecture 1 post-test (CC 2) and Training Lecture 2 pre-test (CC 5) for the entire sample (experimental group and comparison group). However, the focus is now on analyzing the persistence of the training effects with aspects of deliberate practice, as measured by the Moulaert Questionnaire. Again, "persistence of the training effects" is the difference in CCEF 2.0 scores from CC 2 to CC 5. The greater the decline in CCEF 2.0 scores implies less persistence, and the smaller the decline or no difference in CCEF 2.0 scores implies more persistence.

There are four variables (aspects) associated with the Moulaert Questionnaire's measurement of deliberate practice. These include the following: (1) *Planning*; (2) *Concentration/Dedication*; (3) *Repetition/Revision* or *Review/Evaluate*; (4) *Study*

style/Self-reflection. Depending on the group (experimental or comparison), the Moulaert Questionnaire was administered several times throughout the study. While the comparison group completed the instrument twice (pre and post-test), the experimental group participants completed the Moulaert Questionnaire three times. The sequence for these administrations included the following: (1) prior to the beginning of Training Lecture 1 (pre-test for both groups); (2) at the conclusion of Training Lecture 2, which occurred approximately four weeks after the first lecture (post-test for both groups); (3) after the third and final deliberate practice coaching session (post-post-test for just the experimental group). Therefore, all participants received the pre-test before having any case conceptualization training and were administered the post-test after being trained in both the brief and full case conceptualization models. The experimental group were the only participants who took the Moulaert Questionnaire for a third time, which occurred after their last deliberate practice coaching session and at the conclusion of the study.

The analyses for this question included a paired samples *t*-test and correlation analysis. The paired samples *t*-test was used to compare the means of the pre and post-test Moulaert Questionnaire scores for the entire sample ($N = 84$). The use of correlation analysis was done for several reasons, including the following:

1. Determine if there is any relationship between the variables (aspects) of deliberate practice and persistence of the training effects;
2. Investigate if aspects of deliberate practice act as a mediating variable in the relationship between case conceptualization training and counselor competence;
3. Compare the pre and post-test correlations between the two groups (experimental and comparison);

4. Examine the post-post-test Moulaert Questionnaire scores for the experimental group (n = 35) in relation to their case conceptualization competence.

However, the two statistical methods (paired samples t-test and correlation analysis) did not produce any significant results or relationships between the variables.

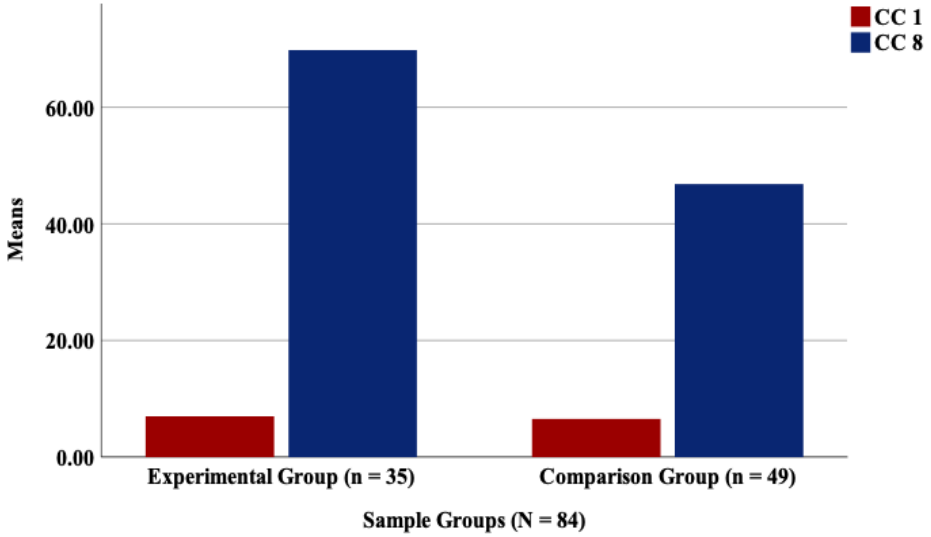
Based on the non-significant results of these analyses, one cannot definitively state that aspects of deliberate practice have any influence on the persistent effects of case conceptualization training. In accordance with Baron and Kenny (1986), it is possible to conclude that mediation is not occurring and that deliberate practice does not seem to be a factor (mediator or moderator) in the relationship between case conceptualization training and counselor competence. Thus, Null Hypothesis 8 (Ho_8), which states that "These variables (aspects) will have no influence on whether the effects of case conceptualization training persist over time," was accepted (Accept Ho_8).

Summary

This chapter presented the statistical analyses and results of the eight hypotheses examined in this study. The results were both significant and promising. To follow, will be a concise account of these findings.

Null Hypothesis 1 (Ho_1) stated that "Participants coached in deliberate practice will not develop better written case conceptualizations than participants with no formal coaching." This was analyzed using repeated measures MANOVA for the CCEF 2.0 scores from CC 1 and CC 8. Mean CCEF 2.0 scores for the comparison group increased by exactly 40.3 points, while the scores for the experimental group increased by precisely 62.8 points. The partial eta-squared effect size for these changes was substantially large

at .281. Therefore, Null Hypothesis 1 (Ho_1) was rejected. For a graphic display of the group comparisons, refer to Figure 8 below.



The "experimental" group refers to participants who received deliberate practice coaching. The "comparison" group refers to participants who did not receive deliberate practice coaching. CC 1 is the first case conceptualization, which is also known as the Training Lecture 1 pre-test or the Case of Katie pre-test. CC 8 is the last case conceptualization, which is also referred to as the Case of Paige.

