

THE LOOKING GLASS EFFECT: THE INFLUENCES OF CLINICAL SUPERVISION ON
STUDENT ATTITUDES TOWARD EVIDENCE BASED PRACTICES

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Abstract

The current study explored how graduate students' attitudes toward evidence-based practices (EBPs) are influenced through clinical supervision. Despite being widely endorsed by professional entities, such as the American Psychological Association, members of the profession have mixed attitudes toward the EBP approach. Mixed attitudes toward EBPs have potentially detrimental effects, such as resulting in clinicians simply dismissing the notion of evidence-based treatment decision making and instead utilizing interventions that are without scientific support and potentially ineffective and even harmful. Resistance toward EBPs has been studied, but largely unstudied is how negative attitudes toward EBPs are developed and propagated to others. Professional identity solidifies in graduate school by way of clinical supervision. The goal of this study was to illuminate underlying influences of clinical supervision on graduate student attitudes toward EBPs, as clinical supervision may be the root cause of resistance toward EBPs. Perceived supervisor credibility influences professional identity development and may be influenced by a positive supervisory working alliance, theoretical orientation match, and overall acquiescence to a clinical supervisor; and these factors may affect attitudes toward EBPs. However, no previous research exists to directly confirm this notion. This study sampled from Ph.D. and Psy.D. clinical psychology graduate students who had started seeing patients ($n = 157$). Participants completed an online survey battery measuring perceived supervisor credibility, supervisory working alliance, student attitudes toward EBPs, perceived supervisor attitudes toward EBPs, and dispositional psychological reactance. It was predicted that students would perceive their supervisor as credible when their theoretical orientations matched, a positive supervisory working alliance existed, and students' psychological reactance was low. It was also predicted that supervisor attitudes toward EBPs

would predict student attitudes toward EBPs when perceived supervisor credibility is high, students' dispositional psychological reactance is low, supervisory alliance is high, and theoretical orientations matched. Simultaneous linear regression and hierarchical regression was used to test the study hypotheses. The results partially supported the study hypotheses. It was found that a positive supervisory alliance predicted perceived supervised credibility. However, the remaining hypotheses were unsupported. Results contribute to the sparse research base on supervisor credibility in that preliminary support is provided that perceived credibility occurs when students and supervisors have a good relationship.

Noteworthy are that results yielded from correlations suggested that students' global appreciation for research was related to theoretical orientation match of their clinical supervisor, supervisors' and graduate program's favorable attitudes toward EBP's, and to multi-faceted supervisory relationships such as having a clinical supervisor also as a research supervisor. These findings suggest that student internalization of supervisor attitudes may have less to do with perceived credibility and more to do with attitudes toward research. Future research should consider exploring attitudes toward research in the context of development of attitudes toward EBPs.

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Chapter 1: Introduction

Psychology is one of the more recent scientific fields to emerge (Schultz & Schultz, 2015). Among various subfields that have arisen out of psychology over the past century, clinical psychology is one of the more prevailing. The field of clinical psychology is a branch of psychology that studies, assesses, and treats individuals with psychological disorders (Myers, 2013). As the field of clinical psychology grew and expanded, the question of whether therapy was effective arose. Early support for the efficacy of psychotherapy was initially mixed, with some finding that therapy is not effective in treating psychological disorders (“neurotic disorder” specifically; Eysenck, 1952), while other research supports its effectiveness (Smith, Glass, & Miller, 1980). The efficacy of therapy is now well established (e.g., Hofmann, Asnaani, Vonk, Sawyer, & Fang, 2012; Kline, Cooper, Rytwinski, & Feeny, 2018).

In the 1980s clinical psychologists began investigating which forms of therapy were most effective for certain disorders, which led to the development of treatment manuals (Pomerantz, 2014). However, this push for manualized treatments was met with contention by members of the field due to various reasons. One reason was that members of field reported research less helpful in guiding their clinical practice (e.g., see Cohen, Sargent & Sechrest, 1986). Another reason was a lack of uniformity of research standards, which resulted in inconsistent implementation of early treatment manuals, and, ultimately, led to mixed research outcomes (Pomerantz, 2014). Thus, an alternative approach to simple testing of manualized therapies to establish efficacy was needed to restore clinical psychologists’ confidence in research-based therapy (Pomerantz, 2014).

Beginning in the 1990s, the American Psychological Association (APA) made strides in developing a more consistent psychological treatment selection approach that would improve

client outcomes (APA Presidential Task Force on Evidence-Based Practice, 2006). This stemmed from the belief that clinical practice should be informed by research (Woolf & Atkins, 2001). Thus, the initiative toward evidence-based practices (EBPs) took hold in psychology (see Lilienfeld, Rischel, Lynn, Cautin, & Lutzman, 2013). However, as is sometimes the case with change, resistance followed. Despite being widely endorsed by professional entities, such as the APA, members of the profession have mixed attitudes toward the EBP approach (Beidas & Kendall, 2010; Patel, Hagedorn, & Bai, 2012). Mixed attitudes toward EBPs have potentially detrimental effects, such as it can result in clinicians simply dismissing the notion of evidence-based treatment decision making and instead utilizing interventions that are without scientific support and potentially damaging (Lynn, Lock, Loftus, Krackow, & Lilienfeld, 2003). In fact, historically, most clients have not received EBPs (US Department of Health and Human Services, 1999).

Although researchers have examined resistance toward EBPs (e.g., Lilienfeld et al., 2013), largely unstudied is how negative attitudes toward EBPs are developed and propagated to others. There is speculation that professional identity, which influences attitudes toward EBPs, solidifies in graduate school by way of clinical supervision (e.g., Guest & Beutler, 1988; Hutt, Scott, & King, 1983; McAleavey, Castonguay, & Xiao, 2014). However, no previous research exists to directly confirm this notion. The goal of this study was to illuminate underlying influences of clinical supervision on graduate student attitudes toward EBPs, as this may potentially be the root cause of resistance toward EBPs: experiences in clinical supervision.

In the current study, I investigated various factors that could potentially contribute to a clinical psychology graduate student's attitude toward EBPs, which included: (1) supervisory alliance, (2) perceived supervisor credibility, (3) students' ratings of supervisor perceived

attitudes toward EBPs, (4) theoretical orientation match between supervisors and students, and (5) students' dispositional psychology reactance. The quality of the supervisor-supervisee relationship can influence the impact supervisors have on their supervisees' training experiences and, ultimately, professional development. A quality supervisor-supervisee relationship is indicative of a positive working alliance between the supervisor and supervisee, which is thought to consist of three aspects: agreement on supervisory goals, agreement of supervisory tasks, and a good relationship (Bordin, 1983). A positive supervisory working alliance is associated with beneficial training outcomes, such as increased trainee's adherence to treatment being utilized, increased self-efficacy, perceived supervisor credibility, and improved client outcomes (Bernard & Goodyear, 2009; Ladany et al., 1999; Patton & Kivlighan, 1997; Rarick & Ladany, 2013). Moreover, research findings reveal that when supervisors are perceived as credible, supervisees are more acquiescent toward supervisors and evaluate them more favorably (Evans, 1986; Heppner & Handley, 1982; Holloway, 1984; Steward, Breland, & Neil, 2001). It is plausible that with a positive supervisory alliance and perceiving a supervisor as credible, students are then more likely to be influenced by their clinical supervisors and may internalize their attitudes toward EBPs.

Theoretical orientation is defined as an organized set of assumptions that underpin a theory-based framework that allows clinicians to generate hypotheses regarding a client's behavior, assemble treatment interventions, and assess treatment progress (Poznanski & McLennan, 1995). Studies have found a cognitive-behavioral therapy (CBT) orientation correlates with favorable attitudes toward EBPs (Bearman et al., 2015; Beidas & Kendall, 2010). Previous research has also shown support for a supervisor's theoretical orientation being influential in supervisee selection of theoretical orientation (e.g., Brown et al., 2011; Cummings

& Lucchese, 1978; Freiheit & Overholser, 1997; Guest & Beutler, 1988; Herron, 1978; McAleavey et al., 2014; Poznanski & McLennan, 2003, 2004; Rosin & Knudson, 1986).

Psychological reactance may also impact the professional identity of a student in clinical supervision. Psychological reactance theory involves the idea that when an individual feels their freedom is being infringed upon, they will engage in behaviors aimed at restoring their freedom (Brehm, 1956). Although sparse, the existing research regarding psychological reactance and clinical supervision suggests that when supervisors and supervisees have a negative relationship, supervisees will engage in various forms of resistance (Hutt et al., 1983) and may also desire less supervision, even when faced with a difficult client (Tracey, Ellickson, & Sherry, 1989). From these studies, it is plausible to deduct that with a weak supervisory alliance, students may engage in psychological reactance. This, in turn, may negatively impact the supervision process, which can affect the student's internalization of supervisors' attitudes, such as attitudes toward EBPs.

Finally, various professional entities such as the APA, National Institute of Mental Health (NIMH), National Association of Social Workers (NASW), and American Academy of Child and Adolescent Psychiatry (AACAP), endorse the incorporation of EBPs exposure and training in graduate programs (Beidas & Kendall, 2010; Bellamy, Bledsoe, & Traube, 2006). However, a study conducted by Weissman and colleagues (2006) found that although Doctor of Philosophy (Ph.D.) programs in psychology by and large provided training in EBPs, alternative graduate programs in psychology, such as Doctor of Psychology (Psy.D.) programs, were found to be much more inconsistent in their incorporation of EBPs in their students' training. Although both Ph.D. and Psy.D. programs train professional clinical psychologists, variation exists between these two degrees. Typically, a clinical psychology training program that awards a Ph.D. places a dual emphasis on training students in both research and practice while a clinical psychology

training program that awards a Psy.D. places a greater emphasis on clinically relevant training aspects and less on research (Pomerantz, 2014). It is noteworthy, however, that variation exists among and within these programs in the sense that some Ph.D. programs may be more clinically focused than others and some Psy.D. program may be more research focused than others. Other fields, such as psychiatry, although endorsing EBPs, were found to be hesitant toward incorporating exposure to EBPs in their training programs (Weissman et al., 2006). This discrepancy in the systemic endorsement yet mixed implementation of EBPs training by graduate programs likely speaks toward a larger issue, which are mixed attitudes toward EBPs (Patel et al., 2012), all of which can affect a student's attitude toward EBPs by way of their graduate program. The EBPs approach to treatment is crucial to ensuring clients receive interventions supported by research, which is consistent with the APA code of ethics (Beidas & Kendall, 2010). Resistance toward EBPs creates a culture in the field of delivering interventions unsupported by evidence that are potentially harmful to clients, or at best, unhelpful (Lynn et al., 2003). Although various sources of resistance toward EBPs have been investigated (e.g., Lilienfeld et al., 2013), what has surprisingly been neglected in the literature is how resistance to EBPs is initiated and propagated.

In Lewis Carroll's (1871) classic novel *Through the Looking-Glass and What Alice Found There*, when Alice entered Wonderland through the looking glass, her experiences and identity were influenced by a world in which she explored. In line with this notion, Cooley (1964) posited that people's identity forms through the looking glass self, which is to say our interactions and perceptions of others shapes our identity and how we imagine others will perceive us. The attitudes and professional identify of a clinician are predominantly shaped and molded in graduate school training (Bearman et al., 2015) including, perhaps especially,

experiences in clinical supervision (e.g., Guest & Beutler, 1988; Hutt, et al., 1983; McAleavey et al., 2014). Although there are various theoretical links as to how the influence of clinical supervisors may impact graduate students' attitudes toward EBPs, this has yet to be directly examined. Thus, the purpose of the current study was to shed light on how graduate students' attitudes toward EBPs are influenced through clinical supervision.

Chapter 2: Literature Review

Given the need to understand various potential factors that influence the relationship between graduate students' attitudes toward EBPs and clinical supervision, this chapter reviews relevant background literature that informs this dissertation including evidence-based practices (Section A), clinical supervision (Section B), and social psychological factors influencing students' attitudinal development toward EBPs (Section C). The first section provides a definition of what EBPs are, discusses graduate training in EBPs, explores the diverse literature in attitudes toward EBPs, reviews six common areas of resistance toward EBPs, and discusses how confirmation bias and bias blind spot intersect with attitudes toward EBPs.

Section A: Evidence-Based Practices

Evidence-Based Practices

Definition. Taking note of the trend in the field of medicine in the 1990s that practices should be grounded more firmly in scientific evidence (Sox & Woolf, 1993), the APA assembled a task force to create a working definition of EBPs (APA Presidential Task Force on Evidence-Based Practice, 2006): "Evidence-based practices in psychology is the integration of the best available research with clinical expertise in the context of the patient characteristics, culture, and preferences" (p. 273). EBP is a movement toward specific treatment approaches that has gained momentum in various fields over the past two decades (APA Presidential Task Force on Evidence-Based Practice, 2006; Lilienfeld et al., 2013). APA's purpose in solidifying a unified approach toward EBPs is to bolster public health by employing empirically supported principles of assessment, intervention, case formulation, and therapeutic relationship (APA Presidential Task Force on Evidence-Based Practice, 2006).

It is important to clarify a common misunderstanding (Luebbe, Radcliffe, Callands, Green, & Thorn, 2007), which is distinguishing EBPs from empirically supported therapies (ESTs). ESTs are the focus of specific therapeutic techniques and are one application of EBPs (Lilienfeld et al., 2013; Spring, 2007). Magill and Longabaugh (2013) define ESTs as treatments that are efficacious by way of at least two independent and methodologically rigorous randomized controlled trials (RCTs). The methodological approach must have included well-justified and described sample characteristics, a treatment manual in tandem with treatment fidelity, and appropriate statistical analyses to assess change. The treatment manual of an EST teaches clinicians how exactly to deliver the treatment. It also describes conceptual foundations justifying the treatment and justifications for its delivery. The manual also includes a description of the treatment's active ingredients, which are the processes by which the treatment predicts measurable outcomes. For example, Dialectical Behavior Therapy, a therapy originally designed to treat individuals with borderline personality disorder (Linehan, 1993), is an EST comprised of various techniques geared toward a specific population with a treatment manual that is well-defined.

However, the distinction lies in that EBPs are an *approach* toward making clinical decisions (Lilienfeld et al., 2013). To this end, the *three-legged stool* is a common reference in the EBPs approach (Spring, 2007). The three legs of the EBPs approach are defined as follows: (1) best available research, (2) clinical expertise, and (3) client preferences and values. The first leg of best available research refers to scientific data suggesting *if* a treatment works and *why* a treatment works. For best available research, there is a hierarchy of scientific data to support the treatment that underlies the notion of best available research (Lilienfeld et al., 2013). At the top of this hierarchy are meta-analyses, RCTs and systematic within-subject designs. In the middle

are well constructed quasi-experimental studies. Finally, at the bottom are correlational and case studies (Ghaemi, 2009; Thyer & Pignotti, 2011). The second leg of clinical expertise involves clinicians utilizing their clinical skills and experiences to aid in diagnosis, as well as understanding risks and benefits in using potential interventions (Straus, Richardson, Glasziou, & Haynes, 2010). In the realm of psychotherapy, it is unlikely there will ever be enough data to dictate every clinical decision (Garb, 1998). Thus, clinicians must incorporate clinical expertise and experience in tandem with scientific evidence (Kahneman & Klein, 2009). Finally, the third leg, client preference and values, helps shape and guide clinicians' choice of intervention. For example, although flooding for anxiety is well-supported in the literature, if a client is unwilling to engage in this process, a clinician may consider an alternative treatment approach such as graded exposure (Rothbaum et al., 1995).

Training. Exposure to EBPs for many clinicians begins in graduate school. A study conducted by Weissman and colleagues (2006) attempted to shed light on the amount of exposure to the EBPs approach in accredited training programs in psychiatry, psychology and social work. It was revealed most training programs offer, as an elective, training and exposure to the EBP approach, with the EST of Cognitive Behavioral Therapy (CBT) frequently taught by Ph.D. programs. Alternative graduate programs in psychology, such as Psy.D. programs, were found to be much more inconsistent in their incorporation of EBPs in their students' training. Noteworthy is there are subtle differences between various subfields of psychology doctoral programs. For example, counseling psychology programs generally focus more on treating problems related to well-being across the lifespan whereas clinical psychology focuses on treating severe psychopathology (Price, 2009). Despite the field of medicine broadly holding firm in their attempts to adhere to EBPs, other subfields of medicine, such as psychiatry, reported

hesitation toward incorporating exposure to EBPs in their training programs. For example, in psychiatry, a common barrier for the teaching of EBPs, and associated ESTs, was that this approach was “too time consuming” (p. 930). Moreover, across all fields, the gold standard (e.g., supervision that is evidence-based) for clinical supervision and didactics was not required by certain mental health fields (e.g., social work) and was inconsistently incorporated into psychology graduate programs (e.g., Psy.D. programs were inconsistent in their incorporation of gold standard supervision). The results of this study suggest rather mixed support for the inclusion and exposure of EBPs to students in psychology programs and related fields. On the other hand, various professional entities, such as, APA, NIMH, NASW and AACAP, endorse the incorporation of EBPs exposure and training in graduate programs (Beidas & Kendall, 2010; Bellamy et al., 2006). This discrepancy in the systemic endorsement yet mixed implementation of EBPs training by graduate programs likely speaks toward a larger issue in the field, which are mixed attitudes toward EBPs (Patel et al., 2012).

Attitudes toward EBPs

In the field of clinical psychology, there are mixed attitudes for the EBP approach, especially the first leg of the EBP stool, which posits clinical decisions should be informed by research evidence (Lilienfeld et al., 2013). Surprisingly, only three studies have been conducted that surveyed clinicians’ attitudes toward EBPs. Borntrager, Chorpita, Higa-McMillan, and Weisz (2009) found that masters-level clinicians ($n = 59$) reported fairly positive attitudes toward EBPs. The second study, found that only 12 years after the APA began its initiative toward EBPs, 90% of the 1126 social worker therapist respondents reported favorable attitudes toward research informing their therapeutic work (Sheldon & Chilvers, 2002). Finally, the results of a third study found 96% of the 85 therapist respondents (respondents were occupational therapists,

social workers, and physiotherapists) also perceived research as being useful in their client care (Caldwell, Coleman, Copp, Bell, & Ghazi, 2007).

On the other hand, earlier, conflicting research suggests a more negative outlook of clinicians toward the EBPs approach. As previously discussed, in the 1980s, there was contention toward research-based therapy. In a study conducted by Cohen, Sargent, and Sechrest (1986), psychologists ($n = 30$) trained in child psychology reported research less helpful in clinical practice as opposed to other resources, such as workshops, how-to-books, theoretical books, and informal conversations with colleagues. Similarly, Morrow-Bradley and Elliot (1986) found that only one third of the members of APA Division 29 (Psychotherapy) reported research being helpful in their clinical practice. Moreover, nearly half of division members/fellows reported ongoing experiences with clients as more helpful to their clinical practice than research. Although there is no current update on the attitudes toward research informed therapy among the members of APA Division 29, it is important to remember the historical context and the various reasons why APA received pushback APA toward ESTs. In examining current trends in the field, other studies have also found that clinicians still value their subjective professional opinion based on their experiences with clients as being more pertinent to their clinical practice than research (Boisvert & Faust, 2006; Pignotti, 2009; Stewart & Chambless, 2007).

Although sparse, research exploring clinical psychology graduate students' attitudes toward EBPs finds that students are indifferent when asked if they wanted more of the EBPs approach incorporated into their coursework and practicum work (Luebbe et al., 2007). Other research finds that students agree with the principles behind EBPs (Luebbe et al., 2007; VanderVeen, Reddy, Veilleux, January, & DiLillo, 2012) and that graduate students tend to endorse favorable attitudes toward EBPs when it was included in their education (Patel et al.,

2012). Studies have found that correlates of favorable attitudes among mental health care professionals trained at the masters and doctoral level toward EBPs include a CBT orientation, previous training in EBPs, being trained after the year 1995, and favorable attitudes toward research (Bearman et al., 2015; Beidas & Kendall, 2010). Increased exposure to EBPs is also associated with a more positive attitude (Beidas & Kendall, 2010). Despite the aforementioned conflicting evidence regarding attitudes toward EBPs, according to the United States Surgeon General, most clients who historically sought out mental health care have not received EBPs (US Department of Health and Human Services, 1999). Upon conducting a thorough literature search, no updated data were found that sheds light on how many clients receive care informed by evidence-based practices.

Areas of Resistance Toward EBPs

In attempting to understand the underlying reasons for unfavorable attitudes toward EBPs, Lilienfeld and colleagues (2013) found six sources of resistance toward EBPs: (1) naïve realism; (2) myths and misconceptions regarding human nature; (3) the application of group probabilities to individuals; (4) reversal of the onus of proof; (5) mischaracterizations of what EBPs are and what they are not; and (6) pragmatic, educational and attitudinal obstacles. Additionally, cognitive biases among clinicians that play out in the context of clinical practice are another identified area of resistance toward EBPs.

Cognitive biases are conventional, automatic and intuitive thinking patterns that commonly result in flawed decision-making (Nisbett, Krantz, Jepson, & Kunda, 2002). In the realm of attitudes toward EBPs, two biases are relevant: confirmation bias and bias blind spot. Confirmation bias is defined as a tendency to seek evidence consistent with one's hypothesis and ignore contrary evidence (Klayman & Ha, 1987). Bias blind spot is defined as the tendency to

perceive the self as immune to cognitive biases, while perceiving others as either vulnerable or participatory in such biases (Pronin et al., 2002).

