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Effects of Adaptive Expertise on Counseling Self-Efficacy: The Mediating Role of Adaptive Performance

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Abstract

Counseling and psychotherapy expertise research have been focused on three major areas, namely, characterization of Master Therapists, performance of Healing Involvement, and application of Deliberate Practice. The constructs of adaptive expertise and adaptive performance have never been investigated in the context of counseling or psychotherapy. Therefore, the purpose of this study is to examine the relevance of adaptive expertise in psychotherapy by studying the relationships between adaptive expertise, adaptive performance, and counseling self-efficacy. A total of 460 psychotherapy practitioners from a variety of disciplines and experiences participated in the study, and they included counseling, psychology, social work, and others with experience ranging from 1-48 years. Results reveal that adaptive expertise was associated with counseling self-efficacy, and adaptive performance mediated such interaction. Additionally, practitioners whose work environments encouraged them to step out of their comfort zone and explore alternative ways to work with clients had higher levels of adaptive expertise, adaptive performance, and self-efficacy compared to those who worked at a more restricted environment. Implications of these findings for counselor training, supervision, and professional development are discussed.

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CHAPTER ONE: INTRODUCTION

According to Norcross & Karpiak (2017), counseling and psychotherapy expertise remains an urgent topic for researchers due to its implications in practice, education, training, and professional development. Indeed, practitioners, researchers, and educators in counseling and psychology fields have endeavored to understand the components that contribute to the effectiveness of psychotherapy practice, and such understanding can then impact the education curriculum design, provide guidance in student training, internship and supervision, and influence individual practitioners in navigating their professional development paths. For the purposes of this dissertation, psychotherapy, counseling, therapeutic or clinical expertise will be used interchangeably, mirroring terms found in the corresponding literature.

While master level counselor education programs provide foundational knowledge and skills to prepare students to become future counselors, researchers have shown that didactic educational activities alone do not lead to sustained practitioner performance or enhanced client outcomes across time (Ravitz & Silver, 2004). Instead, the authors found that longitudinal learning activities centered on practitioner's active engagement in case-based learning processes tended to facilitate sustained growth and development. In other words, competency and expertise development is most effective when practitioners engage in self-directed lifelong learning that is centered on overcoming challenges encountered while working with clients. Although post-graduate professional development is not the primary focus of counselor education, it would be of great benefit to the students, the clients, and the field of mental health if counselors recognize the significance of lifelong learning and know how to engage in their own

development proactively (Rønnestad et al., 2019). Therefore, counselor educators should strive to impart content knowledge of counseling in an educational setting, and the process and skills required to facilitate students' development as lifelong learners and competent professionals.

Although the implications of expertise in mental health counseling and psychotherapy are profound, research in this area has been challenged by the definition and constitution of psychotherapy expertise. This review of the literature presents the three main approaches for conceptualizing psychotherapy expertise: characteristics, performance, or outcome of the expert practitioners. First, expertise is identified by the characterizations of the internal and external attributes of the *Master Therapists* (Shovholt & Jennings, 2004). Alternately, expertise has been examined through experienced therapists' performance, including their behaviors and how they engage with clients, known as *Healing Involvement* (Rønnestad et al., 2019). Finally, researchers anchored in the outcome-based definition of expertise are primarily concerned with assessments and are typically champions of the *Deliberate Practice* approach of expertise development (Chow et al., 2015; Miller et al., 2018). Although characteristics, performance, and outcome are all significant components of expert therapists (Rønnestad, 2016), studies so far are mostly focused on end-point analyses of the therapists themselves with little to no investigation of the underlying mechanism of what makes expert psychotherapists. Therefore, each of these schools of thought will be expounded upon in this review of the literature to contextualize adaptive expertise, the framework for psychotherapy expertise investigated in this study.

With appreciation to the current trends of research, this study attempts to examine psychotherapy expertise from the lens of theory and principle, and proposes that the construct of "adaptive expertise" is most relevant to the conceptualization of psychotherapy expertise development. Adaptive expertise is defined as the ability to apply prior knowledge to novel or unfamiliar situations, which is distinct from the "traditional" definition of expertise that is concerned with becoming more efficient while performing familiar tasks (Brophy et al., 2004). Although adaptive expertise has been well established for several professions (e.g., engineers, physicians, and teachers), to my knowledge it has never been investigated in the context of psychotherapy practice. Therefore, the current study will build upon research on adaptive expertise from other disciplines and seek to establish adaptive expertise as a useful and relevant construct in the field of psychotherapy. Once established, the adaptive expertise framework may have significant implications for counselor education, including pedagogy and practice in core and clinical courses.

Before diving into adaptive expertise, the three schools of psychotherapy expertise research will be reviewed at high level to provide context and identify mechanistic gaps of the current psychotherapy expertise research effort. In-depth discussion of adaptive expertise and adaptive performance will follow to provide a conceptual argument of their relevance to psychotherapy, where adaptive performance characterizes the behavioral manifestation of the latent adaptive expertise construct. In addition, counseling self-efficacy will be introduced and interweaved with adaptive expertise and adaptive performance to establish the rationale for investigating the

relationships between adaptive expertise, adaptive performance, and counseling self-efficacy.

Current Psychotherapy Expertise Research

Currently psychotherapy expertise research is dominated by three different perspectives, which are also driving the study approaches and interpretations of the results. They include characteristics-, performance-, or outcomes-based approach.

Characteristics: Master Therapists

The characteristics school of thought focuses on the study of Master Therapists, where the definition and identification of these therapists are based solely on their reputations as being expert clinicians (Ronnestad, 2016; Skovholt & Jennings, 2004).

Using qualitative research methods, Jennings and Skovholt (1999) interviewed 10 peer-nominated master therapists where they revealed three main themes of cognitive, emotional, and relational domains and accompanying subthemes. In the cognitive domain, it was found that Master Therapists were voracious learners, relied on their accumulated experiences as major resources, and valued cognitive complexity and the uncertainty of the work. The findings in the emotional domain suggested that the mater therapists were self-aware, reflective, and possessed openness to feedback; mature and mentally healthy who attended to their own wellbeing; and keenly aware that working through their own emotional challenges should be the priority. On the relational domain, it was found that Master Therapists believed working alliance was the foundation of change, and that they possessed exceptional interpersonal skills.

In addition to the cognitive, emotional, and relational characteristics identified above, Skovholt and Jennings (2004) also uncovered a set of “paradox characteristics”

that represented the internal contradictions of the experts. Selected examples include: having the drive to mastery AND feeling they never arrive, voracious learner of broad subjects AND narrowly focused and in-depth scholar, solitude-oriented AND being able to engage deeply with others, ability to create a safe environment for the client AND ability to create a challenging environment for the client, and integration of the personal and professional self AND having clear boundary between the personal and professional self.

To sum up their decades of scholarship on Master Therapists, Jennings and Skovholt (2016) conducted a meta-analysis of their seven studies and derived three meta-domains of learning, therapy, and humility that reiterated most of their earlier findings discussed above. Despite their voluminous work, the overwhelming critique of Skovholt and Jennings's work is that they rest the identification of psychotherapist experts on peer-nomination (Hill, 2017; Ronnestad, 2016), which implies that their definition of expertise is based solely on reputation with no external measure such as client outcome to support such claim. While this is a point of contention amongst different schools of researchers, Rønnestad (2016) conveyed that researchers should not confuse the search of experts with the performance and outcome of their day-to-day conduct and behaviors. Although imperfect, Rønnestad viewed reputation as a useful search tool to examine other dimensions of expertise, such as client outcome.

Performance: Healing Involvement

Framed within the context of professional development, the second set of psychotherapy expertise research is focused on understanding what therapists do and how they engage with clients. Known as Healing Involvement (Ronnestad et al., 2019), these

studies are affiliated with an international organization founded by Orlinsky and colleagues to try to understand therapists' long-term development trajectories (Orlinsky & Rønnestad, 2005). Research on Healing Involvement is advanced by the Society for Psychotherapy Research Collaborative Research Network (SPR/CRN), which is composed of over 12,000 psychotherapists of diverse professions, theoretical orientations, nationalities, cultural background, and career levels (Rønnestad et al., 2019). One of the significant contributions of the SPR/CRN was the development of a 392-item instrument to resemble peer interviews with the intention to assimilate participant's professional development, their experiences of the development, as well as a number of personal and professional characteristics (Orlinsky et al., 1999). Some of the findings are summarized below.

How psychotherapists engaged with their clients and their work can be characterized as Healing Involvement and Stressful Involvement. Healing Involvement describes therapists' self-reported experiences of feeling personally invested, committed, and engaged with clients; being efficacious, organized, and effective in handling relational challenges; affirming, accepting and accommodating client's needs; being highly skilled and experiencing flow while working with clients; and using constructive coping strategies when dealing with difficulties (Rønnestad et al., 2019). Duncan (2011) summarized Healing Involvement as the representation of our best self, when therapists were in sync with clients and sensing positive shifts toward wellbeing were within reach.

Research showed that three key factors predicted Healing Involvement, which included the breadth of theoretical orientation, case experiences across different modalities, and positive work environment (Rønnestad et al., 2019). The therapist's

breadth of theoretical orientation implied that they were able to conceptualize clients from multiple therapeutic frameworks, and had an abundance of resources, techniques, and skills to work effectively and flexibly in response to the challenges of clinical work. In terms of case experiences across various formats such as individual, group, and couple's therapies, the authors found that case experiences intertwined with the breadth of theoretical orientation and enhanced the therapist's ability to respond flexibly and competently. To cultivate development of Healing Involvement required a positive environment that supported and encouraged therapist's learning and growth. Recent work by Evers et al. (2019) involving 184 psychotherapy trainees over the period of three years confirmed previous observations that training context such as relationships with supervisor and breadth of theoretical orientation were key predictors of Healing Involvement.

As opposed to Healing Involvement, Stressful Involvement can be defined as therapists' experiences of regular challenges within their practices, incomplete resolution of difficult cases, and non-productive coping skills (Orlinsky & Rønnestad, 2005). In addition, the authors found that Stressful Involvement was predicted by dissatisfactions with work and work environment, and feelings of demoralization. Delving deeper into the predictors of stressful involvement, Zeeck et al. (2012) studied 26 therapists and 98 clients with consecutive sessions found that stressful involvement was strongly associated with therapists' own negative feelings about their clients and about their work overall. Specifically, therapists describing themselves as submissive and avoidant in social situations were found to be more prone to experiencing stressful involvement with their clients. The aggregated data seem to suggest that, as opposed to Healing Involvement,

stressful involvement is strongly associated with individual attributes, and external factors do not contribute significantly to its development.

In summary, Healing Involvement appears to represent therapists' best self where practitioners experience flow, deep engagement with the clients, and a sense of efficacy. Depth and breadth of theoretical orientations and case experiences brought on by continuous learning and growth are strong predictors of practitioners' Healing Involvement engagement style. However, Healing Involvement is not correlative to experience alone, which suggests that experience without growth will not lead to expert performance, and only through continuous growth and development could one achieve Healing Involvement.

Outcome: Assessment and Deliberate Practice

Outcome-based expertise research has garnered the most attention in psychotherapy, potentially due to its association with Ericsson's expertise research for the last three decades. Made famous by *The New York Times* best seller, *Outliers* (Gladwell, 2008), Ericsson's research of Deliberate Practice and prolonged engagement defined the keys to superior performance and the essence of expertise in the fields of chess, music, sports, and others (Ericsson, 2009). The representation of expertise in these contexts can be viewed as "routine expertise," which is focused on becoming more efficient with faster response time while performing routine tasks. Bringing this framework into psychotherapy context, "routine tasks" are most applicable and easily measured while novice practitioners are acquiring basic counseling skills. As a result, the majority of the studies regarding Deliberate Practice in psychotherapy were conducted with practitioners-in-training with focus on basic counseling skills.

Initial outcome study by Chow et al. (2015) examined 69 therapists and 4,580 clients, and results indicated that therapist effects only explained 5.1% of the variance in outcome. In addition, they found that therapist's experience, age, and degree status did not significantly predict client reported outcome, whereas the amount of time devoted to improving therapeutic skills did. Furthermore, a study by Goldberg et al. (2016b) showed that although clients collectively improved over time, therapists' experience decreased their effectiveness as a function of time and cases. Collectively, these studies suggested that practice-as-usual might not be sufficient in deriving better client outcome, and focused improvement of psychotherapy skills such as Deliberate Practice might be more effective.