Figure 8. CCEF 2.0 Means: CC 1 and CC 8

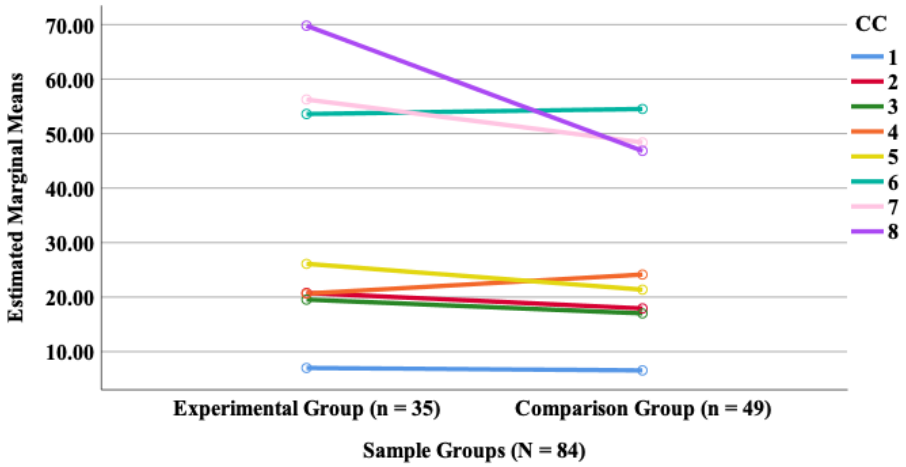
Null Hypothesis 2 (Ho_2) stated that "There will be no effect of deliberate practice coaching on participants' competence in writing case conceptualizations." This was analyzed using a paired samples *t*-test for just the experimental group's scores. Mean CCEF 2.0 scores for the experimental group increased from CC 1 to CC 8 by 62.8 points, t (34) = -28.387, $p < .001$. Based on these findings, Null Hypothesis 2 (Ho_2) was rejected.

Null Hypothesis 3 (Ho_3) stated that "A three-hour, initial training lecture will not increase counselor trainee competence in developing a case conceptualization." Again, this was analyzed using a paired samples *t*-test. Mean CCEF 2.0 scores for the entire sample increased from CC 1 to CC 2 by 12.37 points, t (83) = -19.502, $p < .001$. Thus, Null Hypothesis 3 (Ho_3) was rejected.

Null Hypothesis 4 (Ho_4) stated that "A three-hour, initial training lecture will not reduce counselor trainee myths about case conceptualizations." This was analyzed using a paired samples *t*-test and frequency distribution for the pre and post-test measures. Mean VACC scores on items 1 through 5 for the entire sample increased by 4.13 points, $t(83) = -8.53$, $p < .001$. Responses to item 6 on the VACC indicated an increase in "knowledge and experience with formulating and writing case conceptualizations." Both of these results indicate a reduction in trainees' case conceptualization myths. On the basis of these findings, Null Hypothesis 4 (Ho_4) was rejected.

Null Hypothesis 5 (Ho_5) stated that "A three-hour, follow-up training lecture will not increase counselor trainee competence." Once again, this was analyzed using a paired samples *t*-test. Mean CCEF 2.0 scores for the entire sample increased from CC 5 to CC 6 by 30.8 points, $t(83) = -23.286$, $p < .001$. Therefore, Null Hypothesis 5 (Ho_5) was rejected.

Null Hypothesis 6 (Ho_6) stated that "The effects of case conceptualization training will not persist over time." Persistence was assessed using a paired samples *t*-test to examine the difference between CCEF 2.0 scores on CC 2 and CC 5 for the entire sample, as there was no additional training for either group (experimental and comparison) during this approximate four-week time period. This resulted in a significant increase of precisely 4.24 points, $t(83) = -4.205$, $p < .001$. Based on these findings, Null Hypothesis 6 (Ho_6) was rejected. For a visual depiction of the training effects over time, refer to Figure 9 below.



CC 1 is the Training Lecture 1 pre-test or Case of Katie pre-test; CC 2 is the Training Lecture 2 post-test or Case of Katie post-test; CC 3 is the first homework assignment or Case of Maria; CC 4 is the second homework assignment or Case of Joanna; CC 5 is the Training Lecture 2 pre-test or Case of Michael pre-test; CC 6 is the Training Lecture 2 post-test or Case of Michael post-test; CC 7 is the third homework assignment or Case of Evan; CC 8 is the fourth and final homework assignment or Case of Paige. To illustrate the sequence, CC 1 and 2 were the pre and post-test scores from the first training lecture; CC 5 and 6 were the pre and post-test scores from the second training lecture; CC 3, 4, 7, and 8 were all four of the case conceptualization homework assignments, which occurred in between the two training lectures (CC 3 and 4 after the first training; CC 7 and 8 after the second training).

Figure 9. CCEF 2.0 Estimated Marginal Means: CC 1 through CC 8

Null Hypothesis 7 (Ho_7) stated that variables of attitudes toward EBP "will have no influence on whether the effects of case conceptualization training persist over time." Out of the entire sample, there was one significant finding with counselor trainees becoming more "open" to EBP, t (83) = -5.280, $p < .001$. However, mediation analysis was not an option because correlation analysis did not yield any further results. Thus, Null Hypothesis 7 (Ho_7) was partially rejected.

Null Hypothesis 8 (Ho_8) stated that variables (aspects) of deliberate practice "will have no influence on whether the effects of case conceptualization training persist over time." Based on a paired samples t-test and correlation analysis, no significant results or relationships were found among the variables and persistence of the training effects. Therefore, mediation analysis was not feasible. On the basis of these findings, Null Hypothesis 8 (Ho_8) was accepted. Forthcoming, the fifth and final chapter of this

dissertation will discuss the results of the study, its significance, contributions to the literature, and its implications for theory, research, and practice.