Clinicians may tend to judge therapeutic change by relying on their own perception and ignore alternate explanations for how their client has responded to therapy (Horrocks & Smaby, 2006; Lilienfeld et al., 2013). For example, regression to the mean can sometimes explain changes in a person's behavior in and of itself (Pomerantz, 2014). Confirmation biases held by clinicians can perpetuate naïve realism, thus strengthening resistance toward EBPs (Lilienfeld et al., 2014). For example, a clinician who uses a certain approach for anxiety may only attend to sessions in which the client appears to respond well to the treatment and ignore sessions in which the treatment approach appears not to work. Alternatively, perhaps they may discount cases in which their treatment of choice did not work and attribute such cases to variables like client factors rather than the treatment they used. Thus, the clinician may conclude that their approach is working, ergo, employing a confirmation bias that solidifies naïve realism (Lilienfeld et al., 2014).

Naïve Realism. Naïve realism is the tendency to believe one's perceptions as an objective, unbiased reality and those who disagree with said reality are perceived to be uninformed or biased (Van Boven, 2007). In the realm of working with clients, clinicians may succumb to relying on their intuition on whether or not an intervention was effective (Ghaemi, 2009). This is problematic because clinicians may misperceive therapeutic change when it does or does not occur. Furthermore, in relying upon one's intuition, clinicians may perceive psychotherapy outcome research as unnecessary and irrelevant in determining if the treatment approaches they use are effective or not (Lilienfeld et al., 2013).

Clinicians who perceive therapeutic effectiveness and change by relying on their own perception ignore potentially alternative explanations for how their clients may respond to the therapy (Lilienfeld et al., 2013). Lilienfeld and colleagues (2013) discuss five causes of spurious therapeutic effectiveness (CSTEs), which can serve as alternative explanations for why clients *appear* to change and respond to a treatment, which can inadvertently reinforce naïve realism in clinicians. The first CSTE is the placebo effect, which transpires when a client's improvement occurs as a result of their expectations (Steer & Ritschel, 2010). The second CSTE is spontaneous remission, or that the longer a client receives therapy, the chances increase for improvement due to extraneous factors such as social support and natural healing process (Jacobson & Christensen, 1996). The third CSTE is regression to the mean, which is a statistical phenomenon in which a client's high endorsement of distress will be less extreme upon re-testing (Kruger, Savitsky, & Golovich, 1999). The fourth CSTE is effort justification, which is the tendency for clients and clinicians to attribute value to an outcome in light of the time, energy, and financial resources that are often invested into treatment (Cooper & Axsom, 1982). Finally, the fifth CSTE is multiple treatment interference (e.g., seeing two counselors or being enrolled in both group and individual treatment), which makes attributing change to a particular intervention or technique extremely difficult (Kendall, Butcher, & Holmbeck, 1999).

In summary, the aforementioned factors can cause clinicians to mistakenly attribute client change in therapy. In being skeptical of or paying no heed to research supporting EBPs, clinicians may succumb to naïve realism and rely on their own experience and subjective reality as a means for guiding treatment. As mentioned earlier, studies have shown clinicians are prone to trust their own experience more than research in guiding the selection of treatment they utilize

(Boisvert & Faust, 2006; Morrow-Bradley & Elliot, 1986; Pignotti, 2009; Stewart & Chambless, 2007).

Myths and Misconceptions Regarding Human Nature. Second sources of resistance toward EBPs are widespread, false beliefs about human behavior (Lilienfeld, Lynn, Ruscio, & Beyerstein, 2013). Such false beliefs are held by the public, including psychologists, and can dictate how people interact with one another, such as in psychotherapy. Furthermore, these false beliefs can often contradict knowledge generated from research, thus fueling resistance and skepticism toward EBPs (Lilienfeld et al., 2013).

A common false belief held by certain schools of thought (e.g., psychodynamic; see Wachtel, 1977) is the notion that a client's psychopathology is caused by repressed memories; thus, clinicians work with clients to access presumed forgotten memories and work through past stressors (Bremner, Vermetten, Southwick, Kystal, & Charney, 1998; Crews, 1995). However, there is little empirical evidence to support this notion and; in fact, such techniques actually run a serious risk of instilling false memories (Lynn et al., 2003). Another widely held false belief is the significant influence of experiences (both positive and negative) in early childhood and infancy affecting one's quality of life in adulthood (Kagan, 1998). This is not to say that childhood experiences do not affect people later in life. The well-known Adverse Childhood Experiences study (ACES) conducted by Felitti and colleagues (1998) has shown that early childhood trauma (i.e., sexual abuse, physical abuse, or neglect) and other adverse experiences (e.g., feeling unloved, a parent's divorce, or a household member going to prison) can indeed adversely affect a person later on in life. However, the empirical evidence that all childhood experiences (both negative and positive) affect people later in life is minimal (Lilienfeld et al., 2013; Paris, 2000). As mentioned earlier, beliefs and misconceptions held by the public can

influence treatment decisions of clinicians. For example, our societal beliefs in the United States over the past two to three decades regarding substance use include the notion that abstinence is the only acceptable or appropriate outcome goal for recovery. However, when examining the empirical evidence in the substance abuse literature, interventions that do not require abstinence, such as harm reduction and relapse prevention, are efficacious approaches (Larimer, Palmer, & Marlatt, 1999; Marlatt & Gordon, 1985; Polivy & Herman, 2002). In summary, these inaccurate beliefs about human nature can have a negative impact on treatment decisions. Should clinicians subscribe to such beliefs, the potential exists for ignoring evidence behind psychotherapeutic techniques, thus compromising therapeutic integrity and efficacy.

The Application of Group Probabilities to Individuals. In most psychological research, including research behind EBPs, the data produced are nomothetic, which seek to apply universal laws and generalize them to the most individuals in a population (Lilienfeld et al., 2013). This creates skepticism among some clinicians, who counter the nomothetic data culture underpinning EBPs with the argument that people are unique, idiographic individuals, thus universal data generated from studies is irrelevant (Meehl, 1954). Although there is indeed truth to this assertion, this does not negate the usefulness of nomothetic data. Groups are comprised of unique individuals; thus, research conducted on groups yields findings that are indeed applicable to individual clients (Dawes, Faust, & Meehl, 1989).

Reversal of the Onus of Proof. Opponents of EBPs often put forth the argument that theoretically sound treatments should be used to treat clients even though they have yet to be shown as efficacious in controlled trials (Bohart, 2002; Gray, Plath, & Webb, 2009). However, this is a logical fallacy, specifically, *argumentum ad ignorantiam*, or that if a claim has not been

proven incorrect, it is correct or has warrant (Woods & Walton, 1978). In science, the burden of proof resides with advocates of claims, not critics (Saks, 2002).

Mischaracterizations of What EBPs Are and What They Are Not. Other sources of resistance are misunderstandings of what is entailed in the EBP process (Lilienfeld et al., 2013). In some graduate programs, continuing education workshops and even in peer reviewed articles, EBPs are portrayed inaccurately, which in turn fuels reservations (Gallo & Barlow, 2012; Gibbs & Gamil, 2002, Lilienfeld et al, 2013). Lilienfeld and colleagues point out eight common misconceptions of EBPs.

The first common misconception is that EBPs stifle innovation in the development of new treatments and stagnate approaches to psychotherapy (Lilienfeld et al., 2013). In actuality, EBPs, like all branches of science, evolve through a dynamic, ever changing and self-correcting process (Sagan, 1995). As such, EBPs encourage the development and testing of new treatments (Thyer & Pignotti, 2011). A second misconception is that EBPs adopt a rigid, one-size-fits-all approach to psychotherapy (Lilienfeld et al., 2013). On the contrary, treatment manuals of ESTs serve as a guide and actually afford a great deal of flexibility in administering the treatment in a way that is most helpful for the client (O'Donohue, Ammirati, & Lilienfeld, 2011; Kendall, Gosch, Furr, & Sood, 2008). A third misconception of EBPs is that they exclude nonspecific influences in therapy (Lilienfeld et al., 2013). While this assertion does hold merit (ESTs do indeed focus on specific therapeutic techniques; see Spring, 2007), EBPs incorporate all scientific data related to psychotherapeutic outcomes, including data on common factors such as therapeutic alliance and relational factors (Thyer & Pignotti, 2011). A fourth misconception of EBPs is that they do not generalize to individuals who have not been a part of controlled studies (Lilienfeld et al., 2013). As discussed earlier, groups in large studies are comprised of unique

individuals, thus providing a basis by which generalization can occur (Dawes et al., 1989). Furthermore, data indicate that those data yielded from controlled studies actually translate well to real world effectiveness (McHugh, Murray, & Barlow, 2009).

A fifth mischaracterization of EBPs is that they neglect evidence other than from RCTs (Lilienfeld et al., 2013). As discussed earlier, the first leg of the three-legged stool of EBPs is best available research, which includes RCTs along with other research designs (e.g., meta-analyses and quasi-experimental studies). A sixth mischaracterization of EBPs is that they are unnecessary because all treatments are equally efficacious, a reference to the Dodo Bird effect, or the claim that all psychotherapies yield equivalent treatment outcomes, regardless of specific therapeutic components (Rosenzweig, 1936; Wampold et al., 1997). In addition to the limitation noted by the authors of the Dodo Bird effect that unlikely psychotherapies were inappropriately examined together in systemic studies (Rosenzweig, 1936; Wampold et al., 1997), there are other factors to consider when examining the claim that all therapies are equally efficacious. There are at least 500 psychotherapies and over 300 diagnoses in DSM 5 (American Psychiatric Association, 2013; Eisner, 2000), which makes the odds that 150,000 (500 times 300) treatment by disorder combinations all yield equivalent outcomes highly improbable (Lilienfeld et al., 2013). Moreover, there is overwhelming support that certain therapies, such as CBT-based interventions for anxiety (Hunsley & Di Giulio, 2002; Tolin, 2010) that are more efficacious than treatment as usual for certain disorders. A seventh misconception is that EBPs are fundamentally limited because therapeutic changes cannot be quantified (Lilienfeld et al., 2013). However, with the emergence of well-validated measures used in clinical research, researchers now have the ability to quantify psychotherapeutic outcomes (Lilienfeld et al., 2013). Finally, a common misconception is that EBPs are erroneous because human behavior is impossible to predict with

certainty (Lilienfeld et al., 2013). Although there is no perfect research study (Corsini, 2008), multivariate analyses do indeed make it possible for generalizations and predictions to be made regarding therapeutic efficacy (Lilienfeld, 2011).

Pragmatic, Educational, and Attitudinal Obstacles. A final source of resistance toward EBPs are five main reservations by practicing clinicians regarding pragmatic, educational, and attitudinal obstacles (Lilienfeld et al., 2013). The first obstacle is having the time to read and absorb the scientific literature, which can be a time-consuming task (Gallo & Barlow, 2012). The second obstacle is that a huge gap exists between the output of research supported interventions and the knowledge of these protocols by clinicians (Addis & Krasnow, 2000; Lilienfeld et al., 2013). A third obstacle is that due to the complexity of some protocols, some clinicians may feel overwhelmed by the steep learning curve involved, as well as the amount of information within each protocol (Gallow & Barlow, 2012). A fourth obstacle is the statistical complexity inherent in most psychotherapy research articles, which may impede practitioners in understanding them (Backer, 2000; Lilienfeld et al., 2013). Finally, a fifth obstacle is the gap between science and clinical practice in the field of psychology (Lilienfeld et al., 2013). Specifically, the perceived lack of translating well-controlled, narrowly defined studies to real world setting by practitioners contributes to what many refer to as the *ivory tower* mentality; which not only propagates an *us versus them* mentality, but also creates resistance toward EBPs (Nelson, Steele, & Mize, 2006; Persons & Silberschatz, 1998).

Lilienfeld and colleagues (2013) point out that one solution to address the six areas of resistance toward EBPs would be to incorporate training in graduate school that focuses on remedying these six areas of resistance. They note that it is also helpful to teach students to use ongoing objective assessment of outcomes as they make clinical decisions. In doing so,

Lilienfeld and colleagues (2013) contend that students should be taught the threats of naïve realism and how this intersects with cognitive biases. In discussing cognitive biases, Lilienfeld and colleagues (2013) note there needs to also be discussion of bias blind spot in order to address the possibility that students may see themselves as impervious to participating in such biases. As Mahoney (1977) notes, even good scientists are prone to engaging in cognitive biases. The difference, as Lilienfeld and colleagues (2013) note, is good scientists do not deny their susceptibility to making thinking errors.

Conclusion

There are mixed attitudes toward EBPs, which are likely associated with the six sources of resistance toward EBPs. In examining influences of graduate student attitudes toward EBPs, there is common agreement in the significant influence of graduate school training, specifically, clinical supervision (Bearman et al., 2015; Beidas & Kendall, 2010; Brown, Gaudiano, & Miller, 2011; Lilienfeld et al., 2013; McAleavey et al., 2014). Additionally, cognitive biases, such as confirmation bias (Lilienfeld et al., 2014) and blind sight bias (Lilienfeld et al., 2013), play a role in attitudes toward EBPs. The next section defines clinical supervision, reviews the various models of clinical supervision, explores the impact of various clinical supervision models on attitudes toward EBPs, and discusses how the relationship between a student and clinical supervisor impacts both clinical training and attitudes toward EBPs.

Section B: Clinical Supervision

Clinical Supervision

Definition. Dating back to the early beginnings of clinical psychology, clinical supervision has been the primary model for the training of clinicians in which a more senior member of the profession imparts knowledge onto a more junior member of the profession

(Bernard & Goodyear, 2014; Dye & Borders, 1990; Horrocks & Smaby, 2006). However, it was not until the 1990s that momentum was firmly established toward conceptualizing supervision as a distinct set of skills that warranted formal study and development (Horrocks & Smaby, 2006). According to Falender and Shafranske (2004), the widely agreed-upon roles of a clinical supervisor are twofold: (1) to ensure treatment services are employed correctly, ethically, with respect for diversity, and have empirical support; and (2) to cultivate the trainee's clinical competencies. Ergo, clinical supervisors serve as gatekeepers to the field of clinical psychology in their role of teaching and training (Lumadue & Duffey, 1999).

Supervision is a dynamic, complex, and active learning process in which a supervisee engages in active learning, such as, reflection, role plays, coaching, and feedback (Hershenberg, Drabick, & Vivian, 2012). There are various recognized models and theories of supervision, all of which provide a theoretical depiction of the purpose of supervision and as well as how the supervisee's learning and development occur (Corey, Haynes, Moulton, & Muratori, 2014). These include psychotherapy-based supervision models, developmental models of supervision, and integrated models of supervision.

Models of Clinical Supervision

Psychotherapy-Based Models of Supervision. Psychotherapy-based supervision models offer supervision for specific techniques and approaches (Falender & Shafranske, 2004). Although there are various approaches within psychotherapy-based supervision models, Falender and Shafranske (2008) note the common thread among these approaches is that theoretical orientation largely informs the selection and reflection of clinical data that guides clinical supervision. There are four approaches to supervision within this model: psychodynamic, feminist, cognitive-behavioral, and person-centered (Corey et al., 2014).

The psychodynamic approach to supervision broadly focuses on relevant clinical data, such as affective reactions, defense mechanisms, as well as transference and countertransference (Falender & Shafranske, 2008). In this approach, there are three categories of psychodynamic supervision: patient-centered, supervisee-centered, and supervisory-matrix-centered (Frawley-O' Dea & Sarnat, 2001). In the patient-centered approach, the supervisor is seen as an expert who employs a didactic approach in service of helping the supervisee conceptualize and treat the patient (Frawley-O' Dea & Sarnat, 2001). In the supervisee-centered approach, the supervisor still maintains an expert role, but takes a more experiential approach in that the focus of supervision is on the supervisee's process and content as a clinician in service of stimulating psychological growth (Falender & Shafranske, 2008; Frawley-O' Dea & Sarnat, 2001). Finally, in the supervisory-matrix-centered approach, the focus of supervision is twofold: (1) the material between the clinician and client and (2) the relationship between the supervisor and supervisee (Frawley-O' Dea & Sarnat, 2001). A distinguishable trait of this approach is the analysis of parallel processes, which are interactions between the supervisor and supervisee that mirror the relationship between the client and clinician (Ganzer & Ornstein, 1999).

The feminist model of supervision largely conforms to the feminist theory of psychotherapy. Clinicians who operate from a feminist theoretical perspective conceptualize the client's experiences as a reflection of internalized attitudes and values of larger systems, with mental illness seen as a consequence of this process (Porter & Vasquez, 1997). In supervision, the relationship between the supervisor and supervisee aims to be egalitarian to the fullest extent possible in service of empowering the supervisee, which in turn, models a therapeutic approach for the supervisee and client (Martinez, Davis, & Dahl, 1999).

In the cognitive-behavioral approach to supervision, the supervisor takes an educational approach in teaching techniques as well as identifying and correcting misconceptions regarding this approach with clients (Liese & Beck, 1997). Supervision sessions often mirror the content and structure of a therapy session in that an agenda is set, both are focused on the task at hand, and learning takes place in a didactic manner (Liese & Beck, 1997). In this model, the primary focus is on how the supervisees' cognitive skill sets affect their ability as clinicians in service of honing their skills sets so they can better apply these methods with their clients (Liese & Beck, 1997).

In the person-centered approach to supervision, the supervisor does not assume an expert role; rather, the supervisee is an active, collaborative participant, which in turn facilitates learning (Corey et al., 2014; Sadow, Wyatt, Aguayo, Diaz, & Sweeney, 2008). Key to this model is the trusting and facilitative relationship that develops between the supervisor and supervisee, which creates an atmosphere that fosters growth and development for the supervisee (Lambers, 2000). This, in turn, encourages the supervisee to work through how best to handle the case (Tudor & Worrall, 2004).

Developmental Models of Supervision. Developmental models of supervision view supervision as an evolutionary process in which a supervisee progresses through various stages, developing from novice to expert (Corey et al., 2014; Falender & Shafranske, 2008). Supervisors are interactive and will give feedback on what developmental stage the supervisee is in while facilitating the supervisee's advancement to the next stage (Littrell, Lee-Borden, & Lorenz, 1979). In this model, there are two approaches: the integrated developmental model and the life span model.

The integrated developmental model approach is the most commonly used in the developmental model approach to supervision (Corey et al., 2014). Supervisees progress through three levels of development in their training (Stoltenberg, McNeill, & Delworth, 1998). In level one, supervisees are beginners and may lack confidence and skills and are generally high in anxiety. In level two, supervisees are more confident as they begin to rely on their own skills and abilities. In level three, supervisees are largely confident, are able to be their authentic selves in session, and provide a great deal of the structure in supervision. A key trait of this model is that as supervisees progress non-linearly along the three levels of development, supervisors will utilize skills and approaches that align with the level at which the supervisee is at (Stoltenberg et al., 1998).

In the life span model approach, the development of a supervisee is conceptualized as occurring beyond graduate school training, and rather, continuing over a clinician's career (Skovholt & Ronnestad, 1992). Skovholt and Ronnestad (1992) outline three stages of developmental growth for the supervisee that serve as guidelines for the supervisor to help facilitate the supervisee's growth beyond their graduate training. In the first stage, the supervisor assesses the competency of the supervisee, develops a relationship, and provides structure as well as monitoring. In the second stage, the supervisee begins to strive for independence as self-confidence increases. It is normative in this stage for friction to occur as the supervisee desires independence while the supervisor is more cautious. Finally, in the third stage, the goal is to facilitate independence as the supervisee transitions from supervisee to an independent working professional.

Integrated Models of Supervision. Integrated models of supervision incorporate more than theory and technique (Corey et al., 2014). Key to this approach is that a variety of integrated

approaches can be formulated so long as they are based on a combination of various techniques, common principles, and concepts from various theories in service of aligning with the supervisors' beliefs and values regarding change, therapy, and needs of a client (Corey et al., 2014). There are two common pathways in which integration is achieved: technical eclecticism and theoretical integration. The technical eclectic approach focuses on merging techniques from various, sometimes conflicting, approaches (Dattilio & Norcross, 2006). Theoretical integration focuses on merging theories and techniques that taken together, yield a richer single theory (Norcross & Beutler, 2008).

In the integrated model, there are two approaches: the discrimination model and the systems approach to supervision. The discrimination model is rooted in technical eclecticism (Corey et al., 2014). In this model, the supervisor's approach is determined by the training needs of each supervisee (Bernard, 1979). Supervision is structured around three separate areas of focus: the supervisee's intervention skills, conceptualization skills, and personal style in therapy (Bernard, 1979). Upon identifying levels of functioning in each of these areas, the supervisor will select a role that best fosters the supervisee's growth. The roles a supervisor might select may vary from a teacher, consultant, or a counselor.

Developed by Holloway (1995), the systems approach to supervision is a conceptual model that systematizes what supervisors do without necessarily aligning with any theoretical orientation. The relationship between the supervisor and supervisee serves as the foundation for supervision, while the model of seven dimensions of this approach is utilized in directing supervision. The first three dimensions are (1) the supervisory relationship, (2) supervision tasks, (3) supervisions functions (e.g., mentor role of supervisor). The next four dimensions pertain to contextual factors, which include (4) the supervisor, (5) the supervisee, (6) the client, and (7) the

setting in which the supervisor and supervisee are embedded. In Holloway's (1995) model, the supervisor and supervisee transcend through phases that parallel the research on friendship: developing, maturing, and terminating.