Extrapolating from Erik Ericsson's studies of chess players, musicians, and sports performance (Ericsson, 2003, 2006, 2009), Deliberate Practice in psychotherapy can take many forms. From the perspective of process, Deliberate Practice can be defined in five successive steps that also required continued cycle of repetition (Miller et al., 2018; Rousmaniere 2016). They include (a) observing clinical sessions via videotape, (b) soliciting expert feedback from supervisor, coach, or consultant, (c) establishing small incremental goals that are achievable, (d) practicing specific skills or repeating behavior rehearsal, and (e) systematically assessing performance through client-reported outcome. In essence, Deliberate Practice is a method of targeted improvement of therapeutic skills in areas of notable deficiencies. There is no limit to the variety and components of what skills to practice. However, Chow et al. (2015) found that some of the more effective practice included reviewing difficult cases and reflecting on areas of improvement, and

Rousmaniere (2016) provided a step-by-step sample approach to improve attunement with client.

Can Deliberate Practice improve therapist performance? The only study to date focusing on addressing this question was conducted by Goldberg et al. (2016a). A total of 5,128 clients and 153 therapists at various levels of training were included with an average of 4.42 years of data collected at an agency. This agency had adopted a Partners for Change Outcome Management System (PCOMS; Miller et al., 2005) model of case review and consultation, which incorporated client feedback, outcome, and Deliberate Practice to facilitate improvement in therapeutic alliance. Results indicated that client outcome improved over time at the agency level with $d = 0.035$ ($p = 0.003$) per year. Similarly, individual therapists within the program also demonstrated better client outcome on a yearly basis ($d = 0.034$, $p = 0.042$). The marginal effect size did not go unnoticed, and it is not clear whether it can translate to meaningful clinical functioning in the client population. It is also unclear whether the observed improvement was stemming from Deliberate Practice since greater than 85% of participating clinicians were either provisional professionals or practicum students, and it was possible that they were experiencing growth regardless of the type of practice being implemented. Although proponents of Deliberate Practice continue to cite this study as evidence of efficacy, based on the data to date, it is a far reach to conclude that engaging solely in Deliberate Practice can lead to improved client outcome and achieve psychotherapy expertise.

Summary and Reflection of Current Psychotherapy Expertise Research

Although each of the three aforementioned approaches enriches our understanding of psychotherapy expertise, they do not fully explain the totality of how to become an

expert practitioner. For example, both Master Therapists and Healing Involvement approaches are end-point analyses that describe the characteristics and how they engage with clients when they attain expertise. However, neither approach provides mechanistic explanations of how the expert attributes were developed. In addition, although Deliberate Practice offers a process for practitioners to follow, according to the original definition, the main goal of repeated practice was to increase efficiency so individuals could form quick judgment and take immediate actions during one's day-to-day activities (Lehmann & Ericsson, 1996). Superimposing this definition in the context of psychotherapy, it appears that other than the basic skills, the clinical work of a therapist requires more deliberate thinking, metacognitive engagement, and cognitive flexibility for problem-solving and decision-making than concerns with efficiency. In fact, efficiency is conceptually linked to the reactive practice-as-usual type of approach, which had been shown to produce experienced non-experts (Croskerry, 2018). Therefore, although it is generally recognized that practice is important in enhancing specific skills in any field, including psychotherapy, there is still an unexplained gap between skill proficiency and cognitive flexibility.

To bridge the gaps and considerations identified above, this study proposes the examination of psychotherapy expertise from the perspective of adaptive expertise. The hypothesis is that the application of adaptive expertise framework may aid the understanding of what therapists do and how therapists need to develop to achieve the type of expertise above and beyond what can be achieved through Deliberate Practice. Therefore, the following sections of this literature review will introduce the concept and definition of adaptive expertise, review key components and their applications in relevant

fields, make references to the existing psychotherapy expertise literature to establish the connections of adaptive expertise in psychotherapy contexts, and describe the model of adaptive expertise development. In addition, outcomes of adaptive expertise known as adaptive performance will also be discussed to further delineate the outward expressions of adaptive expertise. Furthermore, since self-efficacy has been shown to associate with adaptive expertise and expertise in general (Carbonell et al., 2014), counseling specific self-efficacy will be reviewed. In summary, this study proposes the exploration of psychotherapy expertise from the perspectives of adaptive expertise, adaptive performance, and counseling self-efficacy with the intent to understand the interrelationships between the three variables.

Adaptive Expertise

Context of Change

The concept of adaptive expertise was popularized in the last two decades due to the recognition of the changing global environment, increased job complexity, the need for extensive domain knowledge, and the enhanced task-associated volatility (Carbonell et al., 2014). Particularly in the context of professionals, being excellent in one aspect of an individual's work is no longer sufficient, and employees are expected to not only adapt to changes within their domains, they are also required to learn laterally and transfer knowledge to adjacent fields in order to meet new demands (Van der Heijden, 2002). This defines the essence of adaptive expertise (Carbonell et al., 2014), and the "change" described above can be characterized as advancement or movement in the macro-systems. Adaptive expertise in this context can be defined as how individuals respond to

the changes in their respective industries and companies, and how they adapt to their new responsibilities, roles, or tasks.

However, the framework of adaptive expertise is also relevant in the context of micro-system as evidenced by the applications of adaptive expertise in special education teachers and medical doctors (De Arment et al., 2013; Mylopoulos & Scardamalia, 2008). In the case of a special education teacher, "change" is defined as adjustment based on different students' needs, that could include assessments, teaching methods, and treatment approaches to name a few, all of which require intentional adjustments on a moment-to-moment basis.

Similarly, psychotherapy practice involves adaptivity in both the macro- and the micro- systems with the most recent example of Covid-19 pandemic (macrosystem) that required agility to conduct counseling online (Humer & Probst, 2020). In addition, psychotherapists interact with clients similarly to that of special education teachers and doctors in the sense that practitioners are expected to respond adaptively to individual clients' needs, use knowledge fluidly in client conceptualization, assessment, and treatment, convey openness and acceptance to diverse cultural background, and exhibit relational flexibility with each client. In essence, psychotherapist's adaptive expertise is measured by nuanced, session-by-session flexibility with vast repertoire of in-depth knowledge to be able to respond with immediacy and competence. With these understandings in mind, the following sections review the various aspects of adaptive expertise that are most pertinent to the context of psychotherapy.

Definition and Components of Adaptive Expertise

First described by Hatano and Inagaki (1986), adaptive expertise was distinguished from the better-known routine expertise by way of their applications. In routine expertise, individuals are trained to become increasingly better at performing some specific skills in response to familiar challenges where efficiency is the ultimate outcome (Bransford et al., 2005a; Inagaki & Miyake, 2007). Efficiency in this case, refers to the increased speed, consistency, and automaticity in response to all elements of a task or cue regardless of its complexity or degree of difficulty. Therefore, routine expertise can include simple production activities such as hamburger assembling in a fast-food restaurant, or complex operations such as performing appendicitis surgery (Paletz et al., 2013). Routine expertise allows individuals to perform consistently in stable environments, and it involves application of domain-specific knowledge and strategies to familiar situations including customary problems.

Indeed, traditional research on expertise frequently associates expert performance with information-based pattern recognition, that includes fast information retrieval with minimal attentional effort, automatized performance with increased speed and efficiency, and the deeper integration of domain-specific knowledge (Crawford et al., 2005). Although such performance adequately distinguishes experts from non-experts, research shows that with increased consistency and efficiency, flexibility is frequently overlooked. For example, when unfamiliar situations arise, some experts have the tendency to view new problems from their existing domain knowledge instead of wondering whether their content-based knowledge is adequate in addressing the new problems at hand. The lack of cognitive flexibility and metacognitive skills frequently result in misconceptions or inferior performance such as misdiagnosis in medical settings (Royce et al., 2019).

Therefore, expertise defined in the traditional sense is typically associated with routine expertise, and routine expertise can be limited by biased, inflexible, and overconfident in their domains (Crawford & Brophy, 2006; De Arment et al., 2013). Dane (2010) applied a cognitive entrenchment model to postulate such phenomenon as individual having a high level of stability in one's domain schema and inappropriately applying familiar strategies to novel situations. Therefore, routine experts may be overly invested in what they already know, and in the process, sacrifice flexibility and creativity when dealing with new and unfamiliar problems.

On the other hand, adaptive expertise is defined as the ability to apply prior experiences and knowledge to novel situations where key information or procedure is missing (Hatano & Inagaki, 1986; Pierrakos et al., 2016). Individuals with adaptive expertise are found to be efficient *in addition to* being flexible and innovative. Bransford et al. (2005b) defined adaptive expertise as a balance between routine and innovative expertise with an "optimal adaptability corridor." Cutrer et al. (2016) expanded Bransford's concept into medical students' training and designated novice, routine clinical expertise, creative exploration, and adaptive expertise in the continuum of the optimal adaptability corridor (Figure 1).

In addition to the balance of efficiency and innovation, there are numerous dimensions that distinguish routine and adaptive expertise. Below summarizes the more frequently cited characteristics of adaptive expertise, including metacognitive skills, flexible utilization of domain-specific knowledge and its representation, problem-solving capability, and a disposition toward learning (De Arment et al, 2013; Carbonell et al. 2014).

Metacognitive Skills

Metacognition refers to the ability to think about one's thoughts, that includes metacognitive knowledge (what one knows), metacognitive skill (what one is doing), and metacognitive experience (notice one's cognitive and affective state; Hacker, 1998). It is positively correlated to effective learning, and has been linked to the development of expertise in counseling (Ridley et al., 2011; Skovholt & Ronnestad, 2003).

To achieve the balance between efficiency and innovation, Bransford et al. (2005b) observed that individuals with adaptive expertise had heightened sensitivity in considering the advantages and disadvantages along the efficiency and innovation equation. That is, they tend to use their metacognitive skills to observe problems, know the limitations of their knowledge and ability, select learning to bridge their knowledge gaps, and weigh the adequacy between efficiency and innovation. In essence, they are inclined to utilize their metacognitive skills to assess their own thinking and comprehension while engaging in the process of solving problems. Kozlowski et al. (2001) further emphasized the importance of metacognition in configuring new procedures that depart from existing skills and knowledge, particularly when the tasks involve effortful searching and establishing alternative solutions.

Domain Knowledge Representation

Domain knowledge is the combination of declarative, procedural, and conditional knowledge, which gives rise to the know-what, know-how, and know-when and -where information necessary in order to perform in a specific domain (Alexander, 1992). Domain knowledge is essential for any individual to perform in one's field. However, experts and novices have different knowledge representation regarding the extent of the

knowledge, how the knowledge is organized, and degree of abstraction and consolidation, all of which influenced information retrieval and problem-solving capabilities (Carbonell et al. 2014). Adaptive experts were found to have extensive domain knowledge organized in an abstract format that is not context dependent. As a result, they are able to flexibly employ multiple perspectives when encountering unfamiliar problems, and this capability was attributed to the de-contextualization and abstraction of their prior learning to make knowledge more applicable to new situations.

Analogical Problem-Solving Capability

One of the profound characteristics of adaptive expertise is embedded in an individual's ability to solve problems when encountering challenges in new situations. Lin et al. (2005) described adaptive expertise as "higher order problem-solving involving knowledge transfer across disciplines." They postulated that adaptive experts were able to examine problems from multiple disciplines and perspectives, and either modify their existing procedural skills or create new procedures. In their meta-study, Carbonell et al. (2014) also observed that adaptive experts were able to conceive problems in a way that similar situations in other domains could be used to solve new problems across domains. The authors referred this capability as analogical problem-solving skills. In addition, the authors noted that the analogical problem-solving skills were linked to principle-based reasoning that held true to multiple domains. These types of reasoning are sometimes referred to as analytical skills, inductive reasoning skills, or abstract reasoning skills. Therefore, Carbonell et al. (2014) concluded that adaptive expertise was associated with analogical problem-solving and abstract reasoning skills.

Disposition toward Learning

Adaptive experts have been conceptualized as individuals who enjoy challenges and have a systematic understanding about themselves as learners and problem solvers (De Arment et al., 2013). To embody these understanding of themselves, adaptive experts have also been characterized as people who are curious, enjoy asking questions, utilize deep learning that promotes understanding instead of memorizing, and possess intrinsic motivation for intellectual activities including learning (Cutrer, 2018; De Arment, 2013). Therefore, adaptive experts tend to engage in learning activities primarily to satisfy their own proclivity for curiosity and problem-solving more so than for the purpose of improving their performance.

Mechanism for the Development of Adaptive Expertise

Contributing Factors

Several scholars have investigated the factors that contribute to the development of adaptive expertise. Based on research across different professions, Kua et al. (2021) summarized the development of adaptive expertise from the perspectives of disposition, enabling, and reinforcing factors. Disposition factors involve intrinsic motivation and attitudes that perpetuate an individual toward learning, openness to diverse perspectives, exercising cognitive flexibility, embracing complexity and novelty, and a need for in-depth understanding of issues. These personal factors influence how one adapts in different situations and will be elaborated upon in the discussion of Adaptive Performance below.