V. DISCUSSION

In accordance with the Stoupas (2016) implications for future research, this quasi-experimental and comparative study was the first to use a supplementary intervention (deliberate practice coaching) with the integrative case conceptualization method developed by Sperry (1989; 2010b) to teach counselor trainees this clinically valuable competency. This study was also the first to examine the persistence of effects from the training lecture over time (approximately four weeks) and coaching with counselor trainees. Previous studies involving the integrative method also utilized counselor trainees (Smith Kelsey, 2014; Ladd, 2015) and practicing clinicians (Stoupas, 2016) for their samples, but none included a supplementary intervention. The present study found that this combined method of case conceptualization training and deliberate practice coaching significantly increased counselor trainees' ability to develop written case conceptualizations. Similar to Stoupas (2016), this study also found that the effects of case conceptualization training do persist over time.

Furthermore, the study examined the relationship of the training with aspects of deliberate practice and participants' attitudes toward evidence-based practice (EBP) on the written case conceptualizations. Although these aspects and attitudes did not completely mediate or moderate the relationship between the training and outcome, the findings revealed that they are associated with the effects of training. The final chapter of this dissertation will discuss the significance of the study's results. It will further outline the study's contributions to the existing literature on case conceptualization training and

deliberate practice. The study's theoretical, practical, and research implications will also be included, along with specific recommendations for future research. The study's limitations and an overall summary of the discussion will be presented at the end of this chapter.

Significance of the Results

As previously indicated, a bipartite, standardized case conceptualization training lecture series significantly increased the case conceptualization competence of counselor trainees. Furthermore, the training lecture was supplemented with deliberate practice coaching also significantly improved counselor trainees' competence in writing case conceptualizations. Equally significant, these improvements endured over a period of approximately four weeks' time, demonstrating the persistence of the training effects.

Previous studies have clearly demonstrated the efficacy of case conceptualization training (Kendjelic & Eells, 2007; Abbas et al., 2012; Smith Kelsey, 2014; Ladd, 2015; Stoupas, 2016). However, all of these investigations have been limited and narrow in their scope. These limitations include the following: failure to obtain a baseline measure or conduct pre-intervention testing (Kendjelic & Eells, 2007; Abbas et al., 2012) and post-intervention assessment (Kendjelic & Eells, 2007); insufficient power with a small sized or limited sample (Kendjelic & Eells, 2007; Abbas et al., 2012); lack of a completely standardized training protocol (Kendjelic & Eells, 2007; Abbas et al., 2012; Smith Kelsey, 2014; Ladd, 2015); absence of a supplemental intervention (Kendjelic & Eells, 2007; Abbas et al., 2012; Smith Kelsey, 2014; Ladd, 2015; Stoupas, 2016) and failure to utilize a comparison or control group (Stoupas, 2016). Furthermore, there is no agreement on how to properly and optimally train individuals in this core competency.

This issue is critical to the literature, which is why this study was the first to pair deliberate practice coaching with case conceptualization training.

According to Sperry and Sperry (2012), "Learning and mastering the case conceptualization competency does not occur by chance, instead it requires having an intentional plan and strategy for increasing this essential competency" (p.19). Primarily, this means the deliberate practice of case conceptualization. To become a competent counselor, trainees need to develop the capability to properly and successfully apply the knowledge, skills, and attitudes required to execute a broad range of therapeutic and clinical responsibilities (Sperry, 2010b), which includes case conceptualization. Deliberate practice is an essential method in learning and achieving the competency of case conceptualization (Caspar et al., 2004).

The development of case conceptualization competence requires training, planning, and repeated practice (Sperry, 2010a), while providing timely and accurate feedback to trainees on an ongoing basis (Sperry & Sperry, 2012, p. 20). Therefore, mental health training programs that are fully committed to this competency must intentionally incorporate such feedback (Caspar et al., 2004). However, many graduate counseling training programs are failing in this area. Unfortunately, this lack of adequate training and development results in poor client and treatment outcomes. Therefore, competent training of counselors in case conceptualization is not only important to the literature, but to the general consumer and public, as well. The present study is significant because it examined how case conceptualization training and deliberate practice coaching impact counselor trainees' case conceptualization competence.

Increasing Competence in Case Conceptualization. In order to achieve case conceptualization expertise and competence, counselor trainees need an abundance of training, experience, and practice. Structured learning, better known as "deliberate practice," is imperative in the development of such expertise (Ericsson, 1996) and competence. In fact, "more structured teaching, including structured supervision, produces more effective learning than less structured approaches" (Binder, 2004, p. 264). Therefore, increasing case conceptualization competence "does not occur by chance, instead it requires having an intentional plan and strategy for increasing this essential competency" (Sperry & Sperry, 2012, p. 19).

For teaching and supervision purposes, Sperry and Sperry (2012) offer a six-step evidence-based strategy that suggests the following: (1) know the requisites for performing high level case conceptualizations; (2) dispel myths that undermine the value of case conceptualizations; (3) engage in deliberate practice in learning this competency; (4) seek feedback on your case conceptualizations; (5) study and review various case conceptualizations, particularly exemplars; (6) learn an integrative method of case conceptualization and practice it often (pp. 20-21). The two necessary ingredients in this strategy are (1) the application of deliberate practice and (2) incorporation of formative feedback.

It takes much more than simply attending a workshop or reading a textbook to master this competency. Deliberate practice, which is essential to case conceptualization learning and expertise (Caspar et al., 2004), involves repetition of a specific element or case conceptualization factor until it is mastered (Sperry & Sperry, 2012, p. 20). Equally important is the provision of goal-directed and formative feedback, which has been

shown to improve motivation and learning (Shute, 2008). Both of these learning activities involve a great deal of time and energy, and require the assistance of a supportive coach, instructor, or supervisor. Once all of these components are in place, each case conceptualization element can be systematically pursued and repeatedly practiced until mastery is achieved. Ultimately, the road to increasing case conceptualization competence is both exhaustive and rewarding, requiring the full commitment of both the trainer and trainee.