Impact of Supervision on Clinical Training

Research findings point to various impacts that a theoretical orientation may have on supervision. For example, previous research finds that clinical psychology graduate students supervised through psychodynamic and person-centered models perceive their supervisors to be more personable compared to supervisors who supervise from a cognitive-behavioral model, who were perceived to be less personable, and more as a consultant (Putney, Worthington, & McCullough, 1992). Another impact to consider is whether or not a supervisor's and supervisee's theoretical orientation matches. For example, when the supervisor's and supervisee's theoretical orientation match, supervisees perceive their supervisor to be more effective in preparing them for working with clients. Along the same lines, other research (McAleavey et al., 2014) highlights the importance and benefit of theoretical orientation matching among supervisors and supervisees by noting that when both the supervisor and supervisee match on theoretical orientation, the quality of therapy sessions increases. Similarly, other studies also highlight the importance of congruence in supervisor-supervisee theoretical orientation and supervision model preference on session quality (Kennard, Stewart, & Gluck, 1987; Lochner & Melchert, 1997; Schacht, Howe, & Berman, 1989). Noteworthy is that the studies that contend that theoretical orientation match is not influenced by clinical supervisor are older and more recent studies suggest that there is an effect of clinical supervisor on student selection of theoretical orientation.

There is mixed support for the impact clinical supervision has on the development of graduate students' theoretical orientation. In examining how supervision impacts clinicians' selection of therapeutic orientation and implementation of therapy, Vickers (1974) found that supervisors had little impact on the theoretical orientation selection of their students. This notion is corroborated by similar studies (Sundland, 1977; Weissman et al., 1971; Wile, Bron, & Pollack, 1970). Conversely, others found that a supervisee's theoretical orientation is contingent upon their exposure to training opportunities and their supervisor's theoretical orientation (Brown et al., 2011; Cummings & Lucchese, 1978; Freiheit & Overholser, 1997; Guest & Beutler, 1988; Herron, 1978; McAleavey et al., 2014; Poznanski & McLennan, 2003, 2004; Rosin & Knudson, 1986). One explanation offered by Steiner (1978) and others (see Norcross & Prochaska, 1983; Lucock, Hall, & Noble, 2006) for this discrepancy in the literature is that post-graduate experiences are influential in determining one's theoretical orientation. Another explanation for this discrepancy suggests that a supervisee's selection of theoretical orientation will be the same as their clinical supervisors after graduation only if they match during graduate training (Murdock, Banta, Stromseth, Viene, & Brown, 1998).

Finally, the relationship between a supervisor and supervisee can impact both personal and professional development, and may also impact students' theoretical orientation. In a phenomenological study, Hutt and colleagues (1983) interviewed clinical psychology graduate students to characterize positive and negative effects of supervision experience. They found that negative supervision was characterized by lack of mutual trust, respect, and honesty between supervisor and supervisee. Supervisees felt powerless in relation to their supervisor, internalized problems due to not feeling safe discussing them with their supervisor, and engaged in various forms of resistance toward their supervisor in order to manage their anxiety regarding supervisor

criticism. Regarding positive supervision, it was found that the relationship between the supervisor and supervisee embodied warmth, acceptance, respect, understanding, and trust. Supervisees were able to disclose their actions, feelings, attitudes, and conflicts so they could be processed and not interfere with client care. Moreover, supervisees incorporated the supervisor's attitudes, beliefs, and experiences into their own personal and professional development. Similar studies corroborate the aforementioned effects of positive and negative supervision experiences (Allen, Szollos, & Williams, 1986; Chung et al., 1998; Gandolfo & Brown, 1987; Gray, Ladany, Walker, & Ancis, 2001; Horrocks & Smaby, 2006; Kennard et al, 1987; Nelson, 1978; Shanfield, Matthews, & Hetherly, 1993).

In a similar vein, studies have examined the relationship between supervisors and supervisees as a *working alliance*, akin to the therapeutic alliance. Coined by Bordin (1979), the current definition of therapeutic alliance is defined as agreement on therapy goals, agreement on therapy tasks, and therapeutic bond. As defined above, Bordin (1983) expanded his theory of working alliance from the therapeutic alliance to the supervisory relationship, positing that when supervisors and supervisees work toward shared goals, engage in tasks that facilitate attainment of goals, and have a positive relationship, they will have a stronger working alliance. As is the case in therapy, the supervisor working alliance is thought to be a fundamental tenet in honing the supervisee's professional and personal development (Ladany, Lehrman-Waterman, Molinaro, & Wolgast, 1999).

There is shared support in the literature of the benefits of a strong supervisory working alliance. Studies lend support for better client outcomes when a strong working alliance exists between the supervisor and supervisee (Gnilka, Chang, & Dew, 2012; Horvath & Symonds, 1991; Rarick & Ladany, 2013; Riggs & Bretz, 2006; White & Queener, 2003; Yourman &

Farber, 1996). Additional benefits yielded from a strong working alliance are trainee adherence to treatment model (e.g., theoretical orientation employed), an increase in trainee's self-efficacy in interventions, an increase in self-disclosure among trainees regarding important issues related to client care, greater satisfaction with supervision, and, finally, supervisors' behaviors are more likely to be perceived as ethical (Bernard & Goodyear, 2009; Bilodeau, Savard, & Lecomte, 2010; Cheon, Blumer, Shih, Murphy, & Sato, 2009; Gnilka et al., 2012; Ladany et al., 1999; Ladany & Freidlander, 1995; Patton & Kivlighan, 1997).

Impact of Supervision on Attitudes Toward EBPs

There is a dearth of research on how clinical supervision influences supervisees' attitudes toward EBPs. However, the few studies conducted in this area reveal that ongoing supervision is needed for learning of ESTs to solidify, to increase therapist adherence to treatments, increase therapist competence in interventions, improve client outcomes, decrease barriers to ESTs, and increase fidelity to treatment manuals (Henggeler, Schoenwald, Liao, Letourneau, & Edwards, 2002; Holloway & Neufeldt, 2004; Luoma et al., 2007; Perpelectchikova & Kazdin, 2005; Stein & Lambert, 1995). However, because studies support the notion that supervisees will adopt the theoretical orientations of their supervisors (e.g., Freiheit & Overholser, 1997; Guest & Beutler, 1988), and certain theoretical orientations are associated with favorable attitudes toward EBPs (e.g., Bearman et al., 2015; Beidas & Kendall, 2010), it is logical to deduct that clinical supervision impacts attitudes toward EBPs among graduate students.

Conclusion

Supervision impacts clinical training, such as influencing students' perceptions of supervisors, thus, impacting the relationship between supervisors and supervisees and helping shape the professional development and identity of supervisees (i.e., selection of theoretical

orientation). In examining the impact of clinical supervision on graduate students' professional development as well as mixed attitudes toward EBPs in the field of clinical psychology, there is speculation that various social psychological processes play a role in students' attitudinal development toward EBPs. This next section discusses these processes, including, the elaboration likelihood model, source characteristics and psychological reactance. Furthermore, this next section discusses how these factors intersect with attitudes toward EBPs and clinical supervision.

Section C: Social Psychological Factors

Elaboration Likelihood Model

Developed by Petty and Cacioppo (1979, 1984, 1986), the elaboration likelihood model (ELM) is a model of persuasion that posits there are two routes of persuasion: the central route and peripheral route. In the central route of persuasion, people listen purposefully to the substance of a message. In thinking purposefully about the substance of a message, people will focus on the logic, evidence, and strength of the message. In doing so, people are able to make an informed decision to change their attitude, or to not. Three factors increase the likelihood of people utilizing the central route of persuasion: (1) when a message has a personal consequence for them, (2) when a message is clear and sufficient time is given for processing the message, and (3) if a person has prior knowledge on an issue (Petty & Cacioppo, 1984). People who change their attitudes toward a message via the central route of persuasion are more likely to experience enduring attitude change (Petty & Cacioppo, 1984).

In the peripheral route of persuasion, people will attend to rather superfluous cues of a message, a communicator, or sometimes both, and decide on whether to change their attitude, or to not (Petty & Cacioppo, 1986). In attending to superfluous cues, people's attitudes change due

to employing heuristics or reacting emotionally to a message (Petty & Cacioppo, 1984). In contrast to the aforementioned notion regarding the central route of persuasion, studies have shown that people are more likely to engage in the peripheral route of persuasion when the message bears little to no personal consequence and when they are unable to comprehend the message (Kiesler & Mathog, 1968; Petty & Wegener, 1998). In delving deeper into these superfluous cues, *source characteristics* of the communicator serve as a vehicle by which the likelihood of people attending to the peripheral route of persuasion is increased. Source characteristics can also affect the central route of persuasion by encouraging a more thoughtful consideration of evidence (Petty & Cacioppo, 1986).

With respect to the current study, a supervisor's argument for or against the endorsement of EBPs is of high relevance to students. As a student develops and grows under the training of a clinical supervisor, the aforementioned processes of persuasion are enacted. With the current zeitgeist in clinical psychology being that the field as a whole is shifting toward an EBP approach with treatment (Pomerantz, 2014), this issue is of high relevance for students. A student may potentially engage in the central route or peripheral route of persuasion with a supervisor depending upon their relationship with a supervisor, perceived credibility of a supervisor, and other potential factors. After a thorough literature review, no available research was found on the routes of persuasion and how a student might employ one or the other when forming their attitude toward EBPs throughout their training. However, since the issue of EBPs is highly relevant to students who are likely to already have prior knowledge from course work, it is reasonable to think they would engage in the central route of persuasion.

Source Characteristics. Embedded within the ELM model, source characteristics are independent of an actual message, but are features of a communicator that bolster perceived

credibility, and consequently, the likelihood of changing people's attitudes (Petty & Cacioppo, 1986). There are three elements of source characteristics: expertness, trustworthiness, and attractiveness/likeability. Expertness refers to a communicator being perceived as a reliable source of information exemplified by: (1) training and/or titles of a relevant content area; (2) behavioral indications of expertness such as arguments, or knowledge of a certain content area; and (3) reputation of expertness corroborated by others (Strong, 1968). Trustworthiness of a communicator refers to the perception of: (1) reputation of honesty, (2) social role in relevant profession (e.g., communicator is in a position of perceived power), (3) authenticity, and (4) perceived lack of motivation of personal gain (Strong, 1968). Finally, attractiveness refers to extent to which someone can alter others' perceptions in service of appearing similar in attitude and being perceived as having compatible attitudes (Strong, 1968). It should be noted that the constructs of expertness and trustworthiness are sometimes conceptualized to form one construct, credibility (Strong, 1968). A person will attend to source characteristics of a communicator if the issue is relevant to them, they take the time to use understand and listen to the message being said, and the issue being discussed is important to that person (Strong, 1968).

Contemporary research findings (see Ziegler, Diehl, & Ruther, 2002) have shown that when a person's source characteristics were compromised (e.g., likability, expertise, and argument quality), people were not persuaded toward a message. However, when source characteristics remained influential, even if the communicator was found to be dishonest, people were more likely persuaded toward an argument due to being less scrutinizing. A meta-analysis (Wilson & Sherrell, 1993) found that source characteristics, specifically, accounted for 9% of the total variance in persuasion among studies that reported statistically significant findings regarding the variables of persuasion and source characteristics.

Credibility among clinical supervisors is particularly relevant to the current study. The research conducted on source characteristics of clinical supervisors reveals that supervisees are more acquiescent when perceiving their supervisor with positive source characteristics (e.g., supervisor was viewed as an expert, likable, and the argument quality of their communicated messages were viewed as strong; Holloway, 1984; Steward et al., 2001). Other studies suggest that positive evaluation of source characteristics of clinical supervisors (supervisor viewed as an expert, likable, and had strong argument quality) tend to result in more favorable evaluation of clinical supervision experiences (Evans, 1986; Heppner & Handley, 1982). Although there has been little research in the realm of source characteristics and clinical supervision, it appears as source characteristics of supervisors do influence supervisee attitudes toward supervisors. In examining what is known, previous research shows that students who perceived their supervisor as credible rated them more favorably (Evans, 1986; Heppner & Handley, 1982; Ladany et al., 1999; Rarick & Ladany, 2013) and were more acquiescent toward them (Holloway, 1984; Steward et al., 2001). Other research (e.g., see Hutt et al., 1983) shows that favorable ratings of a clinical supervisor are linked to students incorporating professional attitudes of their clinical supervisor (e.g., theoretical orientation). Taken together, it seems that theoretical orientation match, low psychological reactance, and a positive supervisory working alliance may predict perceived supervisor credibility; however, the unique variance of these variables on supervisor credibility has not previously been examined.

Psychological Reactance

Coined by Brehm (1956), psychological reactance occurs when people experience an unpleasant state induced by the perceived threat of their freedom being taken away. In service of reducing this negative state and restoring their freedom, people will engage in behaviors aimed at

restoring their freedom. In a later study, Brehm (1966) noted that psychological reactance operates on a continuum, and that reactance potential increases parallel to the extent an individual perceives their freedom is threatened. In other words, the greater the threat to one's freedom, the greater their reactance potential.

In the context of clinical supervision, previous research has found that when students have a positive relationship with their clinical supervisor, they are more likely to embody the attitudes, beliefs, and experiences of their supervisor (Hutt et al., 1983). Conversely, when supervisees and supervisors have a strained relationship, supervisees are more likely to feel powerless and will engage in various forms of resistance in service of reducing negative emotions related to their supervisor (Hutt et al., 1983). While this study suggests that psychological reactance may play a part in students' engagement in various forms of resistance, this notion has been directly examined very few times in the context of clinical work.

In a study conducted by Dowd and colleagues (1988), individuals were found to respond better to defiance-based interventions (e.g., interventions that promote change when clients defy directives by a therapist, causing change as they do the opposite) when they exhibited greater dispositional psychological reactance, which is an inherent tendency to perceive one's freedom is being threatened and then engage in behaviors aimed at restoring that freedom. As noted by Rohrbaugh, Tennen, Press, and White (1981), the personality style of individuals (e.g., dispositional levels of psychological reactance) will influence how someone will respond when their freedom is threatened. Finally, in a study conducted by Tracey and colleagues (1989), supervisees who exhibited higher amounts of dispositional psychological reactance were found to desire less supervision, regardless of how difficult their client was. Although the research examining the relationship between psychological reactance and clinical supervision is sparse,

research (see Hutt et al., 1983; Tracey et al., 1989) suggests that psychological reactance can potentially be triggered depending upon dispositional levels; this may, in turn, impact clinical supervision, which could ultimately impact client care and the influential impact of a supervisor on a supervisee.

Conclusion

Clinical supervisors appear to influence supervisees' attitudes through positive source characteristics and, potentially, through triggered psychological reactance in such a way that may reduce perceived credibility of a supervisor (e.g., Tracey et al., 1989). Although a direct link was not found in the existing literature, the support of or opposition to EBPs from a supervisor may influence student attitudes toward EBPs through the central route of persuasion, due to the relevance of the EBPs on clinical training, which may have an impact on lasting attitudes toward EBPs.

Study Rationale

Understanding the various mechanisms that contribute to the development of attitudes toward EBPs is of vital importance if we, as a field, are ever to bridge the divide of support for and against EBPs. The EBPs approach to treatment is crucial to ensuring clients receive interventions supported by research (Beidas & Kendall, 2010). Resistance toward EBPs creates a culture in the field of delivering interventions unsupported by research that are potentially harmful to clients, or at best, unhelpful (Lynn et al., 2003).

A contributing factor in the development of student attitude toward EBPs is the program in which a student is embedded. Although other fields, such as psychiatry and social work, were found to be mixed in their training of EBPs, psychology incorporated EBPs into clinical training on a more consistent basis. However, this was found to be more so in the case for Ph.D.

programs, as Psy.D. programs were found to be inconsistent in their incorporation of EBPs in clinical training (Weissman et al., 2006). Furthermore, there are training differences between subfields of doctoral programs in professional psychology (i.e., clinical versus counseling) but this difference is not been examined in the literature in relation to incorporating EBPs into training. However, prior research has shown that when EBP training is incorporated into their education, students tend to have more favorable attitudes toward EBPs (Patel et al., 2012).

As was also discussed, research suggests that graduate students also cultivate their professional identity in graduate school training, in part, through clinical supervision (e.g., Guest & Beutler, 1988; McAleavey, Castonguay, & Xiao, 2014). Moreover, when students perceive their supervisor as credible, they incorporate their supervisor's beliefs, attitudes and experiences into their own professional development (Hutt et al., 1983) — which may potentially include a supervisor's attitudes toward EBPs. There are various factors that may potentially contribute to perceiving a supervisor as credible, which were examined in the current study. These factors included theoretical orientation match, supervisory alliance, and psychological reactance.

The relationship between the supervisee and supervisor is very important and related to professional development. Previous research demonstrates that perceiving a supervisor as credible is correlated with a positive supervisory alliance, which can also lead a student to engage in less forms of resistance, such as engaging in less psychological reactance (Evans, 1986; Heppner & Handley, 1982; Holloway, 1984; Hutt et al., 1983; Steward, Breland, & Neil, 2001). With respect to theoretical orientation, research studies show support that a supervisor's theoretical orientation is influential in supervisee selection of theoretical orientation (e.g., Brown et al., 2011; Cummings & Lucchese, 1978; Freiheit & Overholser, 1997; Guest & Beutler, 1988; Herron, 1978; McAleavey et al., 2014; Poznanski & McLennan, 2003, 2004; Rosin & Knudson,

1986). Also, a CBT orientation has been found to correlate to favorable attitudes toward EBPs (Bearman et al., 2015; Beidas & Kendall, 2010). Identical theoretical orientations between supervisors and supervisees may be indicative of the supervisee adapting the attitude of the supervisor, which may be more prone to happen when a supervisor is viewed as credible.

Existing research provides a theoretical basis by which to speculate how attitudes toward EBPs may potentially develop. However, there are still many gaps in the understanding of how these attitudes develop, although it is highly likely they begin to form during graduate school training. No prior research has directly investigated this. The current study investigated how graduate student attitudes toward EBPs are influenced through clinical supervision. Specifically, I investigated if clinical supervisors' attitudes toward EBPs influenced students' attitudes toward EBPs and if this would be facilitated when a student perceived their supervisor as credible. I also examined factors identified in the literature as influencing perceived supervisor credibility, such as a good working relationship, low psychological reactance, and therapeutic orientation match. It was important to understand factors that predicted credibility because supervisor attitudes influencing student attitudes appears to hinge upon perceived supervisor credibility.

Study Hypotheses

Based on the aforementioned literature, I predicted:

H1: The following variables would uniquely predict greater supervisor credibility: therapeutic orientation match between student and supervisor, a strong supervisor-student alliance, and low student psychological reactance.

H2: Supervisor attitudes toward EBPs would predict student attitudes toward EBPs.

H3: Supervisor attitudes toward EBPs would predict student attitudes toward EBPs

when: perceived supervisor credibility is high, dispositional psychological reactance is low, supervisory alliance is high, or there is a match in therapeutic orientation. Figure 1 depicts this model.

Chapter 3: Methodology

Participation Selection

This study used purposive sampling to recruit Ph.D. and Psy.D. clinical psychology students ($n = 157$) enrolled in APA-accredited clinical psychology training programs. Eligibility criteria for this study were defined as follows: (1) participants were 18 years old or older, (2) enrolled in an APA-accredited clinical psychology Ph.D. or Psy.D. program, and (3) have already started accruing clinical training hours.

Sample Characteristics

Student Demographics. Overall, the mean age for students was 26.9 ($SD = 2.59$), ranging from 22 to 39 years of age. Among students, 1% ($n = 2$) identified as American Indian/Alaska Native, 8% ($n = 13$) identified as Asian American, 3% ($n = 4$) identified as African American, 3% ($n = 5$) identified as Hispanic, 73% ($n = 115$) identified as Caucasian, 1% ($n = 1$) identified as Indian, and 11% ($n = 17$) identified as other. Finally, 13% ($n = 20$) of participants identified themselves as male whereas 87% ($n = 137$) of students identified as female. In a report published by the APA on student demographic data, 72% of doctoral psychology students across all subfields were Caucasian, 11% were Asian American, 8% were Hispanic, 6% were African American, 1% were American Indian/Alaskan Native, and 2% reported themselves as other (Cope, Michalski, & Fowler, 2016). That same report showed that 23% doctoral psychology students in all subfields were male and 77% were female. Another report found that the average age of Ph.D. psychology students across all subfields was 32.1 years old (Bailey, 2004). The current study by and large had similar demographic data to that of a national sample; however, it would seem female students are over represented in the current study when compared to the national sample. A student's most influential supervisor was defined

as someone who had the most influence on their professional development. Students were asked to provide their demographics as well as their supervisors (to the best of their knowledge).

Supervisor Demographics. Students were instructed to select an estimated age range for their supervisor. Of 157 most influential supervisors selected by participants, 1% ($n = 1$) were reported to be between 25 – 30 years of age, 16% ($n = 26$) were between 31 – 35 years of age, 18% ($n = 28$) were between 36 – 40 years of age, 18% ($n = 28$) were between 41 – 45 years of age, 10% ($n = 15$) were between 46 – 50 years of age, 21% ($n = 19$) were between 51 – 55 years of age, 9% ($n = 14$) were between 56 – 60 years of age, 10% ($n = 15$) were between 61 – 65 years of age, 5% ($n = 9$) were between 66 – 70 years of age, and 1% ($n = 1$) were between 71 – 75 years of age. Table 1 displays supervisor age grouping. Among supervisors, 1% ($n = 2$) were identified as Asian American, 2% ($n = 3$) were identified as African American, 4% ($n = 6$) were identified as Hispanic, 86% ($n = 135$) were identified as Caucasian, 2% ($n = 3$) were identified as Indian, and 5% ($n = 8$) were identified as other. Table 2 displays supervisor and student ethnicity. Finally, 45% ($n = 71$) of supervisors were identified as male and 55% ($n = 86$) of supervisors were identified as female.