Enabling factors concern the skills and resources that can be acquired, and the social and physical environments that support such acquisition. Studies in organizations have found that team climate and supervisors with high tolerance of mistakes, openness

to new ideas, and expectations of accountability correlated positively with adaptive expertise (Han & Williams, 2008). In addition, organizations with this type of team environment are more likely to provide training and other resources to encourage skill development.

Lastly, reinforcing factors entail intentional practice of the skills, which is facilitated by feedback from mentors, customers, and clients (Kua et al., 2021). Reinforcing factors bear significant resemblance to Deliberate Practice discussed in the previous section where client and mentor's feedback in conjunction with solo practice are integral components to the improvement of specific counseling skills (Miller et al., 2005). This recognition provides the conceptual link between Deliberate Practice and adaptive expertise, which positions the role of Deliberate Practice as one of the components of the overall expertise development framework instead of a stand along practice to achieve mastery in psychotherapy.

Model of Development

To understand the mechanism underlying adaptive expertise acquisition, Croskerry adopted Kahneman's dual process decision-making model and applied it in the description of clinical reasoning (Corskerry, 2009; Kahneman, 2011; Taylor, 2016). The dual process theory involves system 1, the intuitive and automatic judgment; and system 2, the effortful cognitive reasoning. System 1 is characterized by associative heuristics that engage our cognition passively but is able to respond or form judgment quickly without attentional effort. It can be acquired through repeated exposure to similar situations, which frequently is associated with the outcome of training and accumulation of experience. On the other hand, system 2 processing involves high cognitive load and

attentional control, low capacity and slow responding time (Corskerry, 2009). Employment of system 2 processing is likely associated with individual dispositions, such as the tendency for curiosity and the propensity toward problem-solving and learning.

Although system 1 and system 2 integrate seamlessly in task performance and decision-making processes, according to Corskerry (2018), routine expertise involves primarily system 1 processing where pattern recognition and efficiency of responses are most likely at play. To achieve adaptive expertise, exposure to unfamiliar or challenging situations can provide opportunities for individuals to slow down their responses, reflect on the options, engage in learning, and generate novel solutions, all of which involve system 2 processes. By way of engaging system 2 and working through a new challenge, the process of problem-solving and knowledge expansion allows the individual to become familiar with the situation, and when a similar situation occurs, it can be treated as known entity and activate system 1 responses (Kua et al., 2021; Stanovich, 2004). Although a one-time exposure would only make the new situation seem familiar, repetitive processing by system 2 coupled with Deliberate Practice of the new skills can ultimately integrate the new learning into system 1. This process can be applied to a single activity such as the counseling skills of paraphrasing and summarizing, or can be used in situations where new theoretical orientations are needed to conceptualize and provide treatment strategies to unfamiliar client presentations. Therefore, to expand and refine an individual's adaptive expertise, continuous system 2 to system 1 knowledge transfer is essential.

Croskerry (2018) formulated a model depicting the progressive development of adaptive expertise in medical decision making, which is shown in Figure 2. The development of expertise inevitably starts with encountering a problem that is either familiar or unfamiliar to the clinician. If it is familiar, the clinician engages in system 1 processing, and if the situation does not have a recognizable pattern, system 2 will be engaged. Within trajectory A, novices engage in initial trainings that utilize system 2, and in time, they accumulate more experiences and gradually integrate skills and knowledge into system 1. Progression within this path enables beginners to become advanced beginners, and if they are passive learners with minimal reflection nor insight, they become experienced non-experts (Croskerry, 2018). Passive clinicians who do not feel the need to engage in learning will experience minimal development where they may remain as experienced non-experts over time (Croskerry, 2018). On the other hand, clinicians who actively engaged with clinical work are likely to progress in their capabilities and competencies, and obtain a level of mastery and efficiency in their daily work. They represent the routine experts as depicted in Figure 2 (B). However, if clinicians possess the dispositions of adaptive experts who seek out unfamiliar cases, accumulate experience with many presentations of disease, and adopting innovative approaches toward novel cases, they are progressing beyond the bound of routine expertise and on the path to become adaptive experts (Figure 2 (C)). The characteristics of adaptive expertise development echo that of Healing Involvement described by Rønnestad et al. (2019) discussed earlier, where Healing Involvement is correlative with breadth of theoretical orientation and case experiences across modalities. This connection implies the applicability of adaptive expertise framework in psychotherapist's

professional development process, which will be further examined in the following section.

Connecting Psychotherapy Expertise with Adaptive Expertise

Since the construct of adaptive expertise is anchored in cognitive flexibility, metacognition, and problem-solving capabilities when unfamiliar challenges arise, it has been broadly implicated in a number of fields where such skills are crucial for sustainable performance. Since adaptive expertise has not been studied in psychotherapy previously, reviewing articles from adjacent fields may lend support to the relevance of adaptive expertise in psychotherapy practice. As mentioned earlier, teachers and medical doctors, similar to psychotherapists, require nuanced adaptation on a student-by-student or patient-by-patient basis. Therefore, inference can be drawn from these studies while exploring potential application of adaptive expertise in psychotherapy practice.

The relevance of adaptive expertise in medical doctors' daily practice is exemplified by the ambiguity they encounter not only due to the constantly changing medial practice, but also the complexity of analyzing and diagnosing medical conditions (Cutrer et al., 2017). While every patient presents a unique challenge, developing adaptive expertise that fosters openness to reflect on practice, meta-reasoning skills, and critical thinking skills to challenge one's own assumptions will prepare medical students better in meeting the demands of their future practices. Additionally, literature on health professional education indicated that diagnostic errors contributed up to 70% of medical errors, where traditional approaches of training healthcare professionals typically emphasized acquisition of content-specific knowledge while overlooking flexible use of the knowledge (Royce et al., 2019; Mylopoulos, 2020). As a result, it was proposed that

integrating critical thinking and adaptive expertise framework in medical education might facilitate the reduction in medical misdiagnosis and minimize errors in clinical decision-making.

Similarly for teachers, De Arment et al. (2013) indicated that the roles of special education teachers are diverse and context-dependent, as they are not only expected to apply pedagogical knowledge in the general curriculum but are also required to adjust their instruction and collaborations in different environments with students and their families, and with general education teachers and administrators. In addition, Chen et al. (2021) described the need for adaptive expertise among special education teachers since serving students with emotional and behavioral difficulties requires carefully tailored interventions that involve teacher's complex problem-solving skills, metacognitive reflection, and agility in adjusting strategies when existing protocols are not able to meet the students' needs. Applying the adaptive expertise framework, the authors were able to establish an intervention practice that incorporated understanding of the unique problems, selection and development of practice elements, and implementation and modification of practices based on ongoing observation, reflection, and student response.

Likewise, the clinical work of psychotherapy and counseling can be characterized as ambiguous, uncertain, complex, and at times, ladened with value conflicts (Willemsen, 2022). Indeed, psychotherapy practitioners' interactions with clients require many of the similar skills as those of the physicians and special education teachers, including (1) in-depth domain knowledge; (2) complex problem-solving skills involving judging what the right questions to ask in order to facilitate client conceptualization; (3) metacognitive skills to examine and reflect on one's own perceptions, values, and biases; (4) cognitive

flexibility for clinical reasoning that involves the selection, implementation, and changing the treatment strategies; (5) the agility to adapt interpersonally, culturally, theoretically and methodologically; (6) the ability to recognize one's own limitations and seek out learning, consultation, or referral opportunities; and (7) the need to engage in continuous learning to keep up with research and latest treatment modalities. All of the aforementioned skills and what are required of psychotherapists are consistent with the definition of adaptive expertise (Carbonell et al. 2014). As such, application of the adaptive expertise framework proposed in this study should prove to be highly relevant in the conceptualization, training, and practice of psychotherapy.

Adaptive Performance

Definition

The expression and outcome of adaptive expertise is adaptive performance, which can be defined as performance modifications stemming from cognitive, behavior and emotional adjustments in response to new demands and changing situations (Baard et al., 2014). The emphasis of this definition of expertise rests on performance adjustment as well as the associated cognitive and behavioral flexibility, which is distinct from the traditional definition of expert performance that acknowledged reproducibly superior performance representing the essence of accomplishment in a given domain (Ericsson, 2006). The Deliberate Practice school of thought epitomizes the latter, which underscores reproducibility and efficiency within a known area of expertise and echoes the characteristics of routine expertise.

Construct and Domain Structure

Pulakos et al. (2000) were the first to develop a systematic classification of adaptive performance to conceptualize the dimensions of the construct. The authors collected critical incident data from 11 diverse organizations including private sector, military, and federal and state government across 21 different job categories. The job types selected were diverse by design, which included law enforcement, military, supervisory, management, service, and technical jobs to name a few. Critical incident data were collected through workshops where participants were instructed to describe unexpected or demanding situations that were outside of the routine expectations and experiences of their jobs. Participants were also asked to provide behavioral examples of the actions and the outcomes of the actions. Of the 9,426 incidents, 1,311 were deemed to require behavior modifications or adaptations in order to accomplish the tasks. Further analyses of them resulted in eight dimensions of adaptive performance, including (a) ability to handle emergency or crisis situations, (b) ability to handle work stress, (c) ability to solve problem creatively, (d) ability to deal with work uncertainty, (e) invested in learning, (f) demonstrating interpersonal adaptability, (g) demonstrating cultural adaptability, and (h) demonstrating physical adaptability.

The publication of Pulakos and colleagues' work spurred significant debates amongst researchers regarding the relevance of these eight dimensions of adaptive performance to the majority of work environments. Since their samples included military and law enforcement, the dimension of physical adaptability was highly relevant to Pukolas et al.'s (2000) study; however, it might not be applicable to other professions including all types of office-based jobs such as software engineering and psychotherapy.

Intended to study individual adaptive performance in organizations, Charbonnier-Voirin and Roussel (2012) utilized the domain structure published by Pulakos et al. (2000) and generated a set of items based on workshops and interviews. After surveying primarily office-based employees from industries including telecommunication, service, aircraft and others, the authors arrived at a five-factor adaptive performance construct that included reactivity in emergency or unpredictable situation, creativity, interpersonal adaptability, training and learning effort, and managing work stress. In general, Charbonnier-Voirin and Roussel's (2012) study is consistent with that of Pulakos and colleagues' (2000); except for the elimination of physical adaptability, other dimensions were the results of maintaining or combining the original eight. Definitions of the five dimensions of adaptive performance as identified by Charbonnier-Voirin & Roussel (2012) are:

- *Creativity*: ability to transfer knowledge laterally from one area to another and generate novel solutions to evolving challenges. This includes embracing complexity and perceiving problems as productive challenges instead of something to avoid.
- *Reactivity in emergency or unexpected circumstances*: this category combined the original adaptive performance dimensions of dealing with uncertain work situation and the ability in handling emergency and crisis situation. It entails taking timely and effective actions with shifting priority, deadline, or during emergency. It also involves the emotional agility of maintaining objectivity and self-control while refocusing on the new tasks at hand and not being upset by ambiguity.

- *Interpersonal adaptivity*: combining relational and cultural adaptivity, individuals with this characteristic are able to demonstrate openness and acceptance to different cultures, races, and ethnicities; appreciate diverse personalities and opinions; and have a keen sense of the values, custom, and orientations of others. They are also willing to adjust their behaviors and approaches to show respect to those that have different perspectives and needs, and put a premium in maintaining positive relationships with others. In addition, they are open to feedback, and are skilled at building effective relationships with others.
- *Training and learning effort*: propensity for learning and demonstrating enthusiasm in acquiring new knowledge and skills. Proactively identifying performance deficiencies and seeking training opportunities to bridge the gaps.
- *Managing work stress*: with similar mental and emotional resilience described above, the ability to manage work stress has to do with handling the ongoing demanding workload, work culture and environment, or the nature of the jobs themselves such as being a police officer. It requires resiliency, effective coping skills, constructive issue resolution skills, and a high degree of professionalism.

Dispositions Predicting Adaptive Performance

Echoing the contributing factors to the development of adaptive expertise by Kua et al. (2021) in the previous section, similar individual dispositions have been linked to adaptive performance development. However, as opposed to a broadly applied conceptual framework, Pulakos et al. (2006) were able to identify a set of individual attributes and link these attributes to the eight dimensions of adaptive performance described above. Based on extensive review of literature and expert judgment technique, a set of individual

dispositions were found to be important predictors of adaptive performance, and these include cognitive ability, practical intelligence, originality, domain knowledge, openness, cognitive flexibility, emotional stability, cooperativeness, achievement orientation, and social intelligence. Some of the dispositions have been implicated in multiple domains of adaptive performance, such as openness, which appears to contribute to all aspects of adaptive performance except dealing with work stress (Pulakos et al., 2006).