Contributions of the Study

The present study made the following contributions to the literature on case conceptualization, deliberate practice, and EBP. First, it expanded upon previous studies that used the Sperry (1989; 2010b) integrative case conceptualization training model (Smith Kelsey, 2014; Ladd, 2015; Stoupas, 2016). The study accomplished this by supplementing the bipartite, standardized case conceptualization training lecture series with deliberate practice coaching. Although the integrative model was significantly effective in the prior studies, it was unclear how counselor trainees would respond to a standardized training lecture with the addition of a complementary intervention (deliberate practice coaching).

Second, and similar to the Stoupas (2016) project, this study also investigated the effects of training over time, which involved numerous assessment points. However, this study increased the data points by doubling both the measures of competence and persistence. While Smith Kelsey (2014) and Ladd (2015) examined competence simply before and after the training, Stoupas (2016) assessed competence over time with four assessment points. In total, this study collected data on trainees' case conceptualization

competence at eight different points over a period of approximately eight weeks. Smith Kelsey (2014) and Ladd (2015) had only two points (pre and post-test) within the same day, while Stoupas (2016) had four points (pre and post-test for Workshop 1; pre and post-test for Workshop 2) over a four-week period. The added measures of this study enhanced the assessment of both competence and persistence of the training effects.

Third, not only did this study contribute to the literature on case conceptualization training, deliberate practice, and EBP, but it also improved upon the many limitations within the general literature, such as assessment, control, protocol, and sampling issues. While previous case conceptualization training research addressed demographic variables and whether the competency can be taught (Kendjelic & Eells, 2007; Abbas et al., 2012; Smith Kelsey, 2014; Ladd, 2015), this study explored aspects of deliberate practice and its effects on competence. The study also expanded upon the work of Stoupas (2016) by exploring the influence of counselor trainees' attitudes toward EBP instead of practitioners' attitudes. Overall, the relationship between all three of these constructs is extremely important to the literature, and will be discussed further in the following section on practical implications.

Finally, this study added to the psychometric literature on two of the six instruments utilized in the project. These two instruments were the (1) CCEF 2.0 (used to measure case conceptualization competence) and (2) Moulaert Questionnaire (used to measure aspects of deliberate practice). Furthermore, this was the first project to use three particular instruments (CCEF 2.0; EBPAS; Moulaert Questionnaire) on counselor trainees. Currently, only the psychometric properties of the CCEF 2.0 were analyzed and reported for this project. However, this author intends to further examine the properties of

the other instruments (VACC; EBPAS; Moulaert Questionnaire; Training Lecture Questionnaire), and will report the results in the near future. The importance of the psychometric analysis for these instruments will be described further in the subsequent discussion on the study's research implications.

This study was also the second to ever utilize the CCEF 2.0 instrument; the first being the Stoupas (2016) study on practicing clinicians. The former study reported a Chronbach's alpha of .87 across all four administrations (Stoupas, 2016), while this study achieved a Chronbach's alpha of approximately .89 for all eight administrations. Therefore, the reliability of this novel instrument continues to improve, making it all the more promising for future research on case conceptualization evaluation.

The Moulaert Questionnaire used in this study was uniquely and specifically designed to be used in CES. Originally developed by Moulaert et al. (2004) and later refined by Duvivier et al. (2011), this 26-item instrument was further enhanced for the purposes of this project. As discussed in the previous chapter, this author made some minor changes to the language used in a few of the items and the terminology used in one of the subscales. In total, the instrument was administered to all participants (experimental and comparison) twice (pre and post-test) and a third time (post-post-test) to just the experimental group. As stated earlier, the psychometric testing of this newly adapted version was not performed for this study. However, this author intends to do so in the future and will explain why in the upcoming segment on research implications.

Implications for Theory, Practice, and Research

According to Sperry and Sperry (2012), case conceptualization is a fundamentally critical competency that helps counselors collect, organize, and understand client data,

while supporting the use of treatments that bring about positive outcomes. This study demonstrated that this competency (a) can be effectively taught to counselor trainees via standardized training lectures and its training effects do persist over time, (b) is associated with counselor trainees' attitudes about EBP, (c) is more effectively taught with deliberate practice coaching, and (d) is not directly related to aspects of deliberate practice. The following sections will discuss the theoretical, practical, and research implications related to the study and its results.

Theoretical Implications. This study focused on four constructs, which included (1) case conceptualization, (2) counselor competence, (3) EBP, and (4) deliberate practice. While case conceptualization is heavily grounded in theory, implications for counselor competence, EBP, and deliberate practice stem more from practice and research. Therefore, this project has one main theoretical implication for the basis of its findings.

The present study was entirely based on the theory of pattern analysis and pattern-focused psychotherapy or counseling (Sperry, 2010b; Sperry & Sperry, 2012). According to Sperry (1989), pattern is the predictable, consistent, self-perpetuating manner in which people think, act, and feel; pattern analysis or pattern-focused counseling requires clinicians to identify clients' maladaptive patterns and assist them in replacing these patterns with ones that are more adaptive. Essentially, a coherent and quality case conceptualization stems from this theory, which includes a synthesis of the client's background and identification of their maladaptive pattern(s). Ultimately, this process facilitates the formulation of individually tailored treatment plans that lead to better client and treatment outcomes.

The results of this study support this theoretical framework and confirm its utility in counselor education. Following the case conceptualization training, participants were significantly more adept at identifying both the maladaptive and adaptive patterns of the clients in the case vignettes and homework assignments. This also better enabled participants to prescribe specific treatment recommendations, while being able to more accurately predict any future treatment challenges and obstacles. Furthermore, participants were readily capable of transferring and applying the knowledge and skills acquired from both of the training lectures over time. This included from the (a) end of the first training lecture (CC 2) to the beginning of the second training lecture (CC 5) and (b) end of the second training lecture (CC 6) to the final homework assignment (CC 8). All of these changes in competence were evident in the significant increases on the CCEF 2.0 scores over time. These findings are similar to that of prior case conceptualization training studies (Kendjelic & Eells, 2007; Abbas et al., 2012; Smith Kelsey, 2014; Ladd, 2015; Stoupas, 2016) and lend further support to the fact that (1) case conceptualization skills can be effectively taught and learned via structured and standardized training interventions; (2) the effects of case conceptualization training can be reliably and empirically evaluated.