Procedure

This study was a cross-sectional online survey of graduate students enrolled in Ph.D. and Psy.D. programs in clinical psychology in the United States. Both Ph.D. and Psy.D. programs in clinical psychology were identified and compiled from a national list of 237 currently APA-accredited Ph.D. and Psy.D. clinical psychology training programs on the APA website (American Psychological Association, 2016). Of the 237 programs sampled, 68 were Psy.D. programs and 174 were Ph.D. programs. I did not differentiate the type of program among participants. An APA-accredited clinical psychology training program is defined as a program

that: (1) either has full accreditation or accreditation on probation and (2) awards students either a Psy.D. or a Ph.D. degree.

An email request was sent to the program director of all APA-accredited clinical psychology Ph.D. and Psy.D. programs, found in a national list of 237 currently APA-accredited clinical psychology training programs, asking them to forward an email invitation to their students, which invited them to participate in this study (Appendix A). For ease of access, the email script to the director and to the students was in the same email. Upon receiving the email, students clicked an embedded link, which took them to the anonymous survey battery.

This study employed an online survey administered through Qualtrics survey software. The first page of the survey was the electronic informed consent (Appendix B). Upon indicating their consent to participate, participants complete a demographics questionnaire (Appendix C). In the demographic questionnaire, students were asked to think of their most influential clinical supervisor, that is, the one who had the most influence on their professional development. Next, in order to personalize each survey to each participant, they were asked to type in the initials of their most influential supervisor. Consistent with previous literature employing similar methods (e.g., Efstation et al., 1990; Horrocks & Smaby, 2006; Tracey et al., 1989), when completing questionnaires about their most influential clinical supervisor, participants were instructed to think of their most influential clinical supervisor. Other studies have used similar methodology by asking participants to think on behalf of another person while completing a questionnaire in the absence of self-report data for said individual (Céspedes & Huey, 2008; Rohner, 2004). Moreover, student perceptions of their supervisor's attitudes is a highly relevant variable and thus appropriate in the context of the current study. In these measures, a software code was used to include their supervisor's initials in relevant questions in the survey that pertained to their

supervisor. Participants were also asked to complete questionnaires about their own attitudes and experiences. In order to reduce ordering effects of measures, measures were presented in random order.

The survey battery included a training questionnaire (Appendix D), and measures of perceived supervisor credibility (Appendix E), the alliance between a supervisor and participant (Appendix F), student attitudes toward EBPs (Appendix G), perceived supervisor attitudes toward EBPs (Appendix I), and dispositional psychological reactance (Appendix I).

Approximate completion time of the survey battery was 45 minutes. Upon completion of the survey, participants were thanked for their time in a debriefing statement (Appendix J). Finally, participants were provided a link to a separate survey that they could optionally click and then provide their first and last name and their email address (Appendix K). Once data were collected, all participants were emailed an Amazon \$5 gift card as compensation for their time (Appendix L). Funding for compensation was provided through the Family and Preventative Health Research Laboratory at the University of Alaska Fairbanks. A list of Ph.D. and Psy.D. programs recruited from can be found in Appendix M. This study was approved by the University of Alaska Fairbanks's Institutional Review Board. A copy of the approval letter can be found in Appendix N.

Measures

Training Questions. The training questionnaire was designed for this study to understand the context of the sample. This questionnaire assessed the following: (1) length of time in program measured in years, (2) training model of the student's graduate program (viz., clinical scientist, scientist practitioner, or scholar-practitioner), (3) approximate client contact hours accrued, (4) the number of clinical supervisors worked with, (5) approximate number of

group and individual supervision hours accrued with all clinical supervisors, (6) approximate number of group and individual supervision hours accrued with most influential clinical supervisor as defined by the clinical supervisor who has had most influence on their professional and personal development, (7) student theoretical orientation, (8) student's report of most influential clinical supervisor's theoretical orientation, (9) student's report of theoretical orientation of graduate program, (10) degree of most influential clinical supervisor, (11) field in which most influential clinical supervisor earned their degree, (12) other roles the most influential clinical supervisor plays in the participant's training, (13) the extent to which EBPs training was included in a participant's graduate program, (14) student's attitudes toward research, (15) the extent to which a participant values research, (16) the extent to which a participant engages in research activities beyond program and course requirements, and (17) the extent to which a participant's most influential supervisor influenced their attitudes toward research more so than their graduate program.

Supervisor credibility. Perceived credibility of a clinical supervisor was measured through the Counselor Rating Form-Short version (CRF-S; Corrigan & Schmidt, 1983). The CRF-S is a reduced version of the original 36-item Counselor Rating Form (Barak & LaCrosse, 1975). Based on social influence theory (Strong, 1968), the CFR-S is a 12-item self-report questionnaire measuring credibility among counselors across three subscales: expertness, trustworthiness, and attractiveness. These subscales measure the three domains of social influence theory, which are perceived expertise, perceived trustworthiness, and perceived attractiveness of communicator. A confirmatory factor analysis provided support for construct validity of the CRF-S (Tracey, Glidden, & Kokotovic, 1988). Although originally intended for clients to complete in the context of their counselor, the instructions of this scale were modified

for this study by asking participants to think about their most influential supervisor while completing the questionnaire, rather than respondents being asked to think of their counselor. Previous research has utilized this scale for this purpose (Tracey et al., 1989). Respondents read 12 adjectives (e.g., honest, skillful) and rated the extent to which they perceive these adjectives accurately described their supervisor using a 7-point Likert-type scale ranging from 1 (*not very*) to 7 (*very*). A sum score was derived from the CRF-S. Higher scores reflect a higher perceived supervisor credibility by supervisees. In the current study, only the total score for the CRF-S was included in analyses and demonstrated excellent internal consistency ($\alpha = .86$). In line with previous research, the total score was used to measure overall credibility rather than sub domains (Tracey et al., 1989). To date, the sparse literature in this area of research discusses credibility as an overall construct. Permission to use this scale was needed and was granted by the authors. Permission to use the scale can be found in Appendix O.

Working alliance. The quality of the supervisory alliance was assessed through the Supervisory Working Alliance Inventory-Trainee version (SWAI-T; Efstation et al., 1990). The SWAI-T is a 19-item self-report questionnaire measuring aspects of the supervisory working alliance as conceptualized by Bordin (1983). Respondents rate each statement (i.e., “I feel comfortable working with my supervisor;” “My supervisor helps me talk freely in our sessions”) using a 7-point Likert-type scale ranging from 1 (*never*) to 7 (*always*). The total SWAI-T score has demonstrated convergent validity with other questionnaires measuring supervisory working alliance; specifically, the Supervisory Styles Inventory (Friedlander & Ward, 1984) and the Personal Reaction Scale-Revised (Patton & Kivlighan, 1997). A mean score was derived from the SWAI-T. Higher scores reflect a greater alliance from the perspective of the supervisee. The SWAI-T subscales include rapport and client focus. The subscale of rapport measures the bond

between a supervisor and supervisee and the subscale of client focus measures the extent to which a supervisor and supervisee can collaboratively work together regarding clients. In the current study, and in line with similar studies assessing perceived supervisory alliance from trainee's perspective (Ladany, Ellis, & Friedlander, 1999), only the total score for the SWAI-T was included in analyses and demonstrated excellent internal consistency ($\alpha = .92$). Permission to use this scale was needed and was granted by the authors. Permission to use the scale can be found in Appendix P.

EBPs attitudes. Supervisor and supervisees attitudes toward EBPs were measured through the Evidence-Based Practice Process Assessment Scale (EBPPAS; Rubin & Parrish, 2011). The EBPPAS is a 51-item self-report questionnaire measuring engagement in the EBPs process across five subscales: (1) familiarity with the EBPs process, (2) attitudes about the EBPs process, (3) feasibility to engage in the EBPs process, (4) intentions to engage in the EBPs process, and (5) how often currently engaged in the EBPs process. A confirmatory factor analysis provided support for construct validity of the EBPPAS (Rubin & Parrish, 2011). For the purpose of the current study, only the second subscale of attitudes about the EBPs process was used. This subscale is 14 questions long. Respondents rate the extent to which they agree with various statements (i.e., "The EBPs process allows enough room for considering unique client circumstances or preferences;" "Experienced practitioners should disregard research evidence when it conflicts with their intuition") using a 5-point Likert-type scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). Higher scores reflect more favorable attitudes toward the EBPs process. A mean score is derived from this EBPPAS subscale. Students were asked to complete this subscale twice: once while rating what they thought their supervisor thinks and again when thinking about themselves. To date, no previous research has made the modification of asking

respondents to think of their supervisor while completing the EBPPAS. The total score for the EBPPAS subscale of attitudes about the EBPs process demonstrated excellent internal consistency for both the supervisor ($\alpha = .90$) and student ($\alpha = .90$). Permission to use this scale was not needed, as this was made available to the public in the publishing of the article presenting the scale to the scientific community.

Psychological reactance. The psychological reactance of the supervisee was assessed through the Therapeutic Reactance Scale (TRS; Dowd et al., 1991). The TRS is a 28-item self-report questionnaire measuring dispositional levels of psychological reactance. Respondents rate the extent to which they agree with various statements (e.g., "If I am told what to do, I often do the opposite"; "I have a strong desire to maintain my personal freedom") using a 4-point Likert-type scale ranging from 1 (*strongly disagree*) to 4 (*strongly agree*). Higher scores reflect a higher degree of psychological reactance. A mean score is derived from the TRS. The TRS has two subscales, which include verbal reactance and behavioral reactance. The total TRS score has demonstrated convergent validity with other questionnaires assessing psychological reactance and internal locus of control – specifically, the K scale of the Minnesota Multiphasic Personality Inventory (Morgan, 1984) and the Rotter Internal-External Locus of Control Scale (Brehm & Brehm, 1981). In the current study, only the total score for the TRS was included in analyses and demonstrated good internal consistency ($\alpha = .70$). The total score was used instead of the subscales in order to measure overall psychological reactance. The literature in this area speaks to psychological reactance as an overall construct. Permission to use this scale was not needed as this was made available to the public in the publishing of the article presenting the scale to the scientific community.

Chapter 4: Results

Sample Size Considerations

A power analysis was conducted in order to determine a suitable sample size given the proposed effect size. Because effect sizes in the literature have not been reported, a small effect size ($f^2 = .10$) was used to estimate the necessary number of participants for this study. Based upon a seven-variable model with a nominal alpha of .05, a power analysis revealed that 142 participants were necessary to detect a small effect size of $f^2 = .10$ with power = .80 (G*Power; Faul, Erdfelder, Buchner, & Lang, 2009).

Descriptive Results

Student Program Characteristics. Overall, 1% of participants ($n = 5$) reported being in the first year of their program, 10% ($n = 28$) reported being in the second year of their program, 21% ($n = 40$) reported being in the third year of their program, 28% ($n = 41$) reported being in the fourth year of their program, 26% ($n = 30$) reported being in the fifth year of their program, 6% ($n = 10$) reported being in the sixth year of their program, and 4% ($n = 3$) reported being in the seventh year or above in their graduate program.

Overall, 21% of participants ($n = 33$) reported their graduate program adhering to the clinical scientist model, 19% ($n = 30$) reported their graduate program adhering to the practitioner-scholar model, and 60% ($n = 94$) reported their graduate program adhering to the scientist-practitioner model.

Overall, 71% of participants ($n = 112$) reported the primary theoretical orientation taught in their graduate program was cognitive-behavioral, 9% ($n = 15$) reported the primary theoretical orientation taught in their graduate program was psychodynamic, 19% ($n = 29$) reported the primary theoretical orientation taught in their program was integrated/eclectic, and 1% ($n = 1$)

reported the primary theoretical taught in their program was humanistic. Finally, on average students' programs required didactic training in EBPs, which indicated favorable program attitudes toward EBPs (see Table 4).

Supervisor Characteristics. Overall, 80% of participants ($n = 126$) reported their supervisor earned a Ph.D., 17% ($n = 26$) reported their supervisor earned a Psy.D., 1% ($n = 2$) reported their supervisor earned an M.D., 1% ($n = 2$) reported their supervisor earned an Ed.D, and 1% ($n = 1$) reported their supervisor earned an M.A.

Overall, 92% of participants ($n = 145$) reported their supervisor earned their degree in clinical psychology, 2% ($n = 4$) reported their supervisor earned their degree in counseling psychology, 1% ($n = 1$) reported their supervisor earned their degree in counseling-school psychology, 1% ($n = 1$) reported their supervisor earned their degree in clinical-school psychology, 1% ($n = 2$) reported their supervisor earned their degree in school psychology, and 3% ($n = 4$) reported "other" for the field their supervisor trained in.

Overall, 64% of participants ($n = 101$) reported their supervisor's theoretical orientation as cognitive-behavioral, 13% ($n = 21$) reported their supervisor's theoretical orientation as psychodynamic, 16% ($n = 26$) reported their supervisor's theoretical orientation as integrated/eclectic, 3% ($n = 5$) reported their supervisor's theoretical orientation as humanistic, 1% ($n = 2$) reported their supervisor's theoretical orientation as existential, and 1% ($n = 2$) reported their supervisor's theoretical orientation as "other." On average supervisor attitudes toward EBPs were favorable (see Table 4). In examining student responses to their perception of their supervisor attitudes toward EBPs, students by and large gave responses of 4s and 5s, which highly indicates that students were able to guess their supervisor's attitude toward EBPs rather than select "*neutral*" because they did not know.

Student Training Characteristics. In their training to date, students' average face-to-face clinical training hours accrued (i.e., individual, group, family therapy as well as assessment hours) was 610 hours ($SD = 619$), with a range of 1 clinical training hour to 3,700 training hours. Average overall supervision hours accrued (including group and individual) was 243 hours ($SD = 236$), with a range of 1 hour of supervision to 2,000 supervision hours. The average amount of supervision hours accrued with an influential clinical supervisor (including group and individual) was 76 hours ($SD = 75$), with a range of 1 hour of supervision to 500 supervision hours.

Overall, 7% of participants ($n = 12$) reported only having worked with one clinical supervisor, 12% ($n = 18$) reported working with two clinical supervisors, 19% ($n = 29$) reported working with three clinical supervisors, 15% ($n = 24$) reported working with four clinical supervisors, and 47% ($n = 74$) reported working with five or more clinical supervisors.

Overall, 66% of participants ($n = 105$) reported their theoretical orientation as cognitive-behavioral, 4% ($n = 6$) reported their theoretical orientation as psychodynamic, 27% ($n = 42$) reported their theoretical orientation as integrated/eclectic, 2% ($n = 3$) reported their theoretical orientation as humanistic, and 1% ($n = 1$) reported their theoretical orientation as existential. Overall, 102 students (65%) had identical theoretical orientations as their clinical supervisor.

Overall, 41% of participants ($n = 65$) reported their most influential supervisor played a single role in their professional development (i.e., served as their clinical supervisor) and 59% ($n = 92$) reported their supervisor played multiple roles in their professional development (e.g., advisor, supervisor). To better understand the various roles which a supervisor can potentially play in their student's professional development, I examined the different roles students reported via a multiple response analysis. The analysis revealed that 37% ($n = 34$) reported their supervisor was also their research advisor, 24% ($n = 22$) reported their supervisor was also their

academic advisor, 82% ($n = 75$) reported their supervisor was also a faculty member in their graduate program, 9% ($n = 8$) reported their supervisor was also their director of clinical training, and 71% ($n = 65$) reported their supervisor was also their course instructor. Table 3 displays these specific roles supervisors had in students' professional development.

On average student attitudes toward EBPs were favorable. They also had a positive attitude toward research, valued research, and engaged in a high amount of extracurricular research activities. Finally, students reported their supervisor had a modest amount of influence on their attitudes toward research (see Table 4).

Analyses

Data Screening. Prior to data analyses, a missing data analysis was performed via Little's missing completely at random (MCAR) analysis for perceived credibility, psychological reactance, student attitudes toward EBPs, and supervisor attitudes toward EBPs (Little, 1988). Results of the MCAR revealed all missing data were missing at random for supervisor attitudes toward EBPs ($\chi^2(26) = 20.57, p = .764$), for student attitudes toward EBPs ($\chi^2(15) = 6.03, p = .979$), for supervisory alliance ($\chi^2(51) = 54.04, p = .359$), and for psychological reactance EBPs ($\chi^2(27) = 36.73, p = .100$). For perceived supervisor credibility, there was no variance in missing responses. That is to say, participants either fully responded on this measure or they did not respond at all. Thus, the MCAR analysis did not reveal any result due to lack of variance specifically for perceived credibility. After determining missing data were due to chance, 39 cases of the original 202 survey responders who stopped responding shortly after starting the survey were removed. Upon removing these 39 cases, there were 10 cases with missing data ($n = 163$). The expectation-maximization (E-M) approach was used to predict missing data for these 10 cases for supervisor attitudes toward EBPs, student attitudes toward EBPs, supervisory

alliance, and psychological reactance. The E-M approach employs algorithms to predict expected values for missing data by estimating parameters from completed data (Moon, 1996). Next, three cases were identified to be extreme univariate outliers for supervisor attitudes toward EBPs, student attitudes toward EBPs, and perceived supervisor credibility. These cases were identified due to having Z scores in excess of 3.29 significant at the $p < .001$ level (Tabachnik & Fidel, 2012). An examination of Mahalanobis distance scores revealed three cases were multivariate outliers with probability scores identified below the $p < .001$ level (Tabachnik & Fidel, 2012). These three cases were removed from the data file, which resulted in the final sample size ($n = 157$).

Next, reliability, skewness and kurtosis values were calculated. The skewness value for perceived supervisor credibility was $-.973$ ($SE = .194$) and the kurtosis was $.444$ ($SE = .385$). The skewness value for the supervisory alliance was -1.106 ($SE = .194$) and the kurtosis was 1.165 ($SE = .385$). The skewness value for the attitudes toward EBPs for students was $-.356$ ($SE = .194$) and the kurtosis was $-.203$ ($SE = .385$) and for supervisors was $-.172$ ($SE = .194$) and the kurtosis was $-.710$ ($SE = .385$). The skewness value for the dispositional psychological reactance was 0.028 ($SE = .194$) and the kurtosis was $-.326$ ($SE = .385$). Table 4 illustrates the means, standard deviations, and intercorrelations for study variables.

Data Analytic Plan. Data analysis was conducted using SPSS 20 software. Descriptive results for the sample were identified for student program characteristics, supervisor characteristics, and student training characteristics. Intercorrelations between calculated primary study variables were inserted into a correlation analysis. In order to approximate a normal distribution and reduce the influence of outliers, the variables of perceived supervisor credibility and supervisory alliance were square-root transformed and all subsequent analyses were

conducted with and without these square-root transformations. Because results did not change, all analyses below did not include the square-root transformations of perceived supervisor credibility and supervisory alliance.

To examine the hypothesis that perceived supervisor credibility would be predicted by low psychological reactance, strong supervisory alliance, and therapeutic orientation match I used a simultaneous linear regression. In the simultaneous linear regression, psychological reactance, supervisory alliance, and therapeutic orientation match were the independent variables and perceived supervisor credibility was the dependent variable. The coding of theoretical orientation match of the supervisor and supervisee was achieved by creating a dichotomous dummy code variable for students and supervisors based on whether they matched on theoretical orientation (0 = no match, 1 = match). Covariates in this analysis, as well as the analyses below include demographic variables (i.e., age, ethnicity, and gender) and program attitudes toward EBPs. It was important to exclude any variance from a student's graduate program on perceived supervisor credibility as well as on the relationship between supervisor attitudes toward EBPs predicting student attitudes toward EBPs because not all identified clinical supervisors were from a student's graduate program. Ethnicity for students and supervisors were coded as 0 = Non-Caucasian and 1 = Caucasian. Gender for students and supervisors were coded as 0 = Male and 1 = Female. Age for supervisors was coded 1 = 25 – 30, 2 = 31 – 35, 3 = 36 – 40, 4 = 41 – 45, 5 = 46 – 50, 6 = 51 – 55, 7 = 56 – 60, 8 = 61 – 65, 9 = 66 – 70, and 10 = 71 – 75.

A hierarchical regression was used to test the hypothesis that supervisor attitudes toward EBPs would predict student attitudes toward EBPs and that relationship would strengthen when supervisors were perceived as credible, supervisory alliance was high, psychological reactance was low, and when therapeutic orientation matched. In the three-step hierarchal regression,

supervisor attitudes toward EBPs was the independent variable, student attitudes toward EBPs perceived credibility was the dependent variable, and the following were moderating variables: perceived supervisor credibility, dispositional psychological reactance, supervisory alliance, and therapeutic orientation match. Step one consisted of inserting control variables. Step two consisted of five main effects of supervisor's attitudes toward EBPs, perceived supervisor credibility, dispositional psychological reactance, perceived supervisory alliance, and therapeutic orientation match. Step three consisted of four interaction terms of supervisor attitudes toward EBPs by supervisor credibility, by dispositional psychological reactance, by therapeutic orientation match, and by perceived supervisory alliance. Interaction terms for this analysis were the cross-products of the appropriate mean centered variables. These variables were perceived supervisor credibility, supervisory alliance, dispositional psychological reactance, supervisor attitudes toward EBPs.