Why is it important to understand the connection between dimensions of adaptive performance and dispositions? Pulakos et al. (2006) argued that the traditional way of selecting individuals into the current workforce failed to take into consideration the changing nature of today's environments where the interview process might still be focused on degree, knowledge, and experiences while adaptive performance measures were overlooked. Selecting individuals with the desirable dispositions may facilitate the formation of an adaptive workforce and enhance team innovation and performance. In the context of counselor education, similar applications have been proposed in the admission of potential counselors regarding their dispositions to ensure collective quality and professional fit of those entering the field (Council for Accreditation of Counseling and Related Educational Programs (CACREP), 2015; Garner et al., 2020; Redekop & Wlazelek, 2012). Although the concepts of adaptive expertise and adaptive performance are foreign to the counselor education field, many dispositions that are considered important counselor qualities have significant overlap with that of adaptive performance. Among them, coping and self-care (managing work stress), openness, cooperativeness, interpersonal skills, cultural sensitivity, emotional stability, and conscientiousness and self-awareness (metacognitive skills) were identified as essential attributes to counselor

disposition (Christensen et al., 2018; Garner et al. 2020). The commonality between counselor dispositions and adaptive performance dimensions further strengthens the relevance of the adaptive expertise framework in the context of counselor education and need for further investigation.

Counseling Self-Efficacy

To explore the applicability of adaptive expertise and adaptive performance constructs in counselors and psychotherapists, it seems plausible to examine the connections through understanding the relationships between adaptive expertise, performance, and counseling self-efficacy. The relationship between adaptive expertise and self-efficacy has been implied previously where higher levels of individual mastery could lead to enhanced self-efficacy (Bell & Kozlowski, 2008). This is consistent with the definition originally developed by Bandura (1997) where he conceptualized self-efficacy as individuals' beliefs in their capability to exercise control over their own functioning and navigating challenging demands.

Self-efficacy is commonly defined as a domain-specific construct, and within the context of counseling, self-efficacy can be broadly defined as the counselors' beliefs in their own abilities to employ the necessary skills and knowledge to manage their caseloads, affect changes in their clients, navigate workplace-related stress, and have confidence in their own abilities to solve problems as they arise (Lent et al., 2003). However, the literature includes different perspectives of counseling self-efficacy where the construct can be defined as general self-efficacy, client-specific self-efficacy, multicultural counselor self-efficacy, skill-based self-efficacy, or self-efficacy that represents multiple areas of counselor competencies (e.g., Kozina et al., 2010; Lent et al.,

2006; Sheu & Lent, 2007). For the purpose of this study, counselor self-efficacy defined through the lens of counselor development and the activities associated with different stages of development is deemed appropriate.

Lent et al. (2003) identified three main stages of tasks and activities relevant to counselor's developmental milestones. For example, beginning counselor trainees are likely to gain self-efficacy through performing structured helping skills such as paraphrasing and summarizing, gaining certain levels of client- and self-insights, and providing action skills such as psychoeducation and behavior rehearsal. This stage of development tends to take place during practicum and into the beginning of internship. During internship and into the pre-licensing stage of development, novice counselors are able to master more integrated session management skills, which include client conceptualization, setting realistic goals, and increased counselor self-awareness amongst others. Moving into a more advanced developmental stage, counselors are likely to be concerned with handling challenging client presentations or behaviors, such as dealing with value conflicts or client defenses, or handling counselor's own reactions to challenging situations, such as identifying and managing their countertransference while working with clients.

Lent et al. (2003) proposed that with ongoing growth and development, counselors are more likely to base their professional efficacy on their abilities to navigate challenging client situations and their creative use of prior knowledge. Such sentiment was echoed by Orlinsky & Rønnestad (2005) who anchored counselors' sense of competency in their ability to work through limitations and challenges, and experience growth and renewal personally and professionally. Working through challenges requires

the engagement of system 2 attentional thinking process (Croskerry, 2018) as discussed above, which is consistent with the development of adaptive expertise.

Self-Efficacy and Adaptive Performance and Adaptive Expertise

The relationships between self-efficacy and performance have been extensively studied in numerous fields, including sport, academic, and work performance to name a few (e.g., Judge & Bono, 2001; Honicke & Broadbent, 2016; Moritz et al., 2000). In these fields, self-efficacy is routinely positively correlated with performance, with correlations ranging from 0.23 to 0.38.

Substantially less studies are found regarding correlation of self-efficacy and adaptive performance. Some possible speculations may include the following: (a) adaptive performance is frequently imbedded in the broader performance measure, and without conscious recognition, characteristics of adaptive performance may be overlooked and not properly identified in the assessment of performance; (b) as opposed to studying general performance in sports or in academic settings where student's test scores can readily be used as the outcome measure, the outcome of adaptive performance is not readily quantifiable such as increased test score or faster production speed. Instead, data on adaptive performance research are generally obtained through supervisor or manager assessments of the quality of the adaptivity, and such data are more difficult to obtain; and (c) adaptive expertise and adaptive performance research is relatively localized in the fields of education and organization behaviors, and majority of studies are conceptual in nature.

Nonetheless, studying adaptive performance in the hotel industry, Allworth and Hesketh (1999) were able to demonstrate the relationship between self-efficacy and

adaptive performance involving 325 staff members. The authors found that self-efficacy for change, which referred to the belief of one's ability to learn and master new skills in changing situations, was significantly correlated with emotional stability ($r = 0.27$, $p = 0.05$), openness to experience ($r = 0.37$, $p = 0.05$), and conscientiousness ($r = 0.29$, $p = 0.05$), all of which were characteristic dispositions of adaptive performers. ; conducted a similar study using 739 military personnel to investigate the predictors of the eight dimensions of adaptive performance mentioned earlier. Using task-specific self-efficacy scales for each domain in conjunction with supervisors' rating of adaptive performance, results showed that self-efficacy predicted adaptive performance in each of their respective domains. Regarding self-efficacy and adaptive expertise, Bell and Kozlowski (2008) studied active learning and adaptability with 350 undergraduate students and found that mastery led to higher levels of self-efficacy ($r = 0.28$, $p < 0.01$) and self-efficacy was significantly correlated with analogical knowledge transfer ($r = 0.26$, $p < 0.01$) and metacognitive activity ($r = 0.38$, $p < 0.01$), both of which are key elements of adaptive expertise.

In summary, although there is ample evidence supporting the correlations between various types of self-efficacy and their corresponding performance outcomes, there are only few studies investigating the specific relationship between self-efficacy and adaptive performance. In addition, only one study was found that examined the relationships between self-efficacy and components of adaptive expertise. With the recognition of such gap, one of the goals of this research study is to expand our understanding of the relationship between therapist self-efficacy and adaptive performance.

Summary and Purpose of the Study

The primary purpose of investigating psychotherapy expertise is to understand how to become someone who embodies the essence of an expert. The Master Therapist characterizes the persona (Skovholt & Jennings, 2004), the Healing Involvement presents the styles of engagement (Rønnestad et al., 2019), and the Deliberate Practice describes the skill-based exercises (Rousmaniere 2016), all of which help enhance our understanding of the making of an expert therapist. However, the existing studies on psychotherapy expertise failed to examine the type of expertise required to be successful during the performance of psychotherapy, that is, the in-session agility, flexibility, and creativity needed in order to produce the desirable clinical changes while working with clients. In other words, the field had not examined the feasibility of adaptive expertise in psychotherapy practice to help clinicians prepare for the complex and ambiguous nature of psychotherapy.

Adaptive expertise emphasized two distinct ways that knowledge can be applied during clinical settings that require synthesis of solutions (Mylopoulos & Woods, 2017). One is focused on efficient retrieval of existing know-how and apply directly to the situation, and the other is centered on the creation of innovative solutions when existing knowledge is insufficient in overcoming the new challenges. Expert in this case is operationally defined as someone who can adaptively balance the efficiency and innovation dimensions of the work and achieve better outcome. Although no specific outcome study is available regarding the efficacy of adaptive expertise training, Croskerry (2018) found that existing medical clinician training programs generally produced routine experts (efficiency domain) that resulted in regular diagnostic failures. It was therefore proposed that adding training that could enhance innovation and creative

problem-solving ought to augment clinicians' adaptive expertise and would in turn allow them to produce better clinical outcomes.

However, Mylopoulos and Regehr (2007) indicated that medical students generally do not consider it necessary to innovate in their daily practice. The authors found that medical students tended to think expertise can be acquired through accumulating experience and knowledge, and they associated innovation with significant breakthrough in medical practice such as inventing a new cancer treatment regimen. This type of thinking is concerning in the field of medical education since how one interprets innovation is associated with their own openness and their construction of knowledge (Mylopoulos & Scardamalia, 2008). Therefore, being able to consider daily innovation in relation to cognitive agility and flexibility in mobilizing knowledge from one area to unfamiliar situations in adjacent areas may define the essence of adaptive expertise in this context.

Similar to the medical profession, counselors' work can be characterized as partly routine but mostly variable where new challenges could arise in every session or even every conversation. As Rønnestad (2019) put it, difficulties experienced by practitioners can be infinite. Since clients and their presentations are complex and unique in their own ways, to "meet clients at where they are" requires flexible integration of all of the knowledge from interpersonal skills, therapeutic microskills, diagnostic conceptualizations, theories, cultural humility, and ethical considerations to name a few. If counselors resort to manualized medical model of practice, they are likely to become experienced non-experts or, at best, routine experts that are confined to business-as-usual system 1 process. However, if challenges or unfamiliar client presentation arise,

practitioners in this category may not have the innovative skills to formulate creative solutions, which, in the long run, may result in suboptimal functional closure and eventually lead to disengagement, exhaustion, or burnout (Rønnestad, 2019). On the other hand, practitioners with adaptive expertise are more likely to mobilize their metacognitive and analogical reasoning skills to flexibly retrieve relevant information and generate adaptive responses while interacting with challenging client situations or presentations. One such example is to employ EMDR therapy to work with clients that meet the diagnostic criteria of obsessive-compulsive disorders (OCD) yet nonresponsive to the standard exposure and response prevention treatment. Instead of viewing clients with OCD from the anxiety lens, reappraising OCD presentation from the perspective of cognitive distortion provides practitioners the opportunity to explore different hypotheses and investigate alternative treatment modalities.

In summary, the concept of adaptive expertise appears highly applicable in the daily practice and training of counselors and psychotherapists. Indeed, investigation into counseling students' professional disposition across 224 CACREP accredited counseling programs found that four out of seven of the key dispositional themes were consistent with the quality of adaptive expertise, and they included openness to growth, flexibility, emotional stability, and awareness of self and others (Christensen et al., 2018). To date, however, a literature search did not reveal any study that incorporates adaptive expertise framework in the context of psychotherapy or counseling practice. Thus, the purpose of this study was to explore the feasibility of adaptive expertise in counseling practice by understanding the relationships between counselor competency and adaptive expertise. Specific research questions included (a) what are the relationships between counseling

self-efficacy, adaptive performance, and adaptive expertise; (b) is there a mediation effect between adaptive expertise, self-efficacy, and adaptive performance; (c) what dimension of adaptive expertise is associated with counseling challenge self-efficacy; and (d) is work environment associated with adaptive expertise, adaptive performance, counseling self-efficacy, and the number of theory used by the practitioners. The potential hypotheses based on literature review and theoretical conceptualization proposed that (1) adaptive expertise is positively related to adaptive performance; (2) the combination of adaptive expertise and adaptive performance is associated with counseling self-efficacy; (3) adaptive performance mediates the relationship between adaptive expertise and counseling self-efficacy; (4) counseling challenge self-efficacy has lower correlation with domain-specific skills and higher correlation with innovative skills; and (5) compared to the more restricted settings, work environments that encourage flexibility in client conceptualization and counseling approach are associated with higher levels of adaptive expertise, adaptive performance, counseling self-efficacy, and the number of theory used by the practitioners. Since no study to date had explored any of the aforementioned hypotheses, exploratory regression, mediation, and MANOVA analyses were conducted to either confirm or reject the hypotheses.

CHAPTER TWO: METHOD

Participants

There were two inclusion criteria to take part in the study: a) a minimum of 18 years of age, and b) identified as a practitioner and one of his/her/their primary responsibilities was to provide counseling or psychotherapy to clients. The qualified practitioners could be from a number of mental health disciplines, including counseling, psychology, social work, substance abuse counseling, or marriage and family counseling. To capture the variations in participant expertise and performance, practitioners representing a broad range of experiences were included from students-in-training, post-graduate pre-licensed practitioners to seasoned clinicians. Detailed participant information is presented in the Results section.