Practical Implications. This study has four primary implications for counselor education, all of which are directly related its constructs. Again, these constructs are (1) case conceptualization, (2) counselor competence, (3) EBP, and (4) deliberate practice. These four constructs in concert with the results of this study have clear implications for the current standards of practice in CES.

The first, and foremost practical implication is that case conceptualization training is effective. In regard to counselor trainees, the results of this study prove that the Sperry (1989; 2010b) integrative case conceptualization training model effectively (a) increased their ability to formulate case conceptualizations, (b) decreased their associated case conceptualization myths, (c) increased their "openness" to EBP, and (d) increased their competence.

The improvement in case conceptualization ability and competence was evident in the total mean CCEF 2.0 score increases for both the comparison group (n = 49; 40.3 points) and experimental group (n = 35; 62.8 points) with a significantly large partial eta-squared effect size of .281. This was further substantiated by the reduction in participants' case conceptualization myths, as evidenced by the mean VACC score increase of 4.13 points on items 1 through 5 for the entire sample (N = 84) and their positive responses to item 6. Furthermore, the training also impacted participants' "openness" to EBP and acceptance of new practices, as indicated by significant score changes on the EBPAS subscale for "openness." Therefore, through a two-part standardized case conceptualization training lecture, counselor trainees can successfully be taught how to write efficient case conceptualizations, while also learning about and embracing the importance of this vital competency and becoming more accepting of new practices.

The second practical implication is not only did this study demonstrate that case conceptualization training works, but it also showed that it actually works better with a supplemental intervention. In fact, the integrative model developed by Sperry (1989; 2010b) was significantly more effective when supplemented with deliberate practice

coaching. This was clearly evident in the total mean CCEF 2.0 score comparisons between both groups (experimental and comparison). As previously explained, the total mean CCEF 2.0 score increase for the comparison group (n = 49) was exactly 40.3 points, while the total mean CCEF 2.0 score increase for the experimental group (n = 35) was precisely 62.8 points. While these findings show that both groups significantly increased their case conceptualization competence, the mean CCEF 2.0 score difference of 22.5 points clearly indicates that the training was more effective with deliberate practice coaching. Therefore, this study empirically exhibited that case conceptualization training with deliberate practice coaching increases competence significantly more than just case conceptualization training, alone.

The third practical implication is in regard to the variables of attitudes toward EBP (appeal, requirement, openness, divergence) and aspects of deliberate practice (planning, concentration/dedication, repetition/revision or review/evaluate, study style/self-reflection). Out of all of these variables and aspects, only trainees' "openness" to EBP significantly changed from the training. This result supports the Aarons (2004) finding that interns tend to have higher scores on the "openness" subscale of the EBPAS. The other variables of attitudes toward EBP and all of the aspects of deliberate practice were not related to the training, nor did they influence the persistence of the training effects. Accordingly, this implies that case conceptualization training results in counselor trainees becoming more "open" to EBP and accepting of new practices.

Still, the training supplemented with deliberate practice coaching did significantly increase counselor trainees' case conceptualization competence. Therefore, case conceptualization mastery does require training, planning, and repeated practice (Sperry,

2010a), along with the provision of timely and accurate feedback on an ongoing basis (Sperry & Sperry, 2012). While aspects of deliberate practice may not be directly related to the training, this study empirically exhibited that counselor trainees coached in deliberate practice are significantly more competent in writing case conceptualizations. This implication is in direct comparison to trainees who only received the case conceptualization training and were not coached in deliberate practice. Accordingly, counselor educators now have a strong rationale for not only utilizing the Sperry (1989; 2010b) integrative case conceptualization model to train future counselors in case conceptualization, but to optimize their results by enhancing it with deliberate practice coaching.

Finally, the fourth practical implication of this study is that newly obtained case conceptualization knowledge and skills do not fade over time. This is in contrast to the findings of the Stoupas (2016) study, who found that the persistence of the training effects on practitioners resulted in a mean CCEF 2.0 score decrease of 1.5 points (out of 100) over time. In this study, the persistence of the training effects for the entire sample ($N = 84$) resulted in a significant overall mean CCEF 2.0 score improvement of 4.24 points (out of 100) increase in the from CC 2 (Training Lecture 1 post-test) to CC 5 (Training Lecture 2 pre-test).

While the training effects persisted for both groups (experimental and comparison) in this study, the persistence of the effects persisted even more so with the experimental group. This finding is extraordinarily apparent when comparing the CCEF 2.0 scores from CC 2 to CC 5 between the two groups. Therefore, adding further support to the Sperry and Sperry (2012) assertion that learning and mastering case

conceptualization "does not occur by chance, instead it requires having an intentional plan and strategy for increasing this essential competency" (Sperry & Sperry, 2012, p. 19). The five key components of this strategy are (1) self-assessment, (2) skill repetition, (3) formative feedback, (4) stretch goals, and (5) progress monitoring; all of which form the foundation of deliberate practice and lead to expertise. The primary implication being that if CES programs want to maintain learning and skill acquisition over time, then they must incorporate all of these critical elements into their curriculum and training practices.

Research Implications. In addition to theoretical and practical implications, this study has four implications for future research. Like the previous implications, these research-based ones completely align with the study's four constructs. Therefore, both the constructs and research implications of this project are inextricably intertwined with the future of CES and the training of all future counselors.