Correlation Analyses. Students who perceived their supervisors having favorable attitudes toward EBPs were found to have an overall appreciation for research. This was indicated in several ways. When a supervisor was perceived as having more favorable attitudes toward EBPs students had positive attitudes toward research ($r = .35, p < .001$), valued research ($r = .37, p < .001$), and engaged in extracurricular research activities outside of their course work ($r = .24, p < .001$). A similar trend was noticed for students and supervisors whose theoretical orientations matched in that these students had a greater appreciation for research. When a student and supervisor had matching theoretical orientation, students had a positive attitude toward research ($r = .16, p = .038$), valued research ($r = .22, p = .006$), engaged in extracurricular research activities outside of their course work ($r = .23, p = .004$), and their attitudes toward research were greater influenced by their supervisor than their program ($r = .21, p = .010$).

Finally, a student's graduate program attitude toward EBPs was found to be related to student's overall appreciation for research. When a student's program had favorable attitudes toward EBPs students had positive attitudes toward research ($r = .22, p = .007$) and valued research ($r = .23, p = .004$).

An emerging theme from the aforementioned correlation analyses were student's overall appreciation for research and the relationship with their clinical supervisor. In light of this, a more targeted analysis was justified to better understand how supervisory relationships influence students' overall appreciation for research. An independent-samples t-test was conducted to compare students' positive attitudes toward research, students' value of research, students' engagement in extracurricular research activities, students' attitudes toward EBPs, and students' attitudes toward research being greater influenced by their supervisor than their program among students whose clinical supervisor was also their research supervisor and students whose clinical supervisor was not. Significant differences were found for students' attitudes toward research being greater influenced by their supervisor than their program when their clinical supervisor was also their research supervisor ($M = 3.44, SD = 1.08$) and clinical supervisors were not research advisors ($M = 2.31, SD = 1.03$); $t(155) = 5.64, p < .001$, Cohen's $D = 1.07$. Significant differences were also found for students' attitudes toward EBP when their clinical supervisor was also their research supervisor ($M = 4.31, SD = .40$) and clinical supervisors were not research advisors ($M = 4.07, SD = .52$); $t(155) = 2.49, p = .014$, Cohen's $D = .52$. When students' clinical supervisor was also their research supervisor, they had statistically significant higher scores of positive attitudes toward EBPs and reporting their attitudes toward research being greater influenced by their supervisor than their program.

Primary Analyses. To test H1, a simultaneous linear regression was performed to determine what factors predicted perceived supervisor credibility. Dispositional psychological reactance, supervisory alliance and therapeutic orientation match were treated as independent variables to see if they would predict perceived supervisor credibility, which was treated as a dependent variable. Tolerance values and Variance Inflation Factor (VIF) values were produced for the variables entered into the linear regression. All had a Tolerance value above .10 and a VIF value below 10, which strongly indicates that multicollinearity was unlikely to be a problem (Warner, 2008). Results revealed that upon controlling for the aforementioned variables, lower scores of dispositional psychological reactance ($\beta = -.08, p = .188, sr^2 = .01$) and therapeutic orientation match ($\beta = .08, p = .164, sr^2 = .01$) did not predict perceived supervisor credibility. However, results revealed that supervisory alliance ($\beta = .72, p < .001, sr^2 = .48$) strongly predicted perceived supervisor credibility.

To test H2 and H3, a three-step hierarchal regression was performed to investigate various factors that may influence student attitudes toward EBPs upon controlling for the aforementioned covariates. Tolerance values and Variance Inflation Factor (VIF) values were produced for the variables entered into the three-step hierarchal regression. All had a Tolerance value above .10 and a VIF value below 10, which strongly indicates that multicollinearity was unlikely to be a problem (Warner, 2008).

In the first step of the hierarchal multiple regression, all covariates were entered. This step was not statistically significant $F(7, 146) = .602, p = .753$ and explained 2.8% of the variance. Specifically, student gender ($\beta = .06, p = .477, sr^2 = .00$), student age ($\beta = .03, p = .728, sr^2 = .00$), student ethnicity ($\beta = .13, p = .139, sr^2 = .01$), supervisor gender ($\beta = -.09, p = .285, sr^2 = .01$), supervisor age ($\beta = -.07, p = .462, sr^2 = .00$), supervisor ethnicity ($\beta = .02, p = .843,$

$sr^2 = .00$), and program attitudes toward EBPs ($\beta = -.06, p = .516, sr^2 = .00$) did not predict student attitudes toward EBPs. In step two, all main effects were entered. Adding supervisor attitudes toward EBPs, perceived supervisor credibility, dispositional psychological reactance, supervisory alliance, and theoretical orientation match explained 1.7% of the variance in student attitudes toward EBPs and was not statistically significant $F(12, 141) = .554, p = .876$.

Specifically, supervisor attitudes toward EBPs ($\beta = .02, p = .822, sr^2 = .00$), perceived supervisor credibility ($\beta = -.04, p = .796, sr^2 = .00$), dispositional psychological reactance ($\beta = -.07, p = .468, sr^2 = .00$), supervisory alliance ($\beta = .01, p = .914, sr^2 = .00$), and theoretical orientation match ($\beta = .11, p = .202, sr^2 = .01$) did not predict student attitudes toward EBPs. In step three, all interactions were entered. Adding the interaction of supervisor attitudes toward EBPs by perceived supervisor credibility, dispositional psychological reactance, supervisory alliance, and therapeutic orientation match and explained 3.3% of the variance in student attitudes toward EBPs and was not statistically significant $F(16, 137) = .728, p = .761$. Specifically, the interaction of supervisor attitudes toward EBPs by perceived supervisor credibility ($\beta = -.04, p = .746, sr^2 = .00$), by dispositional psychological ($\beta = .05, p = .580, sr^2 = .00$), by supervisory alliance ($\beta = .22, p = .074, sr^2 = .02$), by theoretical orientation match ($\beta = .00, p = .992, sr^2 = .00$) did not predict student attitudes toward EBPs. Table 5 displays these results.

Post Hoc Analysis. Because previous research has shown that being trained after the year 1995 was associated with more favorable attitudes toward EBPs (Bearman et al., 2015), the historic trends of people being trained before the 1990s tending to be less favorable toward EBPs (Pomerantz, 2014), and favorable supervisor attitudes toward EBPs occurring among younger supervisors ($r = -.22, p = .005$), there was theoretical justification to conduct a post hoc analysis among younger supervisors. Supervisor age was dummy coded into two categories with 0 =

younger than 50 and 1 = older than 50. This of course comes with an assumption that those over 50 years old completed their training prior to the mid-1990s, which is not always the case. However, and as noted above, the average age that psychology students across all subfields complete their Ph.D. is 32.1 years of age (Bailey, 2004).

To analyze the post hoc analysis, the same three-step hierarchical regression was performed to investigate various factors that may influence student attitudes toward EBPs after controlling for the aforementioned covariates among students whose supervisor was younger than 50 years old ($n = 81$). All variables entered into the three-step hierarchical regression had a Tolerance value above .10 and a VIF value below 10, which strongly indicates that multicollinearity was unlikely to be a problem (Warner, 2008).

In the first step of the hierarchical multiple regression, all covariates were entered. This step was not statistically significant $F(7, 73) = .235, p = .975$ and explained 2.2% of the variance. Specifically, student gender ($\beta = -.12, p = .323, sr^2 = .01$), student age ($\beta = .02, p = .903, sr^2 = .00$), student ethnicity ($\beta = -.04, p = .738, sr^2 = .00$), supervisor gender ($\beta = -.08, p = .523, sr^2 = .01$), supervisor age ($\beta = -.05, p = .695, sr^2 = .00$), supervisor ethnicity ($\beta = -.02, p = .868, sr^2 = .00$), and program attitudes toward EBPs ($\beta = -.05, p = .712, sr^2 = .00$) did not predict student attitudes toward EBPs. In step two, all main effects were entered. Adding supervisor attitudes toward EBPs, perceived supervisor credibility, dispositional psychological reactance, supervisory alliance, and theoretical orientation match explained 14.1% of the variance in student attitudes toward EBPs and was not statistically significant $F(12, 68) = 1.103 p = .373$. Specifically, supervisor attitudes toward EBPs ($\beta = -.21, p = .096, sr^2 = .03$), perceived supervisor credibility ($\beta = .07, p = .645, sr^2 = .00$), dispositional psychological reactance ($\beta = -.24, p = .053, sr^2 = .05$), supervisory alliance ($\beta = .08, p = .598, sr^2 = .00$), and theoretical

orientation match ($\beta = .25, p = .057, sr^2 = .05$) did not predict student attitudes toward EBPs. In step three, all interactions were entered. Adding the interaction of supervisor attitudes toward EBPs by perceived supervisor credibility, dispositional psychological reactance, supervisory alliance, and therapeutic orientation match and explained 3.3% of the variance in student attitudes toward EBPs and was not statistically significant $F(16, 64) = .973 p = .495$.

Specifically, the interaction of supervisor attitudes toward EBPs by perceived supervisor credibility ($\beta = -.04, p = .811, sr^2 = .00$), by dispositional psychological ($\beta = .01, p = .960, sr^2 = .00$), by supervisory alliance ($\beta = .18, p = .281, sr^2 = .02$), by theoretical orientation match ($\beta = -.19, p = .368, sr^2 = .02$) did not predict student attitudes toward EBPs. Table 6 displays these results.

Chapter 5: Discussion

The current study investigated how student attitudes toward EBPs are influenced through clinical supervision. Despite various theoretical links as to how this process may unfold, this was the first attempt to directly investigate these associations. The current study tested hypotheses geared toward understanding if clinical supervisors' attitudes toward EBPs would influence students' attitude toward EBPs and if this would be facilitated when the supervisor was perceived as credible. I also examined factors that may influence perceived credibility of a supervisor. Finally, the current study tested whether students' attitudes toward EBPs would be greater influenced by supervisors' attitudes toward EBPs when these proposed "ingredients" of credibility were present (e.g., low psychological reactance, high supervisory alliance, and therapeutic orientation match).

Summary of Results

The first hypothesis that perceived supervisor credibility would be predicted by low psychological reactance, strong supervisory alliance, and therapeutic orientation match was partially supported. Low psychological reactance and therapeutic orientation match did not predict perceived supervisor credibility. However, strong supervisory alliance was strongly associated with perceived supervisor credibility. This finding is consistent with prior research showing that a positive supervisory alliance is indicative of perceived supervisor credibility (Evans, 1986; Heppner & Handley, 1982; Ladany et al., 1999; Rarick & Ladany, 2013). As previously discussed, the existing literature base examining supervisor credibility is scant. However, the literature that does exist examines supervisor credibility in the context of source characteristics (e.g., likability, expertise, and argument quality). Previous research findings reveal that supervisees are more acquiescent when they perceived their supervisor with positive

source characteristics (Holloway, 1984; Steward et al., 2001) and other research findings reveal that positive evaluation of source characteristics tends to result in more favorable evaluation of clinical experiences (Evans, 1986; Heppner & Handley, 1982). This finding contributes to the sparse literature base regarding perceived credibility in that supervisory alliance strongly predicted perceived credibility. It also suggests that the likability component of source characteristics (i.e., positive supervisory alliance) may play a key role influencing perceived supervisor credibility among supervisees.

The second and third hypothesis that supervisor attitudes toward EBPs would predict student attitudes toward EBPs, and that this association would be strengthened when perceived supervisor credibility was high, dispositional psychological reactance was low, supervisory alliance was high, and there was a match in therapeutic orientation, was unsupported. In light of previous research results revealing that being trained after the year 1995 was associated with more favorable attitudes toward EBPs (Bearman et al., 2015) and the historic trends of people being trained before the 1990s tending to be less favorable toward EBPs (Pomerantz, 2014) there was theoretical justification to conduct a post hoc analysis among younger supervisors. A post-hoc analysis was conducted for the same model was tested again among students whose supervisors were younger than 50 years old and was also unsupported, yielding no statistically significant findings. The results of this study do not support the hypothesis that students' attitudes toward EBPs are influenced by clinical supervisors' attitudes toward EBPs and this would be facilitated when the supervisor was perceived as credible.

It is noteworthy that a vast majority of students endorsed favorable attitudes toward EBPs for themselves, their supervisors, and their graduate program. Because of this, a ceiling effect likely contributed to the lack of variance in the model and subsequent null findings in the sense

that a majority of participants in the current study had favorable attitudes toward EBPs. This notion is also corroborated in other ways, too. For example, previous literature shows that a CBT therapeutic orientation is strongly correlated with favorable attitudes toward EBPs (Bearman et al., 2015; Beidas & Kendall, 2010). In the current study, 71% of students reported the primary theoretical orientation in their graduate program was CBT, 66% reported their primary theoretical orientation was CBT, and 65% of students reported their supervisors' primary orientation was CBT. This is in line with previous literature that a CBT therapeutic orientation is associated with favorable attitudes toward EBPs (Bearman et al., 2015; Beidas & Kendall, 2010).

Another explanation for the likely ceiling effect that occurred is the historical context of EBPs in the field of psychology. In the early 1990s, the APA strove to develop a consistent psychological treatment selection approach, which led to the three-legged stool of EBPs (APA Presidential Task Force on Evidence-Based Practice, 2006). By the mid-1990s, this APA led initiative toward EBPs took hold in the field of psychology and the inclusion of training in EBPs became a requisite for psychology graduate training accreditation standards (APA, 2015). Indeed, research has found that being trained after the year 1995 correlates with favorable attitudes toward EBPs (Beidas & Kendall, 2010). All participants in the current study were trained in an APA accredited program, were trained after the year 1995, and were trained in a part of APA history where EBPs are a focal part of training. In light of this, it is perhaps unsurprising that there was restricted range in the data of attitudes toward EBPs. Favorable student, supervisor, and graduate program attitudes toward EBPs may be a direct result of sampling from a population that received training in APA accredited graduate programs that include EBPs in their training. These findings really do suggest that the field as a whole is adherent to EBPs and that is an encouraging thing for the field as a whole.

Exploratory Analyses for Future Research

As previously discussed, research shows that favorable attitudes toward research were related to favorable attitudes toward EBPs (Bearman et al., 2015; Beidas & Kendall, 2010). The current study found that when students perceived that their supervisor or graduate program had favorable attitudes toward EBPs, students had an overall appreciation for research as evidenced by their self-reported positive attitude toward research, their value of research, and extracurricular engagement in research. Students also displayed this same overall appreciation for research when their therapeutic orientation matched with their supervisor. Moreover, when therapeutic orientation match existed between supervisor and supervisee, students reported their attitude toward research was more influenced by their supervisor than their program. These findings suggest that the environment of a student's training (e.g., their graduate program and perception of their most influential clinical supervisor) impacts their attitudes toward research. These findings are in line with previous literature suggesting that graduate students also cultivate their professional identity in graduate school training, in part, through clinical supervision (e.g., Guest & Beutler, 1988; McAleavey, Castonguay, & Xiao, 2014).

Although the findings of the current study are largely null and do not support the overall hypothesis of the Looking Glass Effect for EBPs, these findings lend support for a fundamental cornerstone of the Looking Glass Effect: students' attitudes are influenced by their clinical supervisor. Future research should examine these findings more closely in the context of student and supervisors' attitudes toward EBPs. In addition to students by and large reporting their graduate program had favorable attitudes toward EBPs, a majority of students' clinical supervisors had multiple roles in students' professional development (59%) and the most common additional roles clinical supervisors played were faculty member (82%), course

instructor (71%) and research advisor (37%). To this end, when examining these roles more closely, clinical supervisors who were also a research supervisor was associated with students having favorable attitudes toward EBPs and also reporting their attitudes toward research being greater influenced by their supervisor than their program. This suggests that it could very well be that the internalization of supervisor attitudes has less to do with perceived credibility and more to do with attitudes toward research, especially when a student's clinical supervisor is also a research supervisor. This finding provides further support for previous research showing that favorable attitudes toward research are indeed related to favorable attitudes toward EBPs (Bearman et al., 2015; Beidas & Kendall, 2010). It may be the case that students' attitudes toward EBPs are related to their clinical supervisor also serving as a research advisor. Moreover, students' attitudes toward research appears to be especially influenced by their clinical supervisor when they also their research advisor.

Practical Applications

As they stand, the results of this study have practical applications for graduate school training. The results of this study suggest a link between students' attitudes toward research and the attitudes of their graduate program and clinical supervisor, faculty within their program, and the alliance they had with clinical supervisors. Additionally, 59% of clinical supervisors played multiple roles in students' professional development, with 82% being a faculty member in a student's graduate program. This suggests that faculty members in psychology graduate programs are indeed influential in students' professional development. With respect to graduate school training, a practical application would be for clinical supervisors to be mindful of the influence they have on students' attitude toward research, especially if they also play multi-faced role such as a research advisor which was linked to students endorsing favorable attitudes toward

EBPs. To this end, the results of the current study suggest that a strong supervisory alliance positively predicts perceived supervisor credibility. Based on this data, the influence clinical supervisors have on students may actually be bolstered when they have a good relationship with their student. Thus, based on the findings yielded from this study, faculty can enhance the influence they have on students by attending to the relationship they have with their students and by playing multiple roles in their student's professional development.

Limitations

Noteworthy are the potential limitations of this study. First, the findings of this study were based on the self-report of graduate students. Incorporating additional or alternative methods (e.g., interviews, observation) may have further elucidated the impact of clinical supervision on graduate students' attitudes toward EBPs. A second limitation was that this study was cross-sectional, limiting the ability to draw causal inferences. Since the predictor and outcomes variables were simultaneously assessed, the temporal nature of these variables is unknown. Future research may consider a longitudinal approach to see how student attitudes toward EBPs are influenced by clinical supervisors over time.

A third limitation was estimating effect sizes. In the literature, effects sizes have not been reported for the measures used in this study. Thus, a small to medium effect size was used to derive a conservative estimate of the number of participants needed in this study. It could be that more participants than originally estimated ($n = 142$) may have been needed to achieve adequate power. Specifically, the effects of supervisors' attitudes toward EBPs on students' attitudes toward EBPs moderated by therapeutic alliance may have been statically significant with more participants in the light of the small effect size and p value. Additionally, the effects of supervisor attitudes toward EBPs, dispositional psychological reactance, and theoretical

orientation match on student attitudes toward EBPs in the post hoc analysis may also have been statically significant with more participants in the light of the small effect size and p value.

Additionally, men were poorly represented in the current sample and the findings of this study may not generalize to them. A fourth limitation was the potential for participants to guess the study hypotheses, which could create the possibility for demand characteristics.

A fifth limitation of this study is having participants think of their supervisor when completing measures. It could have been entirely possible that students who like their supervisor may have overstated the extent to which their supervisors share their own beliefs. Also, students who like their supervisors may have been more prone to rate them as highly credible. Indeed, students were asked to think of their most influential supervisor. However, and as stated earlier, other research has used similar methodology by asking participants to think on behalf of another person while completing a questionnaire in the absence of self-report data for said individual (Céspedes & Huey, 2008; Rohner, 2004). Student perceptions of their supervisor's attitudes is highly relevant and thus appropriate in the context of the current study. And while it could have been possible to directly measure clinical supervisor attitudes, the data from supervisors and students would have to be matched, and would have limited the study to only complete dyads.

A sixth potential limitation was the way EBPs were measured. The EBP attitude construct was measured at the categorical level rather than true interval due to including "*neutral*" as an answer choice for measuring attitudes. Including "*neutral*" as an answer choice for attitude scales is indicative of categorical measurement because it fosters responses such as agree, disagree, and neutral. Research has been conducted that concludes utilizing "*neutral*" as an answer choice can be problematic for capturing true interval measurement of attitudes

because it results in categorical measurement (Edwards & Smith, 2011; Lovelace & Brickman, 2013).

Additionally, in examining the scores of the EBPPAS scale for students and supervisors, there was not much variance between them. And the score for perceived credibility was high with little variance, too. Thus, it is likely a ceiling effect occurred, which was most likely related to a majority of participants in the sample endorsing favorable attitudes toward EBPs. As was discussed, a ceiling effect may have been the result of only sampling from programs that are APA accredited given that requirements for accreditation mandate that a program's training coalesce with EBPs (APA, 2015). In light of this, it could be that students who chose to participate in this study participated because they had favorable attitudes toward research and EBPs. Future research may consider stratified sampling of programs that are and are not APA-accredited in service of potentially understanding diverse attitudes toward EBPs.

A final limitation of this study was the intentional decision to recruit clinical psychology doctoral students from only Ph.D. and Psy.D. APA-accredited clinical psychology training programs. In addition to clinical psychology, the APA accredits the following training programs: counseling psychology, school psychology, clinical-counseling-school psychology, clinical-school psychology, and counseling-school psychology (APA, 2016). There may potentially be training differences among and within these different types of programs that may potentially affect attitudes toward EBPs. Because the hypotheses of this study have not been tested in previous research, this study was considered preliminary research. Future research should consider other sampling frames.