Procedure

After obtaining IRB approval, recruitment occurred through e-mail invitations to colleagues and Listserv with request to further distribute to their networks for snowball sampling. Research announcements were also posted on numerous Facebook and LinkedIn groups specific for counseling and psychotherapy practitioners. Participants were provided a link to the online survey that began with informed consent. To reduce social desirability biases (Hart et al., 2015), data were collected through Qualtrics XM to ensure confidentiality and anonymity. Participants elected to enter $50 gift card drawing at the end of the survey were redirected to a separate link to provide contact information and enter the raffle. All personal information collected for the raffle were kept separate from the study data to ensure anonymity.

At the beginning of the data collection process, some bot activities were suspected where entries for gift card drawing were substantially higher than that of the actual survey. Several changes to recruitment strategy were implemented similar to that described by Griffin et al. (2022) where the focus of recruitment was changed from social media to primarily email invitations through friends and colleagues. In addition, no gift card reward was mentioned on social media posts, and no specific amount of gift card reward was disclosed in the email invitations. Approximately 75% of final datasets were collected after restructuring the recruitment strategy, and it was observed that gift card raffle entries were substantially lower as a result, suggesting a reduction in potential bot activity.

Measures

Demographic Questionnaire

A brief demographic questionnaire was used to obtain pertinent background information (see Appendix A). The items included age, years in practice, race, gender identity, and professions (such as psychologist, counselor, social workers, and others). In addition, information about work environments and theoretical orientations were also collected to understand factors that might be associated with adaptive expertise dispositions or development.

As discussed in the previous sections, environments that tolerate mistakes and encourage learning are most conducive to the development of adaptive expertise (Carbonell et al., 2014). Therefore, the work environment question was structured to allow participants to select the statement that best described the level of innovation or creativity encouraged in their work environment. Response options included: (1) my

work only requires me to practice certain microskills; (2) my work mostly requires me to use manualized or standard protocols in counseling/therapy; (3) my work largely gives me the freedom to choose the methodology I prefer but will need to get approval first; (4) my work generally allows me the freedom to use whatever methodology I see fit; and (5) my work generally encourages and challenges me to step out of my comfort zone and explore alternative ways to conceptualize clients and apply therapy/counseling.

The question about theoretical orientation was designed to gather data on practitioners' adaptive dispositions in terms of their depth and breadth of perspectives. Such perspectives may allow practitioners to conceptualize clients from multiple viewpoints and enable them the flexibility to transfer knowledge from one treatment modality to another as discussed previously (Ronnestad, 2019). The theoretical orientation question asked participants to identify how many theories or treatment modalities (such as DBT, EMDR etc.) they had used regularly (weekly or bi-weekly) while working with clients. Participants were asked to select from a list of pre-identified theories and modalities, and count the number of theories and modalities as their data entry.

Adaptive Expertise Inventory (AEI) and Adaptive Expertise Inventory-Psychotherapy (AEI-P)

The Adaptive Expertise Inventory (AEI; Carbonell et al., 2016; see Appendix B) is a 10-item Likert scale instrument that measures participant's domain skills (5 items) and innovative skills (5 items). Responses were provided on a five-point Likert scale ranging from 1 = strongly disagree to 5 = strongly agree. The scores ranged from 10-50 where higher scores indicated higher levels of adaptive expertise. AEI was developed by

Carbonell et al. (2016) and was designed to measure adaptive expertise with broad application in various professions including scientific and technical professionals, education, financial and insurance, human health and social work, transportation and storage, and public administration to name a few.

Internal consistency of the items measured by Cronbach's alpha of the subscales ranges from .74 to .85 across different populations, whereas criterion validity of AEI was demonstrated through correlation of the subscales with task variety. Task variety is the range of tasks required to perform a job, and it had been shown to predict adaptive expertise previously (Martin & Schwartz, 2009). However, years of work experience only correlated with domain skill and not the innovative subscale. These results are consistent with prior study that substantive variety would result in transferrable expertise whereas experience alone was not sufficient in cultivating adaptivity (Barnett & Koslowski, 2002).

Since the wording of the items was not fully applicable to the purpose of this study, minor adjustments were made to ensure relevance of the item content to the participants. For example, all AEI items were prefaced with "during past projects, I…" Accordingly, the context was changed from "during past projects…" to "while working with clients in counseling or psychotherapy context…" Additional changes entailed the switch of certain words such as replacing "discipline" to "practice. Example could be seen from item 2 where AEI wording was "I concerned myself with the latest development in the domain of my discipline", which was changed to "I concern myself with the latest development in the domain of my practice." Nine out of ten items had only minor modifications as described above with little change to the integrity of the

questions. The exception was item 3 where the original wording was (during past projects) “I gained a better understanding of concepts in my discipline.” This item was rephrased to (while working with clients in counseling or psychotherapy context) “I have a good understanding of therapeutic concepts in my area of practice.” As a result of these modifications, the instrument was renamed to Adaptive Expertise Inventory-Psychotherapy (AEI-P) to acknowledge the changes.

Adaptive Performance Scale (APS) and Adaptive Performance Scale-Psychotherapy (APS-P)

Adaptive performance is the expression of adaptive expertise where individuals are willing and have the capacity to alter their behaviors to meet the emerging demands of the situations, events, or environments (Pulakos et al., 2000). The 19-item Adaptive Performance Scale (APS; Charbonnier-Voirin & Roussel, 2012) that measures five dimensions of the performance was used for this study, and the five dimensions included, creativity, reactivity in the face of emergency, interpersonal adaptivity, training effort, and handling work stress (see Appendix C). Responses were based on a seven-point Likert scale ranging from 1 = strongly disagree to 7 = strongly agree. The scores ranged from 19 to 133 where higher scores corresponded to higher levels of adaptive performance.

The Cronbach’s alpha of the subscales ranged from .78 to .87 indicating acceptable internal consistency across three sets of samples (Charbonnier-Voirin & Roussel, 2012). They consisted of 111, 228, and 296 participants in different positions and roles from a service company, a telecommunications firm, an aircraft company, and executives from a variety of industries. Discriminant validity of APS was examined

against contextual performance, which was defined as discretionary behaviors beyond role-specific duties such as volunteering as mentors to coworkers or in an organization (Nini, 2019). Although adaptive performance had different definition from contextual performance, some of the behaviors such as stress management in both constructs could overlap. Nonetheless, it is generally believed that adaptive performance is distinct from contextual performance (Han & Williams, 2008; Pulakos et al., 2000). Discriminatory analysis between APS and contextual performance indicated substantial correlation between the two, however, additional chi-square analysis showed that they were complementary but distinct constructs. Additionally, validity analysis between APS and transformational leadership showed positive and significant correlation between the two, confirming the prior study that transformational leadership cultivate the condition for the development of adaptive expertise (Moss et al., 2009)

Similar to the AEI instrument above, this scale was also designed for general applications, and some of the items were rephrased to fit the specific need of this study. Minor wording changes such as rephrasing item 8 from "I easily reorganize my work to adapt to the new circumstances" to "I easily reorganize my work to adapt to the client's need." Of the 19 items, 8 remained unchanged whereas 10 contained minor wording adjustments as described above. Only one item (item 16) underwent more significant modification, from "I prepare for change by participating in every project or assignment that enables me to do so" to "I prepare for challenging cases by participating in workshops and/or seeking consultations." The resulting instrument was designated as Adaptive Performance Scale-Psychotherapy (APS-P) in response to the modifications.

Counselor Activity Self-Efficacy Scale (CASES)

The Counselor Activity Self-Efficacy Scale (CASES) was developed by Lent et al. (2003) to measure the developmental progression of counselors in terms of their skill acquisitions and self-reported efficacy. The scale consisted of three subscales and 41 items (see Appendix D). Participants responded based on a 10-point scale ranging from 0 (no confidence) to 9 (complete confidence) where higher scores indicated greater counseling self-efficacy with a score range of 0 to 369. The first subscale is helping skill self-efficacy that includes three factors of insight, exploration, and action skills. An example item is "Role-play and behavior rehearsal (assist the client to role-play or rehearse behaviors in session)," and participants will rank their confidence in performing the task. The second subscale is session management skills, and one of the example item is "Help your client to explore his or her thoughts, feelings, and actions." The third subscale is counseling challenges self-efficacy with two subscales that deal with in-session relationship conflicts and client distress. An example item is "Working with clients you have negative reactions toward (e.g., boredom, annoyance)."

The Cronbach's alpha coefficient ranges from .79 to .94 with the overall alpha of .97 based on 345 students from five counseling psychology programs. The convergent validity was demonstrated by the statistically significant correlations between the subscales of CASES and that of counseling self-estimate inventory. In addition, discriminant validity was indicated by the lack of correlation between CASES subscales with social desirability variables. Criterion validity was demonstrated by correlating CASES with social cognitive career theory's interest model where all self-efficacy subscales were strongly correlated with career interests. In addition, all subscales were significantly correlated with positive affect and inversely correlated with negative affect.

Design and Analysis

Correlational and regression research design were used in this study where adaptive expertise and adaptive performance were the predictor variables, and counselor self-efficacy was the outcome variables. All data analyses were conducted using IBM SPSS statistic package version 28 (IBM Corp.). After data cleaning and assumptions of normality and homogeneity were verified, descriptive statistics were performed to generate mean and standard deviation for all variables. Correlation analyses were conducted first to reveal the relationships between all variables. In addition, relevant subscales were also analyzed to understand whether dimensions of these instruments were relevant sub-variables within the context of this study. To understand the relationship between adaptive expertise, adaptive performance and counselor self-efficacy, regression and hierarchical regression analyses were performed (hypotheses 1 and 2). To explore potential mediation effect of adaptive performance between adaptive expertise and self-efficacy (hypothesis 3), mediation analyses were performed using Hayes' PROCESS model 4 (Hayes & Rockwood, 2017). Additionally, to understand whether counseling challenge self-efficacy was associated with innovation skills (hypothesis 4), correlational analysis of the subscales was performed. Lastly, to investigate the associations between work styles and key variables including adaptive expertise, adaptive performances, counseling self-efficacy, and the number of theory practitioner used regularly (hypothesis 5), MANOVA, Welch's ANOVA and Games-Howell's post hoc test were conducted.

CHAPTER THREE: RESULTS

Preliminary Analyses

Data Cleaning

The initial participant pool consisted of 569 individuals. Eighty-seven data sets were eliminated due to incomplete data entry, missing demographic information, missing data from at least one of the instruments. Repeated data entries were detected and eliminated in 11 cases, which were determined based on identical IP address, consecutive entries according to the date and time, and almost identical data sets. From the qualification's standpoint, five data sets were identified as school counselors or unspecified where their status as pre-licensed or licensed practitioners could not be affirmed. In addition, three individuals did not meet the minimum age requirement of 18 years or older. In addition to listwise deletion, data cleaning also included transforming text into numeric entries regarding the number of theories or treatment modalities they use on a regular basis.

Scales and subscales scores were generated based on the remaining 463 data sets, and univariate and multivariate analyses were conducted. Univariate analysis identified two outliers each with multiple scales where the z-score were below -3.29. These two data sets were eliminated from further analysis. In addition, five data sets had one scale (AEI-P) that had z-score below -3.29. To preserve the five data sets, AEI-P scale and subscale scores less than 1.5 were designated as missing, which made the missing data equivalent to 0.36% of the entire data set. Multivariate analysis identified one outlier using Mahalanobis distance analysis. After eliminating the multivariate outlier, the final count of participants arrived at 460.

Participants and Demographics

The basic demographic information includes age, racial and ethnic identity, and gender identity, which are described below. The ages of the participants ranged from 19 to 76 years of age with mean age of 37.96 and SD of 10.90. Almost two-third of participants identified as female (*n* = 298, 64.8%), one-third as male (*n* = 147, 32.0%), ten as binary (2.2%), and five as others or chose not to disclose (1.0%). From race and ethnicity perspective, majority identified as White / European American (*n* = 341, 74.1%), whereas 39 identified as Black / African American (8.5%), 23 as Asian American / Pacific Islander (5.1%), 22 identified as Hispanic / Latinx (4.8%), and 19 as Native American / Indigenous American (4.1%). Sixteen participants (3.4%) either chose not to disclose their racial and ethnic identity or did not respond to the question.