First, this study did not have the luxury of using random assignment when allocating participants into the two groups (experimental and comparison). While serious measures were taken to decrease any threat to internal validity, this researcher is unable to completely verify that no threat occurred. Therefore, future case conceptualization training research should utilize a true experimental design, also known as a "randomized clinical or controlled trial." Considered the "gold standard" of research (Whiston & Campbell, 2010), this type of design requires the following: (1) use of random assignment, (2) at least one experimental and control or comparison group, and (3) a researcher-manipulated variable (i.e., independent variable). Under these conditions, one could optimally conduct the study, while minimizing any threats to internal and external validity. For example, this could include a more systematic & random sampling method

of the participants with greater "power," a larger sample size, & equal groups (experimental & comparison) amongst participants' variables (e.g., CACREP vs. CACREP-equivalent or graduate counseling track of mental health counseling vs. school counseling); ultimately, this would lead to more "generalizable" results. The purpose of this exemplary research design would be to determine a true cause and effect relationship between participants' case conceptualization competence and case conceptualization training.

Second, this project obtained significant results via a strict quantitative methodology; however, this researcher is curious about the implications of also including qualitative methods to the study design. Future research into case conceptualization training would be more robust with the utilization of both qualitative and quantitative research or a "mixed methods" research design. Adding to the richness of a study, this type of multimethodology uses two or more methods (e.g., qualitative and quantitative) of data collection and analysis (Leech & Onwuegbuzie, 2010). Future case conceptualization training projects should include a mixture of both methods implemented throughout the study, including the use of assessments, questionnaires, and interviews for the purposes of data collection, analysis, and interpretation. The rationale for adding a qualitative element to the overall design of a case conceptualization training study would be to collect, explore, and interpret participants' training experiences in a more objective and descriptive manner. To date, no such study exists within the case conceptualization training literature, and the evolution of its research is vital to the future of this competency.

Third, this was the first study to administer the EBPAS to counselor trainees. As a result of the training, the finding was that trainees became more "open" to EBP and accepting of new practices. Therefore, this instrument shows promise in the future of CES research and curriculum. For example, the EBPAS could be used as a measurement of counselor trainees' attitudes toward EBP both before and after graduate counseling studies. Known as progress monitoring and outcome assessment (PMOA), this approach would include a baseline (pre-test) measurement and outcome assessment (post-test) implemented within CES programs. The reasoning for this implication is to offer counselor education programs an empirical method for evaluating their students' attitudes toward EBP. In accordance with Stoupas (2016), if counseling is to progress and remain relevant in the era of the "accountability and outcomes paradigm," then counseling students must be educated and encouraged to both use and produce clinical research. The importance of this research implication rests on the fact that as a whole, the counseling profession is moving more toward the healthcare standard of "pay-for-performance," which emphasizes accountability, outcomes, and EBP.

The fourth and final research implication is in regard to the psychometric properties for four of the six instruments used in this study. As described earlier in the section on this study's contributions, these four instruments include the following: (1) VACC, (2) EBPAS, (3) Moulaert Questionnaire, and (4) Training Lecture Questionnaire. While the psychometric properties of the VACC and EBPAS have been previously investigated, further analysis will provide more details on these instruments' utility with counselor trainees. The basis for the psychometric testing of an adaption of the Duvivier et al. (2011) version of the Moulaert Questionnaire is its efficacy in CES, along with

further instrument development. This is of extreme importance, as no such measurement of deliberate practice currently exists in counselor education. Given the effectiveness of this construct in CES, it is crucial to find a valid and reliable measure of its aspects. Lastly, the reason for analyzing the psychometrics of the Training Lecture Questionnaire is to further substantiate its utility in case conceptualization training, especially in regard to the Sperry (1989; 2010b) integrative case conceptualization training model. …

Study Limitations

The plan of this study was to address the limitations of previous case conceptualization training research. Nevertheless, some limitations were inevitable and still remained. These include the following:

- The convenience sample consisted of master's-level, pre-practicum students (i.e., counselor trainees) enrolled in two different graduate counseling programs (CACREP and CACREP-equivalent) within three distinct counseling tracks (mental health, school, and rehabilitation counseling), who voluntarily consented to participate in the study. While participants were allocated into two groups (experimental and comparison), randomization in the sampling of participants was not applied. As a result, the representation of this sample is limited and the results may only be generalizable to particular graduate counseling student populations.
- The instruments used in this study did not identify or assess for any additional participant variables that may have impacted the results of the training and coaching. Examples include, intelligence, emotion, current case conceptualization knowledge, and prior training involvement. Therefore, there is a possibility that these or other unidentified variables accounted for a certain amount of the effects.

- The Moulaert Questionnaire, which was utilized to measure aspects of deliberate practice was not validated for use with counselor trainees. As such, the instrument's non-significant results cannot be verified and should be interpreted with caution. In regard to the aspects measured, it is possible that the items did not fully translate to the training. Thus, any conclusions made on the use of this instrument and the variables it proclaimed to measure are limited.
- The participants will not necessarily use the integrative case conceptualization model throughout the remainder of their graduate counseling studies or in their future clinical practice. Although this does not affect the results of the study, it does potentially limit the practicality of the training and efficacy of this research in CES and the counseling profession.

Conclusion

This study clearly proved that case conceptualization can be effectively taught to a diverse sample of master's-level, pre-practicum students with (1) a bipartite, standardized case conceptualization training lecture series and (2) three, individual deliberate practice coaching sessions. The findings of the study were significant and resulted in very large effect sizes. This study further demonstrated that the effects of case conceptualization training persist over time and that these effects are augmented with deliberate practice coaching. Based on these merits, this study unequivocally suggests that this critical competency and its acquisition make a lasting impression and have an enduring impact on participants.

During the course of this study, participants were able to significantly increase their case conceptualization competence and expand their capacity to understand a

variety of clinical scenarios. According to Sperry and Sperry (2012) well-formulated case conceptualizations are the hallmark of competent and qualified counselors. Given the emphasis on EBP in counseling today, this critical competency is now more important than ever. The Sperry (2010b) integrative method of case conceptualization utilized in this study provided a comprehensive and efficient manner for producing such evidence-based case conceptualizations. The end result being that counselor trainees were able to successfully apply the model to the case vignettes and homework assignments used throughout the eight weeks of the study.