Conclusion

This study set out to achieve an understanding of the impact of clinical supervision on students' attitudes toward EBPs. At the heart of this idea was that students will embody their supervisors' attitudes through clinical supervision. As it relates to the current study, it was specifically proposed that a student's attitudes toward EBPs would be influenced by a clinical supervisor through clinical supervision. In short, the results of the current study did not support the hypothesis of the Looking Glass Effect as it was proposed and tested. That being said, based on the results, there was some indication that students were influenced by their clinical supervisor. This was seen by supervisory alliance predicting perceived credibility, and also in other key findings, such as identical theoretical orientations were related to a student being more influenced toward research by their supervisor than by their graduate program. This was also seen within multi-faceted relationships (i.e., clinical and research supervisor) being related to students' favorable attitude toward EBPs as well as students' research attitudes being more influenced by their clinical supervisor than their graduate program. Taken together, it appears that students' attitudes toward EBPs may be associated with global attitudes toward research, which closely relates to the first leg EBPs, which is best available research.

This study was the first of its kind to directly investigate the process by which clinical supervision impacts a student's attitudes toward EBPs. Since the current hypotheses were not fully supported, this may suggest that there is no longer a reason for concern in current psychology training programs for the propagation of disdain for EBPs, which is encouraging for our field. The results of the current study may speak toward the current zeitgeist of the field being one of support and adherence to EBPs. Future research should continue to focus on understanding resistance toward EBPs. In light of the findings of the current study, resistance toward EBPs may be closely related to negative attitudes toward research.

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Table 1. *Age Grouping of Supervisors*

Age Grouping	Supervisors	
	<i>n</i>	Percent
25 – 30 years of age	2	1%
31 – 35 years of age	26	16%
36 – 40 years of age	28	18%
41 – 45 years of age	28	18%
46 – 50 years of age	15	10%
51 – 55 years of age	19	12%
56 – 60 years of age	14	9%
61 – 65 years of age	15	10%
66 – 70 years of age	9	5%
71 – 75 years of age	1	1%

Table 2. *Ethnicity of Students and Supervisors*

Ethnicity	Students		Supervisors	
	<i>n</i>	Percent	<i>n</i>	Percent
American Indian/Alaska Native	2	1%	—	—
Asian American	13	8%	2	1%
African American	4	3%	3	2%
Hispanic	5	3%	6	4%
Caucasian	115	73%	135	86%
Indian	1	1%	3	2%
Other	17	11%	8	5%

Table 3. *Multiple Roles of Supervisors*

Supervisor Roles	Supervisors	
	<i>n</i>	Percent
Research Advisor	34	37%
Academic Advisor	22	24%
Faculty Member	75	82%
Director of Clinical Training	8	9%
Course Instructor	65	71%

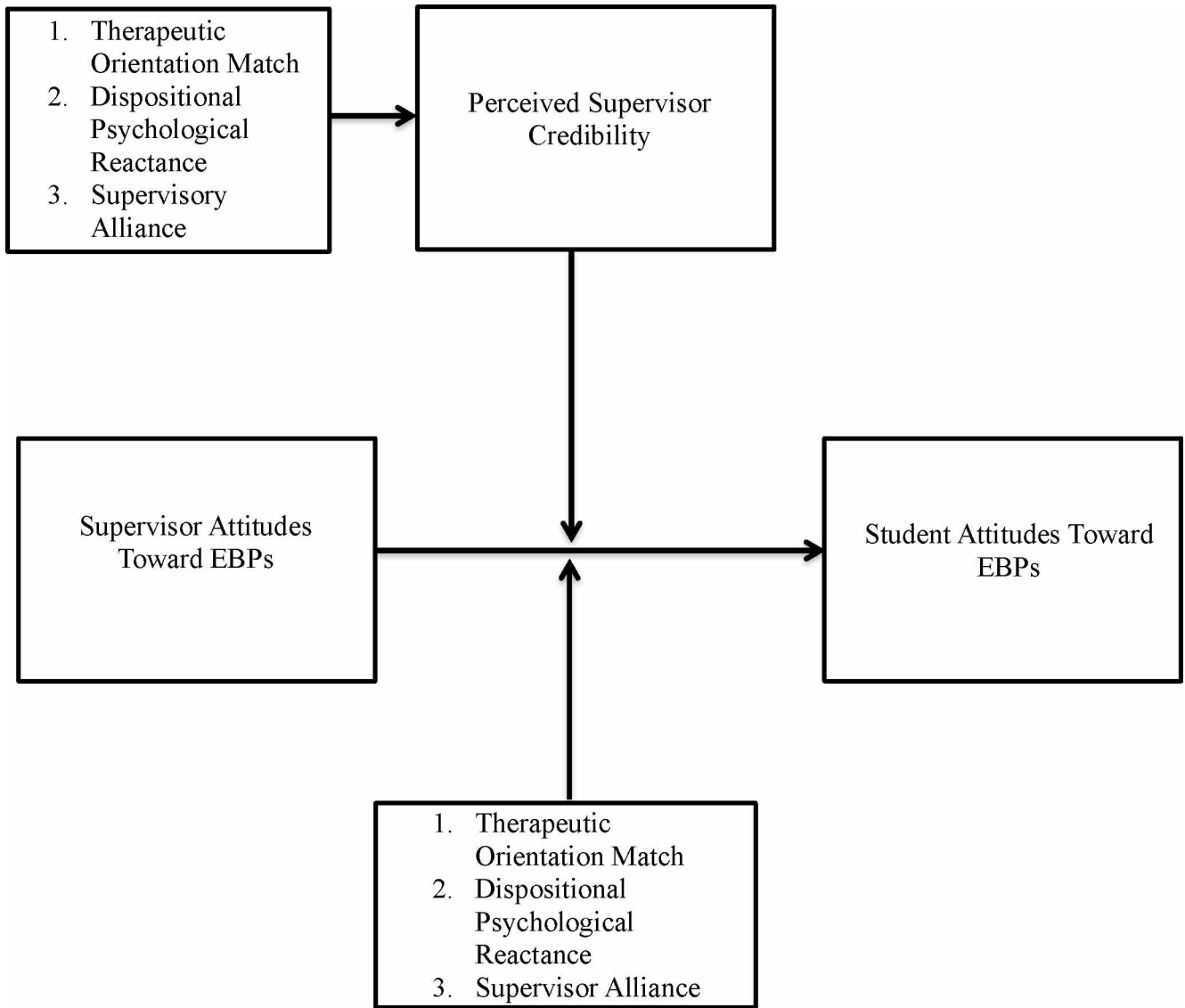


Figure 1. Looking Glass Effect Conceptual Model. Therapeutic Orientation Match, Dispositional Psychological Reactance, and Supervisory Alliance predicting Perceived Supervisor Credibility. Supervisor Attitudes toward EBPs predicting Student Attitudes toward EBPs moderated by Perceived Credibility, Therapeutic Orientation Match, Dispositional Psychological Reactance, and Supervisory Alliance.

Table 4

Means, Standard Deviations, And Intercorrelations of Study Variables (N = 157)

Variables	<i>M</i>	<i>SD</i>	1	2	3	4	5	6	7	8	9	10	11	12
1. TRS	2.29	0.23	_____											
2. CRFS	64.32	7.51	-.08	_____										
3. S-WAI	5.88	0.81	-.03	.72**	_____									
4. Program Attitude EBP	3.27	1	-.10	.15	.15	_____								
5. Student Attitude EBP	4.12	0.5	-.08	-.01	-.02	-.03	_____							
6. Supervisor Attitude EBP	4.06	0.53	-.10	.08	.20*	.34**	.05	_____						
7. Student Positive Attitude Research	4.38	0.78	.08	.02	.01	.26**	-	.35**	_____					
8. Student Value Research	4.62	0.62	.01	.02	.13	.23**	.11	.37**	.68**	_____				
9. Engage Research Extracurricular	3.94	1.17	.12	-.03	.02	.10	.00	.24**	.44**	.36**	_____			
10. Specific Super Research Influence	2.55	1.14	-.07	-.06	.07	-.02	.06	.15	-.04	-.06	-.12	_____		
11. Clinical Training Hours	610.39	619.18	.12	.06	.09	-.11	.00	-.03	-.13	-.10	-.13	.05	_____	
12. Total Supervision Hours	243.55	236.62	.02	.05	.05	.08	.00	.09	-.01	.08	-.09	.00	.42**	_____
13. Specific Supervision Hours	75.82	75.1	-.07	-.02	-.02	.08	.04	.03	.05	.10	-.03	.05	.25**	.73**

Note. * $p < .05$. ** $p < .01$. TRS = Therapeutic reactance Scale. CRFS = Counselor Rating Form-Short version. S-WAI = Supervisory Working Alliance Inventory-trainee version.

Table 5

Hierarchical Multiple Regression Analysis

Step and predictor variable	Students Attitudes Toward EBPs			
	ΔR^2	B	SE	β
Step 1	.03			
Student Gender		.09	.12	.06
Student Age		.01	.02	.03
Student Ethnicity		.15	.01	.13
Supervisor Gender		-.09	.09	-.09
Supervisor Age		-.01	.02	-.07
Supervisor Ethnicity		.01	.05	.02
Program Attitude EBP		-.03	.04	-.06
Step 2	.05			
Supervisor Attitude EBP		.02	.09	.02
Supervisor Credibility (CRFS)		-.00	.01	-.04
Psychological Reactance (TRS)		-.14	.19	-.07
Supervisor Alliance (S- WAI)		.01	.08	.01
Therapy Orientation Match		.12	.09	.11
Step 3	.08			
Supervisor Attitude EBP \times CRFS		-.01	.02	-.04
Supervisor Attitude EBP \times TRS		.21	.37	.05

Supervisor Attitude EBP × S-WAI	.29	.16	.22
Supervisor Attitude EBP × Therapy Orientation Match	.00	.17	.00

Note. $n = 157$. Student Gender coded as 0 = Male and 1 = Female. Student Ethnicity coded as 0 = Non-Caucasian and 1 = Caucasian. Supervisor Ethnicity coded as 0 = Non-Caucasian and 1 = Caucasian. Supervisor Gender coded as 0 = Male and 1 = Female. Supervisor Age coded as 1 = 25 – 30, 2 = 31 – 35, 3 = 36 – 40, 4 = 41 – 45, 5 = 46 – 50, 6 = 51 – 55, 7 = 56 – 60, 8 = 61 – 65, 9 = 66 – 70, 10 = 71 – 75. Therapeutic Orientation Match coded as 0 = no match and 1 = match.

Table 6

Hierarchical Multiple Regression Analysis

Step and predictor variable	Students Attitudes Toward EBPs			
	ΔR^2	B	SE	β
Step 1	.02			
Student Gender		-.19	.19	-.12
Student Age		.00	.03	.02
Student Ethnicity		-.01	.01	-.04
Supervisor Gender		-.08	.13	-.08
Supervisor Age		-.02	.02	-.05
Supervisor Ethnicity		-.01	.06	-.02
Program Attitude EBP		-.03	.07	-.05
Step 2	.16			
Supervisor Attitude EBP		-.20	.12	-.21
Supervisor Credibility (CRFS)		.01	.01	.07
Psychological Reactance (TRS)		-.51	.26	-.24
Supervisor Alliance (S- WAI)		.06	.11	.08
Therapy Orientation Match		.26	.14	.25
Step 3	.20			
Supervisor Attitude EBP \times CRFS		-.20	.12	-.21
Supervisor Attitude EBP \times TRS		-.51	.26	-.24

Supervisor Attitude EBP × S-WAI	.06	.11	.08
Supervisor Attitude EBP × Therapy Orientation Match	.26	.14	.25

Note. $n = 81$. Student Gender coded as 0 = Male and 1 = Female. Student Ethnicity coded as 0 = Non-Caucasian and 1 = Caucasian. Supervisor Ethnicity coded as 0 = Non-Caucasian and 1 = Caucasian. Supervisor Gender coded as 0 = Male and 1 = Female. Supervisor Age coded as 1 = 25 – 30, 2 = 31 – 35, 3 = 36 – 40, 4 = 41 – 45, 5 = 46 – 50, 6 = 51 – 55, 7 = 56 – 60, 8 = 61 – 65, 9 = 66 – 70, 10 = 71 – 75. Therapeutic Orientation Match coded as 0 = no match and 1 = match.

Appendix A. Program Recruitment Emails.

Subject Line: Request for Participation in a Brief Study of Supervision Experiences

Hello Dr. XXX,

My name is Hugh Leonard and I am a doctoral student in the APA-accredited Ph.D. Program in Clinical-Community Psychology jointly offered by the University of Alaska Fairbanks and the University of Alaska Anchorage. I am currently conducting a study for my dissertation examining various influential factors within clinical training experiences. In order to expand the current body of literature in this area, I am recruiting graduate students enrolled in an APA-accredited clinical psychology training program who have begun accruing clinical hours to participate in a short (25 minute) online survey. This study has been approved by the UAF IRB (IRB #1052818-1) and is being supervised by Dr. Kendra Campbell, a core faculty member in my program. I would appreciate if you would please forward the email below to students of your program. **All participants will be compensated with a \$5 Amazon gift card.**

Sincerely,
Hugh Leonard, M.S.
Graduate Student
UAF/UAA Joint Ph.D. Program in Clinical-Community Psychology

Hello Fellow Graduate Student,

My name is Hugh Leonard and I am a doctoral student in the APA-accredited Ph.D. Program in Clinical-Community Psychology jointly offered by the University of Alaska Fairbanks and the University of Alaska Anchorage. I am currently conducting a study for my dissertation examining various influential factors within clinical training experiences. In order to expand on the current body of literature in this area, I am recruiting graduate students enrolled in an APA-accredited clinical psychology training program who have begun accruing clinical hours to participate in a short (25 minute) online survey. This study has been approved by the UAF IRB (IRB #1052818-1) and is being supervised by Dr. Kendra Campbell, a core faculty member in my program. I would appreciate your participation in this study. **All participants will be compensated with a \$5 Amazon gift card.**

If you have any questions about this study, you may contact Hugh Leonard (hdleonard@alaska.edu) or Dr. Kendra Campbell (kkcampbell3@alaska.edu). If you have questions about your rights as a participant, contact the UAF Office of Research Integrity at (907) 474-7800 or (800) 876-7800 (toll-free), or uaf-irb@alaska.edu.

The link for the study is:
http://uaa.col.qualtrics.com/SE/?SID=SV_b3jBwhKRBi1wCXj

Sincerely,
Hugh Leonard, M.S.
Clinical Psychology Graduate Student
UAF/UAA Joint Ph.D. Program in Clinical-Community Psychology

Appendix B. Informed Consent.

A Survey of Clinical Training Experiences

You are being asked to participate in a study. Before you volunteer, please read the following consent form (IRB #1052818-1), which has been approved for use through May 1st 2018.

Principal Investigators: The investigator of this study is Hugh Leonard, a graduate student, working under the supervision of Dr. Kendra Campbell. The study is conducted through the Department of Psychology at the University of Alaska Fairbanks.

Description: You are being asked to complete a short, online survey about your work with your clinical supervisor and various training experiences. This survey will take approximately 25 minutes to complete. You must be 18 years old or older to participate and a current student in an APA-accredited doctoral clinical psychology training program who has already starting accruing clinical training hours.

Purpose: The purpose of this study is to examine various influential factors within clinical training experiences.

Incentive: All participants will be offered a \$5 Amazon gift card within one week of completing the survey.

Confidentiality: Your answers are anonymous and will remain confidential. Only the investigators will have access to your responses. Also, personal identifiers will not be kept or associated with your responses. All survey data will be stored on a password-protected computer. All data (fully or partially completed) will be stored for five years, after which time they will be deleted.

At the end of the survey you will be taken to a separate survey and asked to provide an email address so we can email you an electronic \$5 Amazon gift card. Information that you provide on that page will be kept separate from your responses to this survey.

Potential Benefits and Risks: Other than receiving a gift card, there are no direct benefits. However, other benefits of participation include contributing to our understanding of variables that relate to clinical training experiences. There are no foreseeable risks with participating in the study that are greater than one would encounter in daily life.

If you experience any discomfort, you may stop taking the survey at any time. This means that you may stop taking the study temporarily or you may withdraw from the study completely. Please note, that if you stop taking the study temporarily, do not close your browser because by doing so, that will signify withdrawal. If you decide to quit, that will also signify withdrawal.

Only data from completed studies above 85% on all survey data will be used for analyses. Partially completed study data below 85% will be not be used in analyses.

Please note that since this is an online survey, there is a risk for a potential power outage and/or internet connection disruption. Should this occur, you are welcome to take the survey again when power and/or internet is restored. To reduce this risk, before taking the survey, please ensure you have a sufficient power and a good internet connection.

Voluntary Nature of Participation: Your participation is strictly voluntary. If you decide not to participate, it will not affect your relationship with the researchers nor your program. If you decide to participate, you may stop participating at any time. Please note, if you decide to stop participating prior to completion of the survey, you will not receive compensation as the gift card is at the end of a fully completed survey. As stated above, in the event of a power or internet outage, you are free to take the survey again when power and/or internet is restored.

Contacts: If you have any questions about this study, you may contact Hugh Leonard (hdleonard@alaska.edu) or Dr. Kendra Campbell (kkcampbell3@alaska.edu). If you have questions about your rights as a participant, contact the UAF Office of Research Integrity at (907) 474-7800 or (800) 876-7800 (toll-free), or uaf-irb@alaska.edu.

I have read the informed consent, I am 18 years old or older, am a current student in an APA-accredited doctoral clinical psychology training program, have already started accruing clinical training hours, and I agree to participate in this survey.

- I agree.
- I disagree.

If I disagree is Selected, Participants are Directed to Exit Survey

Appendix C. Demographic Questionnaire.

Demographic Questions

1. What is your gender?

(enters gender)

2. What is your age (in years)?

(enters age)

3. What is your ethnic or cultural background? Select all that apply.

- American Indian/ Alaska Native
- Asian American
- Black/ African-American
- Hispanic/Latino/Spanish Decent
- Native Hawaiian/ Other-Pacific Islander
- White/Caucasian
- Indian/ Indian American
- Other _____

4. Have you started to accrue clinical intervention hours as part of your training program?

- No
- Yes

If No Is Selected, Exit Survey

--PAGE BREAK--

Please write the first and last initial of your most influential clinical supervisor.

Example: If my most influential clinical supervisor was Mickey Mouse I would write: MM

Your most influential clinical supervisor would be the clinical supervisor who has had the most influence in your professional development.

5. If you have had multiple influential clinical supervisors, choose one.

(enter supervisor initials)

--PAGE BREAK--

To the best of your knowledge, please answer the following questions. It is okay If you do not know the answer exactly, just provide your best guess.

6. What is $\{q://QID232/ChoiceTextEntryValue\}$'s gender?

(enters gender)

7. To your knowledge, what is \${q://QID232/ChoiceTextEntryValue}'s age (in years)?

- 25 – 30
- 31 – 35
- 36 – 40
- 41 – 45
- 46 – 50
- 51 – 55
- 56 – 60
- 61 – 65
- 66 – 70
- 71 – 75
- 76 or above

8. To your knowledge, what is \${q://QID232/ChoiceTextEntryValue}'s ethnic or cultural background? Select all that apply.

- American Indian/ Alaska Native
- Asian American
- Black/ African-American
- Hispanic/Latino/Spanish Decent
- Native Hawaiian/ Other-Pacific Islander
- White/Caucasian
- Indian/ Indian American
- Other _____

Appendix D. Training Experiences Questionnaire.

Training Experiences Questions

1. What year are you in your program?

- First year
- Second year
- Third year
- Fourth year
- Fifth year
- Sixth year
- Seventh year or above

2. What type of model does your program follow?

- Clinical scientist
- Practitioner-scholar
- Scientist-practitioner
- Other (please specify) _____

3. Across all practicum experiences (i.e., internal, external) and clinical modalities (i.e., individual therapy, group therapy, assessment), how many approximate clinical training hours have you accrued?

(enters approximate hours)

4. In total, how many clinical supervisors have you had during your practicum experiences?

- 1
- 2
- 3
- 4
- 5 or more

5. Including all clinical supervisors you have worked with, please estimate the total group and individual supervision hours you have accrued.

(enters approximate hours)

6. Approximately how many total group and individual supervision hours do you have working with ?

(enters approximate hours)

7. Which one best describes your theoretical orientation?

- Humanistic
- Existential
- Cognitive-Behavioral / Cognitive / Behavioral
- Psychodynamic / Psychoanalytic
- Integrative / eclectic
- Other (please specify) _____

8. Which one best describes $\{q://QID232/ChoiceTextEntryValue\}$'s theoretical orientation?

- Humanistic
- Existential
- Cognitive-Behavioral / Cognitive / Behavioral
- Psychodynamic / Psychoanalytic
- Integrative / eclectic.
- Other (please specify) _____

9. If applicable, which one best describes the primary theoretical orientation taught in your program?

- Humanistic
- Existential
- Cognitive-Behavioral / Cognitive / Behavioral
- Psychodynamic / Psychoanalytic
- Integrative / eclectic
- Not-applicable
- Other (please specify) _____

10. What degree does $\{q://QID232/ChoiceTextEntryValue\}$ have?

- Ph.D.
- Psy.D.
- M.S.
- M.A.
- Other (please specify) _____

11. To your knowledge, in what field did $\{q://QID232/ChoiceTextEntryValue\}$ earn their degree?

- Clinical Psychology
- Counseling Psychology
- School Psychology
- Clinical-Counseling-School Psychology
- Clinical-School Psychology
- Counseling-School Psychology
- Clinical Community
- Other (please specify) _____

12. It is common for clinical supervisors to play other roles beyond that of a clinical supervisor.

If applicable, please select all the roles $\{q://QID232/ChoiceTextEntryValue\}$ has played in your experiences with them.