Participants had a wide range of work experiences that span from 1 to 48 years with mean of 8.41 and SD of 7.49 years. Regarding professional credentials, one-third of the participants were licensed professional counselors (*n* = 161, 35.0%), followed by licensed psychologists (*n* = 93, 20.2%), licensed social workers (*n* = 79, 17.2%), licensed couple and family therapists (*n* = 56, 12.2%), graduated and pre-licensed practitioners (*n* = 48, 10.4%), students in internship (*n* = 12, 2.6%), and others (*n* = 11, 2.3%). In terms of work settings, approximately one-third of the participants worked in private practice (*n* = 141, 31.1%), followed by hospital-based clinic (*n* = 94, 20.4%), community for-profit counseling center or clinic (*n* = 77, 16.7%), community non-profit clinic (*n* = 50, 10.9%), government-based facility or agency (*n* = 47, 10.2%), college counseling center (*n* = 24, 5.2%), and multiple or other settings (*n* = 25, 5.4%). From the perspective of direct client hour, majority of the participants reported providing 20-29 hour of counseling or therapy

per week (*n* = 177, 38.5%), followed by 10-19 hours (*n* = 122, 26.5%), 30-39 hours (*n* = 103, 22.4%), less than 10 hours (*n* = 42, 9.1%), and more than 40 hours (*n* = 16, 3.5%).

To probe into counseling theory-related efficacy, participants were asked to provide the number of theories and treatment modalities they used on a weekly or bi-weekly basis. Results showed a range of 0-25 theories being used regularly with a mean of 6.18 and SD of 3.92. In addition, work style survey indicated that 38.5% (*n* = 177) of participants had the freedom to use whatever methodologies or theories they deemed appropriate for the clients, 20.2% (*n* = 93) were encouraged to step outside of their comfort zone and explore alternative ways to conceptualize clients and apply therapy, another 20.2% (*n* = 93) had some freedom to choose the methodologies but needed to obtain approval first, whereas 17.2% (*n* = 79) used manualized or standard protocols, and 3.9% (*n* = 18) only employed microskills.

Assumptions, Descriptive Statistics, Correlations

Before main analysis took place, data were examined for violation of normality, homoscedasticity, linearity, and absence of multicollinearity. Normality was assessed for skewness and kurtosis. Result indicated that both skewness and kurtosis were within the range of -1 and 1 (Hair et al, 2022), suggesting no issue with normality. Homoscedasticity was demonstrated by scatterplot of the residuals where data were equally distributed across zero on either X or Y axis and no apparent pattern was observed. Since residuals were normally distributed and homoscedastic, linearity assumption was also met. Multicollinearity analysis of the two independent variables at the scale level yielded a VIF of 3.904, which indicated no collinearity concerns between the variables (less than 5; Hair et al., 2011). The means, standard deviations, and

Cronbach's alphas for the main variables are presented in Table 1. Cronbach's alphas for the subscales were consistent with reported values ranging from .74 - .94, which are within the acceptable values of .70-.95 (Tavakol & Dennick, 2011).

Correlation analyses were conducted to examine relationships between major variables, and to determine whether covariates would be used in the main analyses. Results in Table 1 indicated significant (<.001) correlations between all variables. However, only the three key variables (adaptive expertise, adaptive performance, self-efficacy) were highly correlated with each other ranging from .74-.86. Notably, participant's age and years of practice also highly correlated with each other (r = .71), and they also demonstrated moderate levels of correlations with self-efficacy (.39 and .35, respectively). They will be used as covariates in subsequent analysis to investigate their relationships with self-efficacy.

Main Analysis

Hypothesis 1

Hypothesis 1 aimed at understanding whether adaptive expertise was associated with adaptive performance. Correlation analysis in Table 1 indicated a high correlation between adaptive expertise and adaptive performance with r = .86. Subsequent regression analysis was conducted with adaptive expertise as predictor variable, and adaptive performance as outcome variable. The fitted regression model was statistically significant with $F(1, 453) = 1315.44$, p <.001, and R^2 = .75. In addition, the coefficient of adaptive expertise was also significant ($\beta = 1.21$, and p <.001).

Above data indicate that 75% of the variance in adaptive performance can be explained by adaptive expertise, and the linear model is significant at <.001 level.

Therefore, it is concluded that adaptive expertise has a significant relationship with adaptive performance. Thus, this analysis supports hypothesis 1 that adaptive expertise is positively related to adaptive performance.

Hypothesis 2

Hypothesis 2 intended to explore whether the combination of adaptive expertise and adaptive performance was associated with counseling self-efficacy. Additionally, age and years of practice were also examined due to their moderate correlations with self-efficacy. Hierarchical regression analyses were conducted with self-efficacy as the dependent variable. For independent variables, age and years of practice were entered for the first block, whereas adaptive performance and adaptive expertise were added as the second block.

Results of the first block hierarchical regression analysis revealed a statistically significant model with $F(2, 452) = 42.95$, $p < .001$, and $R^2 = .16$. The finding indicated that the combination of age and years of practice was significantly associated with self-efficacy, and they accounted for 16% of the variation in self-efficacy. Additionally, the coefficient for years of practice is .03 ($p = .018$), and for age is .04 ($p < .001$), both of which are statistically significant ($p < .05$).

The adaptive expertise and adaptive performance variables were added as additional independent variables to the second block analysis, and results indicated a statistically significant model with $F(4, 450) = 204.78$, $p < .001$, and $R^2 = .65$. This finding indicates that 65% of the counseling self-efficacy variance can be explained by the combination of the four independent variables. Additionally, results also demonstrated that the addition of adaptive expertise and adaptive performance accounts

for 49% of the variation in counseling self-efficacy. The coefficients of the variables are all statistically significant at $p < .05$ level with years of practice .02 ($p = .012$), age .014 ($p = .014$), adaptive performance .52 ($p < .001$), and adaptive expertise .98 ($p < .001$).

Taken together, hierarchical regression analysis indicated that there is a statistical significant association between the four predictor variables and counseling self-efficacy. In addition, age and years of practice account for 16% of the variance in self-efficacy, whereas adaptive expertise and adaptive performance explain additional 49%. These findings support hypothesis 2 that the combination of adaptive expertise and adaptive performance is associated with counseling self-efficacy.

Hypothesis 3

Hypothesis 3 aimed to explore potential mediation effect of adaptive performance between adaptive expertise and self-efficacy. Hay's PROCESS model 4 was employed where adaptive expertise was the predictor, adaptive performance was the mediator, and self-efficacy was the outcome variable. The coefficients for path a, b, c', and c are presented in Table 2, and the diagram of the relationships amongst the variables is depicted in Figure 3. Results showed that there was a significant total effect (path c) between adaptive expertise and self-efficacy ($\beta = 1.72$, $p < .001$). This effect was partially mediated by adaptive performance with $\beta = .67$ (path a x b), SE = .15, and 95% CI [.42, .99]. Since the lower and upper limits of 95% CI excluded zero, the mediation effect was deemed significant. After accounting for the mediation effect, the remaining direct effect (path c') between adaptive expertise and self-efficacy had a β of 1.05 with $p < .001$. In summary, mediation analysis indicated that adaptive expertise had a significant effect on self-efficacy, and this effect was mediated by adaptive performance. Thus, this study

results support hypothesis 3 that adaptive performance mediates the relationship between adaptive expertise and counseling self-efficacy.

Hypothesis 4

Hypothesis 4 intended to understand whether counseling challenge self-efficacy has higher correlation with innovative skills than with the domain-specific skills. This hypothesis was based on the premise that while domain-specific skills are necessary as the foundation of expertise, it is the innovative dimension of adaptive expertise that allows practitioners to be agile and flexible in generating novel solutions when they encounter challenging situations. Correlation analysis of adaptive expertise and self-efficacy subscales was conducted, and results in Table 3 indicated that all subscales were significantly correlated with each other ranging from .62 - .74, $p = .001$.

Reviewing the correlations within the domain-specific skills, results indicate that helping skill efficacy has higher correlation with routine expertise than counseling challenge efficacy ($Z = 3.41$, $p = .0006$). Additionally, session management efficacy also has higher correlation with routine expertise than counseling challenge efficacy ($Z = 2.76$, $p = .005$). Furthermore, there is no statistical difference between helping skills and management skills regarding their correlations with domain knowledge ($Z = .65$, $p = .52$). Domain-specific knowledge or routine expertise emphasizes speed and efficiency that involve repetition and fast information retrieval within a specific area of practice (Crawford et al., 2005). Therefore, higher correlations between domain-specific skills and habitual implementation of helping skills and session management skills appear to be consistent with the assumptions of the construct.

However, correlational data between innovative skills and the subscales of counseling self-efficacy did not reveal significant differences between them using Fisher's Z test at $p < .05$. Since innovative skills underly an individual's ability to apply prior knowledge and experiences to solve novel problems, it is expected that there would be higher correlation between counseling challenge self-efficacy and innovative skills compared to the correlations between helping efficacy and innovative skills, and between session management efficacy and innovative skills. In addition, there were no statically significant differences between the corrections of counseling challenge efficacy and routine expertise ($r = .62$), and counseling challenge efficacy and innovative skills ($r = .69$) with $Z = 1.86$, $p = .06$.

Taken together, results from the study indicate that counseling challenge efficacy has lower correlation with domain skills compared to helping efficacy and session management efficacy. Additionally, counseling challenge efficacy did not have statistically significant difference in its correlations with domain-specific skills and innovative skills. Based on this result, hypothesis 4 is not supported where it stated that counseling challenge self-efficacy has lower correlation with domain-specific skills and higher correlation with innovative skills.

Hypothesis 5

Hypothesis 5 seeks to understand whether different work styles are associated with adaptive expertise, adaptive performance, counseling self-efficacy, and the number of theory employed by the practitioners. Since adaptive expertise is defined as being efficient in addition to being innovative, it is pertinent to examine whether rigid or flexible styles have different associations with the four variables described above.

Five different work styles were identified based on the degree of flexibility to employ different treatment modalities at practitioners' workplace, and they included: my work place (a) only requires me to use certain microskills, (b) mostly requires me to use manualized or standard protocols in counseling and therapy, (c) largely gives me the freedom to choose the methodology I prefer but will need to get approval first, (d) generally allows me the freedom to use whatever methodology I see fit, and (f) generally encourages and challenges me to step outside of my comfort zone and explore alternative ways to conceptualize clients and apply therapy.

MANOVA analysis was conducted with work styles as independent variable, and adaptive expertise, adaptive performance, counseling self-efficacy, and theory were dependent variables. Results in Table 4 indicated that there was a significant difference between the five work styles when considered jointly of the variables including adaptive expertise, adaptive performance, and self-efficacy. The model had Wilk's Lambda = .78, $F(16, 1366) = 7.42$, $p < .001$, and partial eta square = .06. Wilk's Lambda tested how well the five work styles discriminated from one another where 0 indicated total discrimination and 1 indicated no discrimination (Allen, 2017). The value of .78 of the combined model suggested minor discrimination between the work styles based on the combination of four variables. The effect size of the variables represented by partial eta square (.06) suggested a medium effect where .01 indicated a small effect, .06 a medium effect, and .14 a large effect (Cohen, 1988).

Given the significant MANOVA, follow-up ANOVA analyses were also performed for each dependent variable. Welch's ANOVA was used due to the uneven sample size ($18 \leq n \leq 175$) and the significant Levene's tests ($p < .001$), indicating that

the homogeneity of variance assumption was not met. For this analysis, work style was entered as independent variable, and each of the adaptive expertise, adaptive performance, counseling self-efficacy, and theory was entered as dependent variable in the individual analysis.

Results in Table 5 revealed that there was a statistically significant difference ($p < .001$) between the work styles from the perspective of each variable examined. Taking adaptive expertise as an example, Welch's ANOVA indicated a statistically significant difference in the adaptive expertise scores across the work styles with $F(4, 98.88) = 24.20$, $p < .001$. The omega square for adaptive expertise is .16, indicating that 16% of the variance in adaptive expertise is associated with work styles. The Welch's ANOVA statistics for the other dependent variables are shown in Table 5, and the omega squares for adaptive performance, counseling self-efficacy, and theory are 13%, 13%, and 6%, respectively.

Continuing to use adaptive expertise as the example, although Welch's ANOVA results indicated that adaptive expertise scores were statistically different from each other across work styles, the analysis did not inform the researcher where the specific differences were. To explore further, Games-Howell post hoc analysis was conducted to systematically compare group means to determine which pairs of the five work styles differ significantly. Results in Table 6 show that practitioners with work style 4 have a statistically significant ($p < .05$) higher level of adaptive expertise ($M = 4.26$, $SD = .57$) than those with work style 1 to 3. Similarly, practitioners with work style 5 showed a statistically significant higher level of adaptive expertise ($M = 4.50$, $SD = .43$) than those with work style 1 to 4. The results of post hoc analyses for other variables showed a

similar pattern, with statistically significant higher levels of adaptive performance, counseling self-efficacy, and theory for styles 4 and 5 in most pairwise comparisons (Tables 7 – 9).