This project also provided further evidence that case conceptualization training impacts attitudes toward EBP and that aspects of deliberate practice increase competence. Similar to the Stoupas (2016) results, this study demonstrated that attitudes affect learning and that learning affects attitudes. This was especially true in regard to counselor trainees' acceptance of new practices. As for aspects of deliberate practice, these variables were not found to be related to the training. However, case conceptualization training supplemented with deliberate practice coaching was found to increase counselor competence. Therefore, no longer a hypothetical question, the fact is that aspects of deliberate practice incorporated into case conceptualization training are more effective than just case conceptualization training, alone.

In the context of CES, practice alone will not yield competent counselors. Only "perfect practice," otherwise known as deliberate practice can produce such clinicians. Prior researchers have indicated that this type of practice leads to case conceptualization competence (Sperry, 2010a; Sperry & Sperry, 2012) and that it is the only demonstrated factor in the development of highly effective psychotherapists (Chow et al., 2015; Love

et al., 2016). The findings of this study not only support these assertions, but prove that the art and utility of deliberate practice is real and valid, and that its application leads to highly competent counselors who can formulate highly effective case conceptualizations. Therefore, if case conceptualization training leads to competence, and deliberate practice leads to expertise, then case conceptualization training with deliberate practice leads to competent case conceptualization experts.

APPENDICES

Appendix A. Moulaert Questionnaire Authorizations

From: Robbert Duvivier robbertduvivier@gmail.com
Subject: Re: Deliberate Practice and the Moulaert Questionnaire
Date: November 1, 2016 at 7:33 PM
To: Scott Lipp slipp2016@fau.edu
Cc: Len Sperry lsperry@fau.edu, Dalen J van (SK) j.vandalen@maastrichtuniversity.nl

Dear Scott,

Thanks for your message - always nice to hear from colleagues who share an interest! The original questionnaire was in Dutch, and has been translated for publication purposes. I have attached both versions, my apologies that the edges on the English PDF version have been cut off.

As you can see, the focus of the questionnaire was particularly around learning clinical skills. My analysis has identified four underlying constructs, which might be more useful for you to use. The Table 1 attached shows the questions that loaded on these constructs, along with their eigenvalues. I have not done any additional work with the survey, unfortunately. However, in a way, you could use these 27 questions (in whatever order) as a condensed and validated instrument to measure deliberate practice.

I'd be interested to hear about your particular research questions, and the student population you'd like to use this survey on. Happy to talk further by Skype, if that's helpful.

Best wishes from Australia,
Robbert

From: Veronique Moulaert V.Moulaert@adelante-zorggroep.nl
Subject: RE: The Moulaert Questionnaire and Deliberate Practice
Date: November 2, 2016 at 11:05 AM
To: Scott Lipp slipp2016@fau.edu

Dear Scott,

I have no objection against using the questions that you can find in my article.

Kind regards,
Véronique

Appendix B. Evidence-Based Practice Attitude Scale (EBPAS) Authorization

From: Aarons, Gregory gaarons@ucsd.edu
Subject: RE: IMPORTANT: EBPAS Permission Request
Date: December 16, 2016 at 9:08 AM
To: Scott Lipp slipp2016@fau.edu

Dear Scott,

This email provides permission to use the EBPAS in your research. I have attached files with the EBPAS, scoring instructions, and an article that provides US national norms. Best of luck with your research.

Sincerely yours,
Greg

Appendix C. Demographic Questionnaire

Name _____ Date _____
Email _____ Phone ( ) –

CASE CONCEPTUALIZATION TRAINING
DEMOGRAPHIC QUESTIONNAIRE

INSTRUCTIONS: Please answer all questions as accurate as possible.

1. **Gender** (Please circle):

   Male Female

2. **Age** (Please circle):

   18 – 27 28 – 37 38 – 47 48 – 57 58 – 67 68 +

3. **Race/Ethnicity** (Please circle):

   a) African American/Black
   b) Asian American
   c) Caucasian/White
   d) Hispanic/Latino
   e) Native American/Alaska Native
   f) Native Hawaiian/Pacific Islander
   g) Other (please specify):
   _____

4. **Graduate School Completion** (Please indicate total number of credits completed): _____

5. **Grade Point Average** (Please circle):

   a) 0.0 – 0.5 c) 1.1 – 1.5 e) 2.1 – 2.5 g) 3.1 – 3.5
   b) 0.6 – 1.0 d) 1.6 – 2.0 f) 2.6 – 3.0 h) 3.6 – 4.0

6. **Counseling Experience** (Please indicate): _____year(s) and _____month(s)

7. **Do you consider yourself religious and/or spiritual?** (Please circle):

   Yes No

8. **Do you have paranormal beliefs?** (e.g., ESP, ghosts, psychic abilities, etc.; Please circle):

   Yes No

Appendix D. Training Lecture Questionnaire

Name _____ Date _____

CASE CONCEPTUALIZATION TRAINING
LECTURE QUESTIONNAIRE

INSTRUCTIONS: On a scale of 1 to 5, rate your level of agreement with the following aspects of the lecture. Please circle your response to all of the items.

1	Strongly Disagree
2	Disagree
3	Neutral
4	Agree
5	Strongly Agree

1. I was well informed about the objectives of this lecture. 1 2 3 4 5
2. This lecture lived up to my expectations. 1 2 3 4 5
3. The lecture activities stimulated my learning. 1 2 3 4 5
4. The difficulty level of this lecture was appropriate. 1 2 3 4 5
5. The pace of this lecture was appropriate. 1 2 3 4 5
6. The instructor was well prepared. 1 2 3 4 5
7. The instructor was helpful. 1 2 3 4 5
8. It is important for me to use what I have learned. 1 2 3 4 5
9. I feel confident in applying and using what I have learned. 1 2 3 4 5
10. The lecture was a good way for me to learn to this content. 1 2 3 4 5

Thank you for your participation!