- Research advisor
- Academic advisor
- Faculty member
- Course instructor
- Not-applicable
- Other _____

13. Select the item that best describes your program.

- My program does not offer didactic training or clinical supervision in EBPs.
- My program offers, but does not require didactic training in EBPs.
- My program requires didactic training in EBPs.
- My program requires didactic training AND clinical supervision in EBPs.

14. In general, I have a positive attitude toward research.

- Strongly Disagree
- Disagree
- Neutral
- Agree
- Strongly Agree

15. In general, I value research.

- Strongly Disagree
- Disagree
- Neutral
- Agree
- Strongly Agree

16. I engage in conducting research activities beyond my class/program requirements.

- Strongly Disagree
- Disagree
- Neutral
- Agree
- Strongly Agree

17. $\{q://QID232/ChoiceTextEntryValue\}$ has more influenced my attitudes toward research more so than my program has.

- Strongly Disagree
- Disagree
- Neutral
- Agree
- Strongly Agree

Appendix E. Counselor Rating Form-Short version.

INSTRUCTIONS

Each characteristic is followed by a seven-point scale that ranges from "not very" to "very."
Please select the point on the scale that best represents how you view $\{q://QID232/ChoiceTextEntryValue\}$.

Though all of the following characteristics we ask you to rate are desirable, clinical supervisors differ in their strengths. We are interested in knowing how you view these differences.

To the best of your knowledge, please answer the following questions. It is okay If you do not know the answer exactly, just provide your best guess.

1. FRIENDLY

- Not Very
-
-
-
-
-
-
- Very

2. EXPERIENCED

- Not Very
-
-
-
-
-
-
- Very

3. HONEST

- Not Very
-
-
-
-
-
-
- Very

4. LIKABLE

- Not Very
-
-
-
-
-
- Very

5. EXPERT

- Not Very
-
-
-
-
-
- Very

6. RELIABLE

- Not Very
-
-
-
-
-
- Very

7. SOCIABLE

- Not Very
-
-
-
-
-
- Very

8. PREPARED

- Not Very
-
-
-
-
-
- Very

9. SINCERE

- Not Very
-
-
-
-
-
- Very

10. WARM

- Not Very
-
-
-
-
-
- Very

11. SKILLFUL

- Not Very
-
-
-
-
-
- Very

12. TRUSTWORTHY

- Not Very
-
-
-
-
-
- Very

Appendix F. Supervisory Working Alliance Inventory-Trainee version.

INSTRUCTIONS

Please indicate the frequency with which the behavior described in each of the following items seems characteristic of your work with $\{q://QID232/ChoiceTextEntryValue\}$. After each item, select the number corresponding to the approach point of the following seven-point scale.

1. I feel comfortable working with my supervisor.

- Almost Never 1
- 2
- 3
- 4
- 5
- 6
- Almost Always 7

2. My supervisor welcomes my explanations about the client's behavior.

- Almost Never 1
- 2
- 3
- 4
- 5
- 6
- Almost Always 7

3. My supervisor encourages me to talk about my work with clients in ways that are comfortable for me.

- Almost Never 1
- 2
- 3
- 4
- 5
- 6
- Almost Always 7

4. My supervisor is tactful when communicating about my performance.

- Almost Never 1
- 2
- 3
- 4
- 5
- 6
- Almost Always 7

6. My supervisor encourages me to formulate my own interventions with the client.

- Almost Never 1
- 2
- 3
- 4
- 5
- 6
- Almost Always 7

7. My supervisor helps me talk freely in our sessions.

- Almost Never 1
- 2
- 3
- 4
- 5
- 6
- Almost Always 7

8. My supervisor stays in tune with me during supervision.

- Almost Never 1
- 2
- 3
- 4
- 5
- 6
- Almost Always 7

9. I understand the client behavior and treatment technique similar to the way my supervisor does.

- Almost Never 1
- 2
- 3
- 4
- 5
- 6
- Almost Always 7

10. I feel free to mention to my supervisor troublesome feelings I might have about him/her.

- Almost Never 1
- 2
- 3
- 4
- 5
- 6
- Almost Always 7

11. My supervisor treats me like a colleague in our supervisory sessions.

- Almost Never 1
- 2
- 3
- 4
- 5
- 6
- Almost Always 7

12. In supervision, I am more curious than anxious when discussing my difficulty with clients.

- Almost Never 1
- 2
- 3
- 4
- 5
- 6
- Almost Always 7

13. In supervision, my supervisor places a high priority on our understanding of the client's perspective.

- Almost Never 1
- 2
- 3
- 4
- 5
- 6
- Almost Always 7

14. My supervisor encourages me to take time to understand what the client is saying and doing.

- Almost Never 1
- 2
- 3
- 4
- 5
- 6
- Almost Always 7

15. My supervisor's style is to carefully and systematically consider the material I bring to supervision.

- Almost Never 1
- 2
- 3
- 4
- 5
- 6
- Almost Always 7

16. When correcting my errors with a client, my supervisor offers alternative ways of intervening with that client.

- Almost Never 1
- 2
- 3
- 4
- 5
- 6
- Almost Always 7

17. My supervisor helps me out with work within a specific treatment plan with my clients.

- Almost Never 1
- 2
- 3
- 4
- 5
- 6
- Almost Always 7

18. My supervisor helps me stay on track during our supervision meetings.

- Almost Never 1
- 2
- 3
- 4
- 5
- 6
- Almost Always 7

19. I work with my supervisor on specific goals in the supervisory session.

- Almost Never 1
- 2
- 3
- 4
- 5
- 6
- Almost Always 7

INSTRUCTIONS

Purpose: The purpose of this scale is to assess your familiarity with, views about, and the use of Evidence-Based Practice (EBP) process.

Definition: The EBP process includes considering the best research evidence available as part of the basis for making practice decisions. It does NOT mean just providing an evidence-based treatment; rather it means engaging in each of the following five steps in your practice: (a) Formulating a practice question that can be answered by searching for research evidence; (b) Tracking down the best research evidence to answer the question, (c) Critically appraising the evidence, (d) Integrating the critical appraisal with practitioner expertise and client attributes to guide your practice decision, and (e) Evaluating the outcomes of the practice decision.

Instructions: EBP is a relatively new concept. Therefore, like many other practitioners, you may know little about it. Nevertheless, please answer all the items, even if you are unsure of your answer or have no opinion. Please select Neutral for every item for which you are neutral, uncertain, or feel that you don't know enough about EBP to respond in an informed manner. All responses are anonymous; please answer each item according to how you really view the EBP process and its feasibility in your practice. Thank you!

1. EBP is nothing more than a way to cut treatment costs.

- Strongly Disagree
- Disagree
- Neutral
- Agree
- Strongly Agree

2. EBP helps improve clients' outcomes.

- Strongly Disagree
- Disagree
- Neutral
- Agree
- Strongly Agree

3. Engaging in EBP hinders the use of practitioner judgement.

- Strongly Disagree
- Disagree
- Neutral
- Agree
- Strongly Agree

4. Practitioners who engage in the EBP process show greater concern for client's well-being than practitioners who do not engage in EBP.

- Strongly Disagree
- Disagree
- Neutral
- Agree
- Strongly Agree

5. Engaging in EBP process makes practice too mechanistic.

- Strongly Disagree
- Disagree
- Neutral
- Agree
- Strongly Agree

6. The EBP process allows enough room for considering unique client circumstances or preferences.

- Strongly Disagree
- Disagree
- Neutral
- Agree
- Strongly Agree

7. The judgement of esteemed colleagues or supervisors offers a better basis than research evidence for improving practice effectiveness.

- Strongly Disagree
- Disagree
- Neutral
- Agree
- Strongly Agree

8. EBP helps clients meet their goals.

- Strongly Disagree
- Disagree
- Neutral
- Agree
- Strongly Agree

9. Engaging in the EBP process hinders the practitioner-client relationship.

- Strongly Disagree
- Disagree
- Neutral
- Agree
- Strongly Agree

10. Trying to engage in EBP is more ethical than refusing to engage in it.

- Strongly Disagree
- Disagree
- Neutral
- Agree
- Strongly Agree

11. I know what is best for my clients without examining the research evidence.

- Strongly Disagree
- Disagree
- Neutral
- Agree
- Strongly Agree

12. Experienced practitioners should disregard research evidence when it conflicts with their intuition.

- Strongly Disagree
- Disagree
- Neutral
- Agree
- Strongly Agree

13. Engaging in EBP process will improve one's practice.

- Strongly Disagree
- Disagree
- Neutral
- Agree
- Strongly Agree

14. Engaging in the EBP process means using interventions that won't apply to the kinds of client I see.

- Strongly Disagree
- Disagree
- Neutral
- Agree
- Strongly Agree

INSTRUCTIONS

Purpose: The purpose of this scale is to assess your perception of $\{q://QID232/ChoiceTextEntryValue\}$'s familiarity with, views about, and the use of Evidence-Based Practice (EBP) process.

Definition: The EBP process includes considering the best research evidence available as part of the basis for making practice decisions. It does NOT mean just providing an evidence-based treatment; rather it means engaging in each of the following five steps in your practice: (a) Formulating a practice question that can be answered by searching for research evidence; (b) Tracking down the best research evidence to answer the question, (c) Critically appraising the evidence, (d) Integrating the critical appraisal with practitioner expertise and client attributes to guide your practice decision, and (e) Evaluating the outcomes of the practice decision.

Instructions: EBP is a relatively new concept. Therefore, like many other practitioners, $\{q://QID232/ChoiceTextEntryValue\}$ may know little about it. Nevertheless, please answer all the items, even if $\{q://QID232/ChoiceTextEntryValue\}$ may be unsure of their answer or have no opinion. Please select Neutral for every item for which $\{q://QID232/ChoiceTextEntryValue\}$ may be neutral, uncertain, or feel that they don't know enough about EBP to respond in an informed manner. All responses are anonymous; please answer each item according to how $\{q://QID232/ChoiceTextEntryValue\}$ may really view the EBP process and its feasibility in your practice. Thank you!

To the best of your knowledge, please answer the following questions. It is okay If you do not know the answer exactly, just provide your best guess:

1. $\{q://QID232/ChoiceTextEntryValue\}$ believes EBP is nothing more than a way to cut treatment costs.

- Strongly Disagree
- Disagree
- Neutral
- Agree
- Strongly Agree

2. $\{q://QID232/ChoiceTextEntryValue\}$ believes EBP helps improve clients' outcomes.

- Strongly Disagree
- Disagree
- Neutral
- Agree
- Strongly Agree

3. believes engaging in EBP hinders the use of practitioner judgement.

- Strongly Disagree
- Disagree
- Neutral
- Agree
- Strongly Agree

4. believes practitioners who engage in the EBP process show greater concern for client's well-being than practitioners who do not engage in EBP.

- Strongly Disagree
- Disagree
- Neutral
- Agree
- Strongly Agree

5. believes engaging in EBP process makes practice too mechanistic.

- Strongly Disagree
- Disagree
- Neutral
- Agree
- Strongly Agree

6. believes the EBP process allows enough room for considering unique client circumstances or preferences.

- Strongly Disagree
- Disagree
- Neutral
- Agree
- Strongly Agree

7. believes the judgement of esteemed colleagues or supervisors offers a better basis than research evidence for improving practice effectiveness.

- Strongly Disagree
- Disagree
- Neutral
- Agree
- Strongly Agree

8. believes EBP helps clients meet their goals.

- Strongly Disagree
- Disagree
- Neutral
- Agree
- Strongly Agree

9. believes engaging in the EBP process hinders the practitioner-client relationship.

- Strongly Disagree
- Disagree
- Neutral
- Agree
- Strongly Agree

10. believes trying to engage in EBP is more ethical than refusing to engage in it.

- Strongly Disagree
- Disagree
- Neutral
- Agree
- Strongly Agree

11. knows what is best for his/her clients without examining the research evidence.

- Strongly Disagree
- Disagree
- Neutral
- Agree
- Strongly Agree

12. believes experienced practitioners should disregard research evidence when it conflicts with their intuition.

- Strongly Disagree
- Disagree
- Neutral
- Agree
- Strongly Agree

13. believes engaging in EBP process will improve one's practice.

- Strongly Disagree
- Disagree
- Neutral
- Agree
- Strongly Agree

14. believes engaging in the EBP process means using interventions that won't apply to the kinds of client sees.

- Strongly Disagree
- Disagree
- Neutral
- Agree
- Strongly Agree

Appendix I. Therapeutic Reactance Scale.

INSTRUCTIONS

Please indicate the extent to which **you** agree with each of the 30 items using the following scale.

1. If I receive a lukewarm dish at a restaurant, I make an attempt to let that be known.

- Strongly Disagree
- Disagree
- Agree
- Strongly Agree

2. I resent authority figures who try to tell me what to do.

- Strongly disagree
- Disagree
- Agree
- Strongly Agree

3. I find that I often have to question authority.

- Strongly Disagree
- Disagree
- Agree
- Strongly Agree

4. I enjoy seeing someone else do something that neither of us supposed to do.

- Strongly Disagree
- Disagree
- Agree
- Strongly Agree

5. I have a strong desire to maintain my personal freedom.

- Strongly Disagree
- Disagree
- Agree
- Strongly Agree

6. I enjoy playing "Devil's Advocate" whenever I can.

- Strongly Disagree
- Disagree
- Agree
- Strongly Agree

7. In discussions, I am easily persuaded by others.

- Strongly Disagree
- Disagree
- Agree
- Strongly Agree

8. Nothing turns me on as much as a good argument!

- Strongly Disagree
- Disagree
- Agree
- Strongly Agree

9. It would be better to have more freedom to do what I want on a job.

- Strongly Disagree
- Disagree
- Agree
- Strongly Agree

10. If I am told what to do, I often do the opposite.

- Strongly Disagree
- Disagree
- Agree
- Strongly Agree

11. I am sometimes afraid to disagree with others.

- Strongly Disagree
- Disagree
- Agree
- Strongly Agree

12. It really bothers me when police officers tell people what to do.

- Strongly Disagree
- Disagree
- Agree
- Strongly Agree

13. It does not upset me to change my plans because someone in the group wants to do something else.

- Strongly Disagree
- Disagree
- Agree
- Strongly Agree

14. I don't mind other people telling me what to do.
- Strongly Disagree
 - Disagree
 - Agree
 - Strongly Agree
15. I enjoy debates with other people.
- Strongly Disagree
 - Disagree
 - Agree
 - Strongly Agree
16. If someone asks a favor of me, I will think twice about what this person is really after.
- Strongly Disagree
 - Disagree
 - Agree
 - Strongly Agree
17. I am not very tolerant of others' attempts to persuade me.
- Strongly Disagree
 - Disagree
 - Agree
 - Strongly Agree
18. I often follow the suggestions of others.
- Strongly Disagree
 - Disagree
 - Agree
 - Strongly Agree
19. I am relatively opinionated.
- Strongly Disagree
 - Disagree
 - Agree
 - Strongly Agree
20. It is important to me to be in a powerful position relative to others.
- Strongly Disagree
 - Disagree
 - Agree
 - Strongly Agree

21. I am very open to solutions to my problems from others.
- Strongly Disagree
 - Disagree
 - Agree
 - Strongly Agree
22. I enjoy “showing up” people who think they are right.
- Strongly Disagree
 - Disagree
 - Agree
 - Strongly Agree
23. I consider myself more competitive than cooperative.
- Strongly Disagree
 - Disagree
 - Agree
 - Strongly Agree
24. I do not mind doing something for someone even when I don’t know why I am doing it.
- Strongly Disagree
 - Disagree
 - Agree
 - Strongly Agree
25. I usually go along with others’ advice.
- Strongly Disagree
 - Disagree
 - Agree
 - Strongly Agree
26. I feel it is better to stand up for what I believe than to be silent.
- Strongly Disagree
 - Disagree
 - Agree
 - Strongly Agree
27. I am very stubborn and set in my ways.
- Strongly Disagree
 - Disagree
 - Agree
 - Strongly Agree

28. It is very important for me to get along well with the people I work with.

- Strongly Disagree
- Disagree
- Agree
- Strongly Agree

Appendix J. Debriefing statement.

Thank you!

Thank you for participating in our study!

The purpose of this study is to examine how training experiences in supervision impact attitudes toward evidence based practices.

Please do not disclose the research procedures to anyone who may participate, as this could affect the results of the study. If you are interested in knowing the results of this study after data have been collected or if you have further questions about this study, please contact Hugh Leonard (hleonard@alaska.edu). If you have questions about your rights as a participant, contact the UAF Office of Research Integrity at (907) 474-7800 or 1(800) 876-7800 (toll-free), or uaf-irb@alaska.edu.

To receive compensation for your time in the form of one, \$5 Amazon gift card, click the following link. You will be taken to a different survey where you will be asked to provide your name and email address.

http://uaa.co1.qualtrics.com/SE/?SID=SV_cwrrPrMIC28N8I5

Appendix K. Compensation survey.

In order to receive the \$5 Amazon gift card, we will need your first and last name as well as a good email address at which we can contact you. Your name and email will be kept confidential by the researchers, will be kept separate from your questionnaire data, and will be secured on a password protected computer. You will receive your \$5 Amazon gift card within one week of providing the information requested below.

Please enter your **first** name.
(enter first name)

Please enter your **last** name.
(enter last name)

Please enter your email address.
(enter email address)

Appendix L. Compensation email.

Subject Line: Compensation for Participation in Dissertation Study

Hello XXX (first and last name),

My name is Hugh Leonard and I am a doctoral student in the APA-accredited Ph.D. Program in Clinical-Community Psychology jointly offered by the University of Alaska Fairbanks and the University of Alaska Anchorage. I am contacting you because our records indicate you participated in a dissertation study exploring how training experiences in supervision impact attitudes toward evidence based practices.

I would like to offer my sincere gratitude for your participation in this study. In addition to helping me achieve a milestone in my program, you have also contributed to expanding the literature in this area. Please accept this \$5 Amazon gift card as a token of my appreciation for your participation in this study.

To redeem your gift card, visit www.amazon.com/redeemgift and enter the following claim code:

If you are interested in knowing the results of this study or if you have further questions about this study, please contact Hugh Leonard (hdleonard@alaska.edu).

Sincerely,
Hugh Leonard
Clinical Psychology Graduate Student
UAF/UAA Joint Ph.D. Program in Clinical-Community Psychology

Appendix M. Recruitment list.