Taken together, MANOVA results indicated that there were statistically significant differences ($p < .001$) between the five work styles based on the combination of the four variables, namely, adaptive expertise, adaptive performance, self-efficacy, and the number of theories employed by practitioners. Additionally, Welch's ANOVA and post hoc analyses demonstrated that practitioners with more flexible and versatile work styles were associated with higher levels of adaptive expertise, adaptive performance, and self-efficacy. Furthermore, they were also likely to employ more theories while working with clients, suggesting broader domain knowledge with potentially more creativity. Therefore, hypothesis 5 is supported that compared to the more restricted settings, work environments that encourage flexibility in client conceptualization and counseling approach are associated with higher levels of adaptive expertise, adaptive performance, counseling self-efficacy, and the number of theory used by the practitioners.

CHAPTER FOUR: DISCUSSION

The purpose of this study is to explore whether adaptive expertise framework is applicable in explaining expertise in counseling and psychotherapy practices. Existing counseling and psychotherapy expertise research are primarily focused on characterizing the Master Therapists, understanding therapists' engagement through Healing Involvement, or implementing deliberate practice and assessing client outcome (Goldberg et al., 2016a; Rønnestad et al., 2019; Skovholt and Jennings, 2004). Since the inception of adaptive expertise by Hatano and Inagaki (1986), the concept and application of adaptive expertise have mostly been implicated in the workplace and corporate settings where the ebb and flow of the economy requires the workforce to be flexible and adaptable to the changing demands (Van der Heijden, 2002). Although adaptive expertise has been implicated in teachers' and medical students' training (De Arment et al., 2013; Mylopoulos & Scardamalia, 2008), research in these fields to date are conceptual in nature with minimal qualitative or quantitative data to support such its feasibility. Therefore, the intent of the study was to investigate adaptive expertise in the context of counseling and psychotherapy practices, and to demonstrate quantitatively the relationships between adaptive expertise, adaptive performance, and counseling self-efficacy.

The participants of interest were counseling and psychotherapy practitioners, and one of their primary responsibilities was to conduct one-on-one counseling sessions with the clients. The resulting participants had a broad range of experience (1-48 years), and approximately 85% of them were licensed professionals and 13% were pre-licensed externs or graduate students. The diversity in experience allowed the current study to

capture participants in various stages of counselor self-efficacy development (Lent et al. 2003) with accompanying performance and expertise implications.

Main Findings

The first major finding was that there was a positive and significant relationship between adaptive expertise and adaptive performance. Although conceptually feasible, there is no study to date demonstrating quantitatively the relationship between adaptive expertise and adaptive performance. In this study, we have established that adaptive expertise has a positive and significant relationship with adaptive performance with an effect size of 75%. The large effect size is to be expected since adaptive performance was conceptualized based on the behavioral manifestation of adaptive expertise (Baard et al., 2014). Such finding substantiates the latent adaptive expertise construct and validates the operational definition of adaptive performance as one of the tangible ways to capture and measure adaptive expertise.

The second major finding was the elucidation of the relationships between adaptative expertise, adaptive performance, and counseling self-efficacy, which were demonstrated by both hierarchical regression analysis and mediation analysis. From hierarchical regression analysis, results showed that 65% of the variance in self-efficacy could be explained by adaptive expertise, adaptive performance, age and years of practice. Specifically, adaptive expertise and adaptive performance account for 49% of the variations in self-efficacy, whereas age and years of practice account for 16%. This suggests that adaptive expertise and adaptive performance have practical and meaningful applications in counseling self-efficacy. Additionally, adaptive expertise had significant positive effect on counseling self-efficacy, and this effect was mediated by adaptive

performance. Such results indicate that not only there is a direct relationship between adaptive expertise and counseling self-efficacy, but there is also an indirect relationship between them by way of adaptive performance. This is the first demonstration of the mediating effect of adaptive performance between adaptive expertise and self-efficacy, and such results further affirm the relevance and applicability of adaptive expertise in counseling self-efficacy. Potential implications of adaptive expertise in counselor training and the subsequent professional development will be discussed more in the implication section.

To explore the mediating effect further, it was noted that the correlation between adaptive performance and self-efficacy was .74 ($p < .001$). This finding can be compared to previous studies that examined the correlations between other performance measures and domain-specific self-efficacies, and whose reported ranges typically fell between .23 - .38 (Judge & Bono, 2001; Honicke & Broadbent, 2016; Moritz et al., 2000). This is a significant finding due to the high correlation coefficient, which indicates an above average relationship between adaptive performance and counseling self-efficacy.

Regarding the relationships between adaptive expertise and self-efficacy, there has been no study to date that has investigated such interaction directly. However, Bell and Kozlowski (2008) indirectly demonstrated that learning self-efficacy was significantly correlated with analogical knowledge transfer with a coefficient of .26 ($p < .01$). Since analogical knowledge transfer was one of the characteristics of adaptive expertise (Carbonell et al., 2014), Bell and Kozlowski's study indirectly demonstrated a small effect between adaptive expertise and self-efficacy. In this study, a direct and high level of correlation was observed between adaptive expertise and counseling self-efficacy

with a coefficient of .76 ($p < .001$). This result is indicative of a strong relationship between adaptive expertise and counseling self-efficacy, and this could open a new avenue of future exploration regarding the applications of adaptive expertise in not only counseling self-efficacy but self-efficacy in other contexts as well.

How does adaptive expertise affect self-efficacy? Since the construct of adaptive expertise emphasizes creative problem-solving when key information is missing (Hatano & Inagaki, 1986; Pierrakos et al., 2016), it is expected that counseling challenge self-efficacy would have higher correlation with innovation skills subscale than with domain knowledge subscale. However, such assumption was not supported by the current study finding. One possible explanation could stem from the definition of challenges, and whether the types of challenges defined by Lent et al. (2003) in counseling situations are consistent with the challenges defined by Carbonell et al. (2014).

As discussed in the introduction, characteristics of adaptive expertise include flexible utilization of domain-specific knowledge, decontextualization of prior learning, and analogical problem-solving capability (Alexander, 1992; Carbonell et al., 2014; Lin et al., 2005), all of which involve cognitive system 2 processes. On the other hand, reviewing items in counseling challenges self-efficacy subscale reveals that the challenges defined by Lent et al. (2003) are leaning toward value, moral, or emotional challenges characterized by system 1 processes. Examples include working with clients whom you have negative reactions toward, or working with clients with core values that conflict with your own (items 26 and 35 of CASES, respectively). In both of these examples, it is unclear whether components of adaptive expertise such as flexible knowledge transfer and analogical problem-solving capability are relevant. This,

however, does not negate the importance of adaptive expertise in counseling when counselors are facing challenging situations. It is possible that the type of counseling challenges that are most relevant to adaptive expertise may be related to case conceptualization and complex client presentations, and not the value-based emotional challenges.

Other than the finding above, examination of the correlations between domain-specific skills and the three self-efficacy subscales revealed that domain-specific skills had statistically significant higher associations with helping skills and session management skills self-efficacies, and lower association with counseling challenges self-efficacy. This result indicates that helping skills and session management skills are associated with routine expertise, which is also consistent with the conceptualization by Lent et al. (2003) that helping skills and session management skills fall under routine counseling activities. From a sequenced developmental model's perspective, Lent and colleagues postulated that trainees would be concerned with routine counseling activities first, and as they continued to develop, trainees would likely be more concerned about challenging client situations. Similarly, Croskerry (2018) described adaptive expertise development in the medical field where he proposed three trajectories, starting from the novice to experienced non-experts, followed by routine experts, then to adaptive experts. Croskerry distinguished adaptive experts from routine experts by their willingness and initiative to seek out unfamiliar cases, utilize problem-solving and reasoning skills to engage in a variety of presentations and diseases, and acquiring novel approaches toward challenging cases. Both Lent and Croskerry's descriptions are consistent with the findings above, which suggest that helping skills and session management skills self-

efficacies are more likely to associate with routine expertise whereas counseling challenge self-efficacy as defined by Lent and colleagues may be associated with other factors such as metacognitive skills.

Additional note regarding the subscale correlation study is the similar correlations amongst all three self-efficacy subscales with regard to innovative skills. One explanation could be that innovation skills were applicable to all three stages of counselor development or, alternatively, this subscale was not structured sufficiently to distinguish the three milestones of counselor development. This points to one of the gaps in existing literature, and more work is needed to understand how the innovative skills subconstruct is associated with various counselor development milestones. Regardless, there is room for improvement with regard to the adaptive expertise inventory as it relates to counseling such as the inclusion of metacognitive skills subscale.

Metacognitive skills including conscientiousness and self-awareness have been identified as some of the core counselor dispositions (Christensen et al., 2018; Garner et la., 2020), and they have been linked to the development of counseling expertise by Skovholt and Ronnestad (2005). In addition, Bransford et al. (2005b) found that individuals with adaptive expertise frequently employed metacognitive skills to achieve the balance between efficiency and innovation when they encountered problems. While developing the AEI instrument, metacognitive skill items were originally included as a separate subscale (Carbonell et al., 2016). However, the items were removed to achieve a better model fit, and the authors concluded that metacognitive skills were not one of the defining elements of adaptive expertise. Although the conclusion drawn by Carbonell et al. (2016) might be reasonable based on their participants, the same determination might

not be valid or applicable for other populations such as counselors and psychotherapists. Reviewing the populations included in the AEI survey revealed a broad ranges of disciplines, and more than 80% of the participants fell into scientific and technical professionals, education, electricity, information technology, and financial services. It is not clear whether metacognitive skills are important components of these professions. However, given the significance of its role in counseling and psychotherapy, the construct of metacognitive skills needs to be explored in future studies as it relates to the added dimension of adaptive expertise in the context of counseling and psychotherapy.

Another key factor known to affect adaptive expertise is the work environment. It has been documented that a work culture that encourages learning and tolerates mistakes is more likely to cultivate adaptive expertise in various industries and organizations (Carbonell et al., 2014; Cutrer et al., 2017). To understand whether this phenomenon was also applicable to counseling and psychotherapy, five different work styles ranging from the more restricted (my work only requires me to use certain microskills) to the more flexible (my work generally encourages and challenges me to step out of my comfort zone and explore alternative ways to conceptualize clients and apply therapy / counseling) environments were investigated. The findings in the current study were consistent with previous observation (Carbonell et al., 2014) that a supportive environment that encouraged innovation and risk-taking was associated with higher levels of adaptive expertise and adaptive performance. In addition, practitioners working in such environments also reported higher levels of counseling self-efficacy, and they also used a broader range of theories in counseling compared to those that practiced in the more restricted environments. These results also echoed the development of Healing

Involvement where Evers et al. (2019) reported that positive learning environment and breadth of theoretical orientation were associated with the development of Healing Involvement in psychotherapy trainees. As a result, it appeared that there might be overlapping characteristics between the constructs of adaptive expertise and Healing Involvement.

Limitations

One of the key limitations is the validity of the two instruments used in this study, namely, AEI-P and APS-P. The original version of AEI and APS (Carbonell et al. 2016; Charbonnier-Voirin & Roussel, 2012) were developed for general applications as discussed previously. As a result, some of the wordings were either too broad or not applicable for the purposes of this study. After rephrasing some of the items, the instruments were not re-validated before the initiation of the study, which could run the risk of distorting the construct validity of the instruments.

Time permitting, it is desirable to test AEI-P and APS-P alongside other instruments that measure adaptive expertise and adaptive performance, respectively. Due to the extensive time and effort requirement in validating instruments, and since this research was an exploratory study, minor wording changes were assumed to have minimal impact to the validity and reliability of both scales. Such assumption was supported by analyzing the subscales' Cronbach's alphas, which were found to be consistent with the original instruments. In addition, the high degree of correlation between AEI-P and APS-P appeared to mutually corroborate the construct validity of one another based on the conceptual frameworks of both instruments. Although it is feasible to conclude that minor word changes to the scales might have minimal impact to the

instruments, lack of instrument validation is nonetheless one of the limitations of the study.

Along with the instruments is the quality of data and the nature of data collection. There are inherit risks with internet-based data collection: one is the potential of bot infiltration particularly if gift card reward is present, and the other has to do with self-reporting. It was suspected that bot activities were present during the first round of data collection when gift card reward was advertised. Based on the preliminary response data, the researcher changed the data collection strategy during subsequent data collections to lean more toward email and snowball sampling through friends and colleagues than relying on social media posts. Additionally, data collection was halted for one month and reward was not mentioned to minimize unwanted entries.

After data was gathered, rigorous data cleaning protocol was followed. This included eliminating outliers, missing data, data with unmatched age and experiences, data with consistent numerical entries (all 5s or all 7s), and repeated entries identified through IP address. Although more sophisticated software detecting bot-generated data was not used, substantial effort was applied to review data and ensure data quality in this study. Regardless of the mitigation efforts, it is likely that not all bot entries were detected or removed, and such limitation to the data should be taken into consideration while interpreting the findings.