Appendix E. Institutional Review Board (IRB) Exemption

Institutional Review Board
Division of Research
777 Glades Rd.
Boca Raton, FL 33431
Tel: 561.297.1383
fau.edu/research/researchint

Charles Dukes, Ed.D., Chair

DATE:	March 29, 2017
TO:	Len Sperry, MD, PhD
FROM:	Florida Atlantic University Social, Behavioral and Educational Research IRB
PROTOCOL #:	1031903-1
PROTOCOL TITLE:	[1031903-1] The Influence of Deliberate Practice and Reflective Practice on the Case Conceptualization Competence of Counselor Trainees
SUBMISSION TYPE:	New Project
REVIEW CATEGORY:	Exemption category # *A1*
ACTION:	DETERMINATION OF EXEMPT STATUS
EFFECTIVE DATE:	March 29, 2017

Thank you for your submission of New Project materials for this research study. The Florida Atlantic University Social, Behavioral and Educational Research IRB has determined this project is EXEMPT FROM FEDERAL REGULATIONS. Therefore, you may initiate your research study.

We will keep a copy of this correspondence on file in our office. Please keep the IRB informed of any substantive change in your procedures, so that the exemption status may be re-evaluated if needed. Substantive changes are changes that are not minor and may result in increased risk or burden or decreased benefits to participants. Please also inform our office if you encounter any problem involving human subjects while conducting your research.

If you have any questions or comments about this correspondence, please contact Donna Simonovitch at:

Institutional Review Board
Research Integrity/Division of Research
Florida Atlantic University
Boca Raton, FL 33431
Phone: 561.297.1383
researchintegrity@fau.edu

* Please include your protocol number and title in all correspondence with this office.

This letter has been electronically signed in accordance with all applicable regulations, and a copy is retained within our records.

Appendix F. Adult Consent Form

ADULT CONSENT FORM

Version 3.0 – December 6, 2016

1) Title of Research Study: The Influence of Deliberate Practice and Reflective Practice on the Case Conceptualization Competence of Counselor Trainees

2) Investigator(s): Principal Investigator – Len Sperry, M.D., Ph.D.; Co-Investigators – Scott L. Lipp, M.S. and Vassilia Binensztok, M.S.

3) Purpose: The purpose of this study is to determine if specific training in case conceptualization will increase counselor trainee competence among participants receiving standardized lectures and coaching. Additionally, this study will examine the extent to which (1) attitudes toward evidence-based practice, (2) deliberate practice, and/or (3) reflective practice accounts for the relationship between the training and case conceptualization competence.

4) Procedures:

- During your regularly scheduled course, you will participate in two case conceptualization video lectures. Each lasting approximately 2.5 – 3 hours in length and separated by weeks. During each lecture, you will be asked to write two (pre-test and post-test) written case conceptualizations.
- At designated times throughout the lectures, you will be asked to complete the following instruments: (1) Views About Case Conceptualization form, (2) Evidence-Based Practice Attitude Scale, (3) Moulaert Questionnaire, (4) Reflection-in-Learning Scale, (5) Demographic Questionnaire, and (6) Case Conceptualization Training Lecture Questionnaire.
- One of your course requirements is to submit five assigned case conceptualizations for homework. These homework assignments will be part of the study.
- In addition, some of you will be asked to participate in three individualized coaching sessions lasting approximately 15 minutes each. These sessions can help to increase your case conceptualization competence.
- Participation is strictly voluntary and there will be no penalties if you choose not to participate.
- The video lectures will occur in a classroom setting, located on your campus. The individual coaching sessions will occur in similar settings, located on your campus

5) Risks: The risks involved with participation in this study are no more than you would experience in other academic and clinical training. It is possible that you may feel frustrated due to the limited amount of time that will be available for you to write a case conceptualization. We acknowledge that you may feel somewhat rushed and we simply request that you do your best in the allotted time. Those of you participating in the coaching sessions may experience some minor fatigue and frustration. In order to minimize any risk, the coaching sessions have been scheduled in a manner that provides you with ample time for rest and recovery.

6) Benefits: Potential benefits to you will be increased knowledge regarding case conceptualization and its related factors. Furthermore, this study is expected to make the following contributions to the research and clinical literature: (1) build upon previous research by implementing procedures in deliberate practice and reflective practice, (2) add to existing literature on the impact of a specific training on writing effective case conceptualizations, and (3) provide additional conclusions regarding the influence of counselor trainees' attitudes toward evidence-based practice, aspects of deliberate practice, and disposition toward reflective thinking.

7) Data Collection & Storage: Any information collected about you will be kept confidential and secure. Only individuals working with the study will have access to your data, unless required by law. All data will be saved for five years in a locked cabinet and/or password-protected computer in the investigator's office. After five years, all paper copies will be destroyed by shredding and all electronic data will be deleted. We may publish what we learn from this study. If we do, we will not disclose any of your names and/or identities, unless you grant permission.

Participant Initials _____

8) Contact Information:

- If you have questions about the study, you may call or email the principal investigator, Dr. Len Sperry at (561) 297-3507 or lsperry@fau.edu AND co-investigators Scott Lipp at (561) 465-7622 or slipp2016@fau.edu; Vassilia Binensztok at (561) 252-3434 or vbinensz@fau.edu.
- If you have questions or concerns about your rights as a research participant, contact the Florida Atlantic University Division of Research, Research Integrity Office at (561) 297-1383 or send an email to researchintegrity@fau.edu.

9) Consent Statement:

*I have read or had read to me the information describing this study. All my questions have been answered to my satisfaction. I am 18 years of age or older and freely consent to participate. I understand that I am free to withdraw from the study at any time without penalty. I have received a copy of this consent form.

Printed Name of Participant: _____

Signature of Participant: _____ Date: _____

Printed Name of Investigator: _____

Signature of Investigator: _____ Date: _____

REFERENCES

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