State	Institution Name	City	Program/Department Name	Accreditation Status
AL	University of Alabama at Tuscaloosa	Tuscaloosa	Department of Psychology, Ph.D. Program	Accredited
AL	Auburn University	Auburn	Department of Psychology	Accredited
AL	University of Alabama at Birmingham	Birmingham	Medical/Clinical Psychology Program, Ph.D. Program	Accredited
AR	University of Arkansas	Fayetteville	Department of Psychological Science	Accredited
AZ	Arizona State University	Tempe	Department of Psychology	Accredited
AZ	University of Arizona	Tucson	Department of Psychology, Ph.D. Program	Accredited
AZ	Midwestern University	Glendale	Clinical Psychology	Accredited
AZ	Arizona School of Professional Psychology at Argosy University, Phoenix	Phoenix	Psy.D. Doctor of Psychology	Accredited
CA	Fuller Theological Seminary	Pasadena	Graduate School of Psychology	Accredited
CA	John F. Kennedy University	Pleasant Hill	College of Psychology and Holistic Studies	Accredited
CA	University of La Verne	La Verne	Department of Psychology	Accredited
CA	American School of Professional Psychology at Argosy University, San Francisco Bay Area	Alameda	Clinical Psychology Program, Argosy University San Francisco Bay Area	Accredited
CA	American School of Professional Psychology - Southern California at Argosy University, Orange County	Orange	Clinical Psy.D. Doctoral Program	Accredited
CA	Palo Alto University	Palo Alto	PGSP-Stanford Psy.D. Consortium	Accredited

CA	Alliant International University, San Francisco Bay	San Francisco	Clinical PsyD. program	Accredited
CA	Loma Linda University	Loma Linda	Clinical Psychology Ph.D. Program, Department of Psychology	Accredited
CA	Biola University	La Mirada	Rosemead School of Psychology	Accredited
CA	Azusa Pacific University	Azusa	Department of Graduate Psychology	Accredited
CA	Loma Linda University	Loma Linda	Clinical Psychology Psy.D. Program, Department of Psychology	Accredited
CA	Alliant International University, Sacramento	Sacramento	California School of Professional Psychology	Accredited
CA	California Lutheran University	Oxnard	PsyD Program in Clinical Psychology	Accredited
CA	Alliant International University, San Francisco Bay	San Francisco	Clinical PhD Program	Accredited
CA	Alliant International University, Fresno	Fresno	CSPP Ph.D. Program	Accredited
CA	Alliant International University, Los Angeles	Alhambra	Clinical PhD Program	Accredited
CA	Alliant International University, San Diego	San Diego	Clinical Psychology PhD Program	Accredited
CA	University of California, Berkeley	Berkeley	Department of Psychology	Accredited
CA	University of California, Los Angeles	Los Angeles	Clinical Psychology Program/Department of Psychology	Accredited
CA	Fuller Theological Seminary	Pasadena	Graduate School of Psychology	Accredited
CA	Biola University	La Mirada	Rosemead School of Psychology	Accredited
CA	University of Southern California	Los Angeles	Department of Psychology	Accredited
CA	Palo Alto University	Palo Alto	Pacific Graduate School of Psychology	Accredited
CA	The Wright Institute	Berkeley	Psy.D. Program	Accredited
CA	Fielding Graduate University	Santa Barbara	Clinical Psychology Doctoral Program	Accredited

CA	Pepperdine University	Los Angeles	Psychology Division	Accredited
CA	San Diego State University - UC San Diego	San Diego	Joint Doctoral Program in Clinical Psychology	Accredited
CA	Alliant International University, Los Angeles	Alhambra	Clinical PsyD Program	Accredited
CA	Alliant International University, Fresno	Fresno	CSPP Psy.D. Program	Accredited
CA	Alliant International University, San Diego	San Diego	Clinical PsyD Program	Accredited
CO	University of Colorado Boulder	Boulder	PhD in Clinical Psychology - Department of Psychology and Neuroscience	Accredited
CO	University of Denver	Denver	Department of Psychology, Ph.D. Program	Accredited
CO	University of Denver	Denver	Graduate School of Professional Psychology, Psy.D. Program	Accredited
CO	University of Colorado Denver	Denver	Department of Psychology	Accredited
CO	University of Colorado at Colorado Springs	Colorado Springs	Department of Psychology	Accredited
CT	University of Hartford	West Hartford	Graduate Institute of Professional Psychology	Accredited
CT	University of Connecticut	Storrs	Department of Psychology, U-1020	Accredited
CT	Yale University	New Haven	Department of Psychology	Accredited
DC	American University	Washington	Department of Psychology, Ph.D. Program	Accredited
DC	Catholic University of America	Washington	Department of Psychology	Accredited
DC	George Washington University	Washington	Department of Psychology, Ph.D. Program	Accredited
DC	Howard University	Washington	Department of Psychology	Accredited

DC	George Washington University	Washington	Professional Psychology Program	Accredited
DC	Gallaudet University	Washington	Department of Psychology, Ph.D. Program	Accredited
DC	The Chicago School of Professional Psychology - Washington, D.C. Campus	Washington	Clinical Psychology Psy.D. Program	Accredited
DE	University of Delaware	Newark	Department of Psychology, Ph.D. Program	Accredited
FL	Florida Institute of Technology	Melbourne	School of Psychology	Accredited
FL	Florida State University	Tallahassee	Department of Psychology	Accredited
FL	University of Florida	Gainesville	Department of Clinical and Health Psychology	Accredited
FL	University of Miami	Coral Gables	Department of Psychology, Ph.D. Program	Accredited
FL	Nova Southeastern University	Fort Lauderdale	Center for Psychological Studies, Ph.D. Program	Accredited
FL	University of South Florida	Tampa	Clinical Psychology Program/ Department of Psychology	Accredited
FL	Nova Southeastern University	Fort Lauderdale	Center for Psychological Studies	Accredited
FL	Florida International University	Miami	Clinical Science Program in Child and Adolescent Psychology	Accredited
FL	Carlos Albizu University, Miami Campus	Miami	Psy.D. Program	Accredited
FL	Florida School of Professional Psychology at Argosy University	Tampa	Florida School of Professional Psychology at Argosy University	Accredited
FL	University of Central Florida	Orlando	Department of Psychology	Accredited
GA	Georgia School of Professional	Atlanta	Department of Psychology, Psy.D. Program	Accredited

	Psychology at Argosy University, Atlanta			
GA	Georgia Southern University	Statesboro	Department of Psychology	Accredited
GA	Emory University	Atlanta	Department of Psychology	Accredited
GA	Georgia State University	Atlanta	Department of Psychology	Accredited
GA	University of Georgia	Athens	Department of Psychology	Accredited
HI	University of Hawaii at Manoa	Honolulu	Department of Psychology	Accredited
HI	Hawaii School of Professional Psychology at Argosy University, Hawaii	Honolulu	Clinical Psychology Program	Accredited
IA	University of Iowa	Iowa City	Department of Psychological and Brain Sciences	Accredited
ID	Idaho State University	Pocatello	Department of Psychology	Accredited
IL	Wheaton College	Wheaton	Psychology Department	Accredited
IL	Roosevelt University	Chicago	Department of Psychology	Accredited
IL	Adler University - Chicago	Chicago	Department of Psychology, Psy.D. Program	Accredited
IL	Illinois School of Professional Psychology at Argosy University, Schaumburg	Schaumburg	Psy.D. Program	Accredited
IL	Midwestern University	Downers Grove	College of Health Sciences	Accredited
IL	DePaul University	Chicago	Department of Psychology	Accredited
IL	Rosalind Franklin University of Medicine and Science	North Chicago	Department of Psychology, Ph.D. Program	Accredited
IL	University of Illinois at Chicago	Chicago	Department of Psychology	Accredited
IL	Illinois Institute of Technology	Chicago	Clinical PhD Program/ Department of Psychology	Accredited

IL	University of Illinois at Urbana-Champaign	Champaign	Department of Psychology	Accredited
IL	Loyola University Chicago	Chicago	Department of Psychology	Accredited
IL	Northern Illinois University	DeKalb	Department of Psychology	Accredited
IL	Northwestern University Feinberg School of Medicine	Chicago	Department of Psychiatry and Behavioral Sciences	Accredited
IL	Southern Illinois University Carbondale	Carbondale	Department of Psychology, Ph.D. Program	Accredited
IL	Illinois School of Professional Psychology at Argosy University, Chicago	Chicago	Doctoral Program in Clinical Psychology	Accredited
IL	Northwestern University	Evanston	Department of Psychology	Accredited
IL	Chicago School of Professional Psychology - Chicago Campus	Chicago	Clinical Psychology (Clinical PsyD)	Accredited
IN	Indiana University - Bloomington	Bloomington	Department of Psychological & Brain Sciences	Accredited
IN	Purdue University	West Lafayette	Department of Psychological Sciences	Accredited
IN	Indiana State University	Terre Haute	Department of Psychology, Psy.D. Program	Accredited
IN	Indiana University - Purdue University Indianapolis	Indianapolis	Department of Psychology	Accredited
IN	University of Indianapolis	Indianapolis	School of Psychological Sciences, Psy.D. Program	Accredited
IN	University of Notre Dame	Notre Dame	Psychology	Accredited
KS	Wichita State University	Wichita	Psychology Department	Accredited
KS	University of Kansas	Lawrence	Departments of Psychology and Applied Behavioral Science	Accredited

KS	University of Kansas	Lawrence	Department of Psychology, Ph.D. Program	Accredited
KY	Spalding University	Louisville	College of Health and Natural Sciences	Accredited
KY	University of Kentucky	Lexington	Department of Psychology, Ph.D. Program	Accredited
KY	University of Louisville	Louisville	Department of Psychological and Brain Sciences	Accredited
LA	Louisiana State University	Baton Rouge	Department of Psychology, Ph.D. Program	Accredited
MA	William James College	Newton	Department of Psychology	Accredited
MA	University of Massachusetts, Boston	Boston	Department of Psychology, Ph.D. Program	Accredited
MA	Boston University	Boston	Department of Psychology, Clinical Ph.D. Program	Accredited
MA	Clark University	Worcester	Frances L. Hiatt School of Psychology	Accredited
MA	University of Massachusetts Amherst	Amherst	Department of Psychology, Ph.D. Program	Accredited
MA	Suffolk University	Boston	Department of Psychology, Ph.D. Program	Accredited
MA	Harvard University	Cambridge	Department of Psychology	Accredited
MD	Loyola University Maryland	Baltimore	Department of Psychology	Accredited
MD	Uniformed Services University of the Health Sciences	Bethesda	F. Edward Hebert School of Medicine	Accredited
MD	University of Maryland-College Park	College Park	Department of Psychology, Ph.D. Program	Accredited
MD	University of Maryland, Baltimore County	Baltimore	Department of Psychology	Accredited
ME	University of Maine	Orono	Department of Psychology	Accredited

MI	University of Michigan	Ann Arbor	Department of Psychology, Ph.D. Program	Accredited
MI	Wayne State University	Detroit	Department of Psychology	Accredited
MI	University of Detroit Mercy	Detroit	Department of Psychology	Accredited
MI	Central Michigan University	Mount Pleasant	Department of Psychology	Accredited
MI	Western Michigan University	Kalamazoo	Department of Psychology, Ph.D. Program	Accredited
MI	Michigan State University	East Lansing	Department of Psychology, Ph.D. Program	Accredited
MI	Eastern Michigan University	Ypsilanti	Department of Psychology	Accredited
MI	Michigan School of Professional Psychology	Farmington Hills		Accredited
MN	Minnesota School of Professional Psychology at Argosy University	Eagan	Clinical Psychology (PsyD)	Accredited
MN	University of Minnesota	Minneapolis	Department of Psychology, Ph.D. Program	Accredited
MO	University of Missouri, Columbia	Columbia	Department of Psychological Sciences	Accredited
MO	University of Missouri, St. Louis	St. Louis	Department of Psychology	Accredited
MO	Washington University in St. Louis	St. Louis	Department of Psychology	Accredited
MO	University of Missouri Kansas City	Kansas City	Department of Psychology	Accredited
MO	Saint Louis University	St. Louis	Department of Psychology, Ph.D. Program	Accredited
MS	University of Southern Mississippi	Hattiesburg	Department of Psychology, Ph.D. Program	Accredited
MS	Jackson State University	Jackson	Clinical Psychology Doctoral Program / Department of Psychology	Accredited

MS	University of Mississippi	University	Department of Psychology, Ph.D. Program	Accredited
MT	The University of Montana	Missoula	Department of Psychology, Ph.D. Program	Accredited
NC	Duke University	Durham	Department of Psychology and Neuroscience	Accredited
NC	University of North Carolina, Chapel Hill	Chapel Hill	Department of Psychology, Ph.D. Program	Accredited
NC	University of North Carolina, Greensboro	Greensboro	Department of Psychology	Accredited
NC	East Carolina University	Greenville	Clinical Psychology / Psychology Department	Accredited
NC	University of North Carolina at Charlotte	Charlotte	Health Psychology, Clinical Track	Accredited
ND	University of North Dakota	Grand Forks	Department of Psychology	Accredited
NE	University of Nebraska, Lincoln	Lincoln	Department of Psychology	Accredited
NH	Antioch University New England	Keene	Department of Clinical Psychology, Psy.D. Program	Accredited
NJ	Fairleigh Dickinson University	Teaneck	School of Psychology, Ph.D. Program	Accredited
NJ	Rutgers-The State University of New Jersey	Piscataway	Department of Psychology	Accredited
NJ	Rutgers-The State University of New Jersey	Piscataway	Department of Clinical Psychology	Accredited
NM	University of New Mexico	Albuquerque	Department of Psychology	Accredited
NV	University of Nevada Las Vegas	Las Vegas	Department of Psychology	Accredited
NV	University of Nevada, Reno	Reno	Department of Psychology	Accredited
NY	St. John's University	Queens	Ph.D. Program in Clinical Psychology	Accredited
NY	Long Island University, C.W. Post Campus	Brookville	Psychology Department	Accredited

NY	Adelphi University	Garden City	Derner Institute of Advanced Psychological Studies	Accredited
NY	The City College of New York, The Graduate Center, CUNY	New York	Doctoral Program in Clinical Psychology	Accredited
NY	Fordham University	Bronx	Department of Psychology, Ph.D. Program	Accredited
NY	Hofstra University	Hempstead	Department of Psychology, Hauser Hall	Accredited
NY	Long Island University	Brooklyn	Ph.D. Program in Clinical Psychology	Accredited
NY	The New School	New York	Department of Psychology, Ph.D. Program	Accredited
NY	University at Albany	Albany	Department of Psychology, Ph.D. Program	Accredited
NY	Binghamton University, State University of New York	Binghamton	Department of Psychology, Ph.D. Program	Accredited
NY	University at Buffalo, State University of New York	Buffalo	Psychology Department	Accredited
NY	Stony Brook University, State University of New York	Stony Brook	Department of Psychology, Ph.D. Program	Accredited
NY	University of Rochester	Rochester	Department of Clinical and Social Sciences in Psychology	Accredited
NY	Syracuse University	Syracuse	Department of Psychology, Ph.D. Program	Accredited
NY	Teachers College, Columbia University	New York	Department of Clinical Psychology	Accredited
NY	Yeshiva University	Bronx	Ferkauf Graduate School of Psychology	Accredited
NY	John Jay College of Criminal Justice & The Graduate Center, CUNY	New York	Clinical Psychology at John Jay College/Psychology Department	Accredited

NY	Queens College and The Graduate Center, City University of New York	Queens	Psychology	Accredited
OH	Xavier University	Cincinnati	Department of Psychology	Accredited
OH	Bowling Green State University	Bowling Green	Department of Psychology, Ph.D. Program	Accredited
OH	Case Western Reserve University	Cleveland	Department of Psychological Sciences, Clinical Psychology Ph.D. Program	Accredited
OH	Kent State University	Kent	Department Psychological Sciences, Clinical Psychology Program	Accredited
OH	Miami University	Oxford	Department of Psychology, Ph.D. Program	Accredited
OH	The Ohio State University	Columbus	Department of Psychology, Ph.D. Program	Accredited
OH	Ohio University	Athens	Department of Psychology, Ph.D. Program	Accredited
OH	University of Toledo	Toledo	Department of Psychology	Accredited
OH	Wright State University	Dayton	Wright State University School of Professional Psychology	Accredited
OH	University of Cincinnati	Cincinnati	Department of Psychology	Accredited
OK	University of Tulsa	Tulsa	Department of Psychology	Accredited
OK	Oklahoma State University	Stillwater	Department of Psychology	Accredited
OR	Pacific University, Oregon	Hillsboro	School of Professional Psychology	Accredited
OR	University of Oregon	Eugene	Department of Psychology	Accredited
OR	George Fox University	Newberg	Graduate Department of Clinical Psychology	Accredited

PA	Drexel University	Philadelphia	Department of Psychology	Accredited
PA	Indiana University of Pennsylvania	Indiana	Department of Psychology, Clinical Psychology Doctoral Studies	Accredited
PA	Immaculata University	Immaculata	Graduate Department of Psychology and Counseling	Accredited
PA	Philadelphia College of Osteopathic Medicine	Philadelphia	Psychology Department	Accredited
PA	Chestnut Hill College	Philadelphia	Department of Professional Psychology	Accredited
PA	La Salle University	Philadelphia	Department of Psychology	Accredited
PA	Marywood University	Scranton	Department of Psychology and Counseling	Accredited
PA	Duquesne University	Pittsburgh	Department of Psychology	Accredited
PA	Widener University	Chester	School of Human Service Professions	Accredited
PA	Pennsylvania State University	University Park	Department of Psychology, Ph.D. Program	Accredited
PA	University of Pennsylvania	Philadelphia	Department of Psychology	Accredited
PA	University of Pittsburgh	Pittsburgh	Department of Psychology	Accredited
PA	Temple University	Philadelphia	Department of Psychology	Accredited
PR	Carlos Albizu University, San Juan Campus	San Juan	San Juan Campus	Accredited
PR	Ponce Health Sciences University	Ponce	Clinical Psychology Doctoral Program	Accredited
PR	Ponce Health Sciences University	Ponce	Clinical Psychology Doctoral Program	Accredited
PR	Carlos Albizu University, San Juan Campus	San Juan	Psy.D. Program, San Juan Campus	Accredited
RI	University of Rhode Island	Kingston	Department of Psychology, Ph.D. Program	Accredited

SC	University of South Carolina	Columbia	Department of Psychology	Accredited
SD	The University of South Dakota	Vermillion	Clinical Psychology Program/ Department of Psychology	Accredited
TN	Vanderbilt University	Nashville	Dept. of Psychology & Human Development and Dept. of Psychology	Accredited
TN	The University of Memphis	Memphis	Department of Psychology, Ph.D. Program	Accredited
TN	University of Tennessee - Knoxville	Knoxville	Department of Psychology, Ph.D. Program	Accredited
TN	East Tennessee State University	Johnson City	Department of Psychology	Accredited
TX	Sam Houston State University	Huntsville	Department of Psychology and Philosophy	Accredited
TX	Southern Methodist University	Dallas	Psychology Department	Accredited
TX	University of North Texas	Denton	Department of Psychology	Accredited
TX	Baylor University	Waco	Department of Psychology	Accredited
TX	University of Houston	Houston	Department of Psychology, Ph.D. Program	Accredited
TX	Texas A&M University	College Station	Department of Psychology, Ph.D. Program	Accredited
TX	University of Texas at Austin	Austin	Department of Psychology, Ph.D. Program	Accredited
TX	Texas Tech University	Lubbock	Department of Psychological Sciences	Accredited
TX	University of Texas Southwestern Medical Center	Dallas	Department of Psychiatry/Division of Psychology	Accredited
UT	Brigham Young University	Provo	Clinical Psychology / Department of Psychology	Accredited
UT	University of Utah	Salt Lake City	Department of Psychology	Accredited

VA	George Mason University	Fairfax	Department of Psychology	Accredited
VA	Virginia Commonwealth University	Richmond	Department of Psychology	Accredited
VA	Virginia Polytechnic Institute and State University	Blacksburg	Clinical Science / Department of Psychology	Accredited
VA	University of Virginia	Charlottesville	Department of Psychology	Accredited
VA	American School of Professional Psychology at Argosy University, Washington, DC	Arlington	Clinical Psychology Programs	Accredited
VA	Regent University	Virginia Beach	School of Psychology and Counseling	Accredited
VA	Virginia Consortium Program in Clinical Psychology	Norfolk	Virginia Consortium Program	Accredited
VA	Divine Mercy University	Arlington	The Institute for the Psychological Sciences	Accredited
VT	University of Vermont	Burlington	Department of Psychology, Ph.D. Program	Accredited
WA	Washington State University	Pullman	Department of Psychology, Ph.D. Program	Accredited
WA	University of Washington	Seattle	Department of Psychology	Accredited
WA	Seattle Pacific University	Seattle	Clinical Psychology Department	Accredited
WI	Marquette University	Milwaukee	Department of Psychology	Accredited
WI	Wisconsin School of Professional Psychology	Milwaukee	Wisconsin School of Professional Psychology	Accredited
WI	University of Wisconsin, Madison	Madison	Department of Psychology	Accredited
WI	University of Wisconsin, Milwaukee	Milwaukee	Department of Psychology, Ph.D. Program	Accredited
WV	West Virginia University	Morgantown	Department of Psychology	Accredited

WV	Marshall University	Huntington	Department of Psychology	Accredited
WY	University of Wyoming	Laramie	Department of Psychology, Ph.D. Program	Accredited

Appendix N. Institutional Review Board Approval Letter



(907) 474-7800
(907) 474-5444 fax
uaf-irb@alaska.edu
www.uaf.edu/irb

Institutional Review Board

909 N. Koyukuk Dr. Suite 212, P.O. Box 757270, Fairbanks, Alaska 99775-7270

April 3, 2017

To: Kendra Campbell, Ph.D.
Principal Investigator

From: University of Alaska Fairbanks IRB

Re: [1052818-2] The Looking Glass Effect: The Influences of Clinical Supervision on Student Attitudes towards Evidence Based Practices

Thank you for submitting the Response/Follow-Up referenced below. The submission was handled by Expedited Review under the requirements of 45 CFR 46.110, which identifies the categories of research eligible for expedited review.


Title:	The Looking Glass Effect: The Influences of Clinical Supervision on Student Attitudes towards Evidence Based Practices
Received:	April 2, 2017
Expedited Category:	7
Action:	APPROVED
Effective Date:	April 3, 2017
Expiration Date:	April 3, 2018

This action is included on the April 5, 2017 IRB Agenda.

No changes may be made to this project without the prior review and approval of the IRB. This includes, but is not limited to, changes in research scope, research tools, consent documents, personnel, or record storage location.

Appendix O. Permission to use CRF-S.

Request to use Counselor Rating Form-Short Version  Inbox x   

 **Hugh Leonard** <hleonard@alaska.edu> Feb 3 ☆  

to corrigan.1 ▾

Hello Dr. Corrigan,

My name is Hugh Leonard and I am third year doctoral student in the APA-accredited Ph.D. Program in Clinical-Community Psychology jointly offered by the University of Alaska Fairbanks and the University of Alaska Anchorage.

I am interested in using the **CRF-S** for my dissertation and am inquiring about how to obtain your permission for use. Thank you for your time.

Sincerely,
Hugh



 **John Corrigan** <johncorrigan1@me.com> Feb 4 ☆  

to me ▾

Dear Hugh,

You have our permission to use the Counselor Rating Form--Short version (**CRF-S**) in your dissertation. Attached is a copy of the **CRF-S** and a description of its scoring. There is no fee for use, and you can make as many copies as needed for your use. We only ask that no changes be made to the item content or their structure and that proper citation be given in published work.

Good luck with your dissertation.

John Corrigan

Appendix P. Permission to use S-WAI.

Request to use Supervisory Working Alliance Inventory Inbox x

 **Hugh Leonard** <hleonard@alaska.edu> Feb 3 ☆ ↩ ▾

to carolanne.kard. ▾

Hello Dr. Kardash,

My name is Hugh Leonard and I am third year doctoral student in the APA-accredited Ph.D. Program in Clinical-Community Psychology jointly offered by the University of Alaska Fairbanks and the University of Alaska Anchorage.

I am interested in using the **SWAI** for my dissertation and am inquiring about how to obtain your permission for use. Thank you for your time.

Sincerely,
Hugh

...

 **Carolanne Kardash** <carolanne.kardash@unlv.edu> Feb 3 ☆ ↩ ▾

to me ▾

Hi Hugh-

You have my permission to use the **SWAI**.

Good luck with your work!

...