Another data-related limitation is that the data being self-reported. Self-reported data cannot be independently verified, and are subject to individual biases such as misrepresentation of one's own capability, wishful thinking, or perceived personal agency. Although this is a common limitation to most survey-based research, it is

assumed that majority of participants are mindful and truthful in how they respond to the questions. One of the ways to minimize the impact of misrepresentation is to collect sufficient responses and eliminate data outliers before analysis. The current study recruited 569 participants, which was more than three times the minimal required number to achieve statistical significance. After data cleaning and elimination of outliers, 460 entries remained. Although necessary steps had been taken to minimize potential impacts this might have on the study, there is no effective way to detect misrepresentation. Therefore, this is identified as one of the limitations of the study.

As to the demographics, approximately 65% of the study participants identified as female. Although this number seems high, it is similar to the reported rate of female mental health counselors, which is 69% based on U.S. statistics (Zippia, 2022). In addition, 74% of the study participants identified as White or European American. This is somewhat higher than the average of 67% (Zippia, 2022). Moreover, Hispanic practitioners account for roughly 12% of mental health counselors in the U.S., and only 5% of the participants in the current study identified as Hispanics. Although the demographics of the study participants were similar to the population of interest, it did not represent the general population or the clients they serve. From the gender and racial perspectives, it would be desirable to have more non-female identifying populations and higher proportion of non-white racial groups participate in the study to represent the culture diversity of the clients.

Another key limitation of the study is the lack of prior research on adaptive expertise and adaptive performance in the fields of counseling and psychotherapy, and additionally, a lack of quantitative studies overall. This observation highlights the

difficulties in justifying the foundation of the current study, in identifying instruments that were extensively used and validated, and in verifying research results with similar studies. Although the current study generated some interesting and compelling findings, a lack of adjacent research nonetheless left significant gaps in explaining how adaptive expertise might have affected counseling and psychotherapy practices.

Implications and Future Research

The current study has significant implications on counselor training, supervision, and professional development. Adaptive expertise recognizes two distinct ways that knowledge can be expressed in a clinical setting (Mylopoulos & Woods, 2017). One is known as the routine expertise, which is focused on the efficient retrieval of domain-specific knowledge and involving activation of system 1 responses (Corskerry, 2009; Kahneman, 2011). Building on the routine expertise is the adaptive expertise that emphasizes flexible knowledge transfers from adjacent domains while encountering unfamiliar or challenging situations. Development of adaptive expertise requires engagement of system 2 thinking where creativity and innovation are the central concerns. It is assumed that after repeated exposures, further encounters of similar challenges would become routine, and the new learning from the original challenge would be integrated into system 1 response going forward. Based on this argument, adaptive expertise should not be viewed as a status or an end point to achieve. Instead, it should be regarded as a way of learning from navigating novel situations that involves activation of metacognitive skills, problem-solving skills, and innovations (Carbonell et al., 2014; De Arment et al., 2013).

Since adaptive expertise is found to associate with counseling self-efficacy in this study and it represents a way of learning from navigating novel situations, cultivating such skills seems to be important and pertinent to counselors' professional identity and competency. To achieve that, supervisor and counselor educator training needs to include adaptive expertise framework so phase-based approach to supervision can be implemented that will initially focus on cultivating routine expertise, then gradually shift to developing adaptive expertise. Counselor educators and supervisors should also establish formal and informal curricula consistent with the phase-based approach as counselors transition from one stage of their development to another. As such, doctoral training in supervision (CACREP, 2016) needs to include adaptive expertise framework as well as the phase-based program, which will be described below.

Phase One

The development of adaptive expertise is likely to start with the accumulation of domain-specific knowledge and skills. This phase may span the first two to three years of counselors' education program training when trainees are focused on understanding the basic theories, ethics, diagnosis, and practicing their helping skills in classes and practicum. As counselor trainees gradually advanced to internship, they may start to practice session management skills and integrate one foundational theory as their primary counseling modality. Main goal of this stage of development is to strengthen routine expertise by accumulating domain knowledge and increasing in-session efficiency through implementation of helping skills and session management skills. Examples of helping skills may include using timely intentional silence and proper self-disclosure,

whereas examples of session management skills could involve building a clear conceptualization of the client and identifying the individual's counseling issues.

Approaches such as Deliberate Practice in conjunction with supervision and feedback as described by Miller et al. (2005) would be important for this stage of counselor development in cultivating reflexive basic helping and session management skills. Such process is typically initiated by counselor trainees who will watch one's own videos and focus on cases where difficulties arise. After consulting with supervisors, counselor trainees will identify a specific skill to model after the supervisor and conduct solitary practice in multiple segments of the videos. Subsequently, counselor trainees will use the skills in sessions and the process repeats itself.

Phase Two

The development of adaptive expertise can begin at late internship through pre-licensing stage of counselor trainees' development when they are still under the supervision of counselor educators or experienced practitioners. Main goal of this phase is to intentionally cultivate adaptive expertise to help counselor trainees establish long-term potential toward learning and growth and to pave the way for professional development. Adaptive expertise-informed supervisors will encourage counselor trainees to integrate more than one theoretical orientations and conceptualize clients from multiple perspectives while working with clients. In addition, supervisors will assign diverse case presentations to counselor trainees and encourage them to solve case-related challenges on their own before providing inputs. The purposes are to enhance their problem-solving capabilities and expand their experiences. When counselor trainees encounter value conflicts or other emotional challenges such as countertransference, supervisor may

reinforce metacognitive skills for trainees to reflect and achieve resolution. Additionally, adaptive expertise-informed supervisors can create an environment that embraces diverse conceptualizations and risk-taking. This activity could be best accomplished by encouraging counselor trainees to do research and find their own solutions when encountering challenging situations.

Phase Three

Phase three begins when counselor trainees become independent practitioners and are no longer under supervision. Practitioners with adaptive expertise are more likely to develop into life-long learners and problem-solvers, and such skills can better prepare them toward Healing Involvement as they evolve in their professional development journey. Additionally, they are more likely to remain calm and flexible when facing novel presentations or challenging counseling situations. As indicated by Orlinsky & Rønnestad (2005), therapists' experiences of incomplete resolution of challenging situations and difficult cases tended to result in Stressful Involvement, which in time could lead to burnout and early exit. Therefore, integrating and cultivating adaptive expertise skills need to be an essential focus of supervision in order to pave the way for counselors' long-term professional development.

This exploratory study highlights several areas of opportunities for future research. First is the need to develop a counseling and psychotherapy version of adaptive expertise and adaptative performance instruments as discussed earlier. Having proper measures for the intended population could reinforce the relevance of adaptive expertise in counselor training, supervision, and professional development, expanding our understanding of expertise development in the field. Items for an adaptive performance

instrument may include the incorporation of cultural adaptivity as shown by Pulakos et al. (2000). In addition, it may be pertinent to learn and integrate some of the findings from existing psychotherapy expertise research such as Healing Involvement (Rønnestad et al., 2019) by incorporating flexible use of theories and case experiences across various modalities as part of the adaptive performance criteria for counseling and psychotherapy. For adaptive expertise, it may be important to integrate metacognitive skills as the third dimension of the instrument as discussed previously.

Second, along the line of developing psychotherapy and counseling-specific adaptive expertise and performance scales, it is pertinent to also explore other types of counseling challenges that are more related to adaptive expertise. As discussed earlier, adaptive expertise may be associated with cognitive challenges rather than emotional challenges, therefore, counseling challenge self-efficacy subscale may include items such as encountering a client's presentation that appears complicated or unfamiliar. Alternatively, a separate subscale can be established to encompass cognitive challenges in addition to the emotional one.

Third, due to the lack of prior research in this area, it is feasible to conduct qualitative research using grounded theory methodology to construct middle-range theory that is grounded in participants' lived experiences (Charmaz, 2008; Corbin & Strauss, 2008). Grounded theory not only allows researchers to develop theory empirically, it is also used to verify existing theory based on contextual phenomenon (Hays & Singh, 2011). Therefore, conducting a grounded research can provide an independent assessment of the role of adaptive expertise in counseling practice and construct a preliminary

explanatory model of how adaptive expertise affect counselor training, supervision, and professional development.

Conclusion

In summary, the current study opens a new path of conceptualization toward counseling expertise in addition to the Master Therapists, Healing Involvement, and Deliberate Practice approaches. Results indicated a strong association between adaptive expertise and counseling self-efficacy, and such relationship was mediated by adaptive performance. Additionally, practitioners encouraged to step out of their comfort zone and explore different ways to work with clients display higher levels of adaptive expertise, adaptive performance, and counseling self-efficacy. Furthermore, they also employ more theoretical orientations while working with clients than those who have more restricted work styles. Taken together, this study clearly demonstrated the connections between adaptive expertise and counseling self-efficacy, and future research is needed to fill the gaps in literature regarding the applicability of adaptive expertise in counselor training, supervision, and professional development.

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TABLES

Table 1

Means, Standard Deviations, and Correlations between Variables

Variable	*M*	*SD*	Alpha	Age	Theory	AEI-P	APS-P	CASES
YP	8.41	7.48		.71***	.19***	.23***	.23***	.35***
Age	38.0	10.89		-	.25***	.29***	.28***	.39***
Theory	6.18	3.92			-	.24***	.20***	.22***
AEI-P	4.12	.69	.85-.86			-	.86***	.76***
APS-P	5.66	.96	.78-.86				-	.74***
CASES	6.58	1.53	.95-.96					-

Note. YP = years of practice; Theory = number of theories participants used on a regular basis; AEI-P = adaptive expertise inventory-psychotherapy; APS-P = adaptive performance scale-psychotherapy; CASES = counselor activity self-efficacy scale.
***$p < .001$

Table 2

Summary of Mediation Model Coefficients and Statistics

Path	*β*	*df*	*t*	*p*	BootLLCI	BootULCI
a: AE → AP	1.21	453	36.27	<.001	1.14	1.27
b: AP → CSE	.56	452	6.01	<.001	.38	.74
a x b: AE → AP → CSE	.67	-	-	-	.42	.99
c': AE → CSE	1.05	452	8.07	<.001	.79	1.29
c: AE → CSE	1.72	453	25.22	<.001	1.58	1.85

Note. AE = adaptive expertise; AP = adaptive performance; CSE = counseling self-efficacy; BootLLCI and BootULCI = 95% bootstrap confidence lower and upper limits; all path coefficients were unstandardized.

Table 3

Adaptive Expertise and Self-Efficacy Subscale Correlations

	AEI-P	
CASES	Domain-Specific Skills	Innovative Skills
Helping Skills	.74***	.73***
Session Management Skills	.72***	.71***
Counseling Challenge Skills	.62***	.69***

Note. AEI-P = adaptive expertise inventory-psychotherapy; CASES = counselor activity self-efficacy scale.
***$p < .001$

Table 4

MANOVA Analysis of Work Style, Adaptive Expertise, Adaptive Performance, and Counseling Self-Efficacy

Work Style	AE	AP	CSE	Theory
	Mean			
1. My work only requires me to use certain microskills	3.71	5.08	5.68	3.83
2. My work mostly requires me to use manualized or standard protocols in counseling / therapy	3.85	5.33	5.88	5.08
3. My work largely gives me the freedom to choose the methodology I prefer but will need to get approval first	3.79	5.30	6.02	5.60
4. My work generally allows me the freedom to use whatever methodology I see fit	4.26	5.76	6.91	6.49
5. My work generally encourages and challenges me to step out of my comfort zone and explore alternative ways to conceptualize clients and apply therapy / counseling	4.50	6.22	7.27	7.66
Total mean	4.12	5.66	6.57	6.20
SD	.69	.96	1.54	3.92

Note. AE = adaptive expertise; AP = adaptive performance; CSE = counseling self-efficacy; and theory = the number of theories employed regularly by the practitioners. Wilk's Lambda = .78, $F(16, 1366) = 7.42$, $p < .001$, and partial eta square = .06.

Table 5

Summary of ANOVA Welch Statistics between Work Style and Individual Variables

Variable	*df 1*	*df 2*	*Wlech's F*	*p*	Omega Square
AE	4	98.88	24.20	<.001	.16
AP	4	98.04	24.39	<.001	.13
CSE	4	97.29	17.62	<.001	.13
Theory	4	104.42	7.83	<.001	.06

Note. AE = adaptive expertise; AP = adaptive performance; CSE = counseling self-efficacy; and theory = the number of theories employed regularly by the practitioners.

Table 6

Post Hoc Games-Howell Analysis of Adaptive Expertise by Work Styles

Work Style	*Mean*	*SD*	Mean Differences (Absolute Values)			
			1	2	3	4
1. My work only requires me to use certain microskills	3.71	.65	-			
2. My work mostly requires me to use manualized or standard protocols in counseling / therapy	3.85	.75	.14	-		
3. My work largely gives me the freedom to choose the methodology I prefer but will need to get approval first	3.79	.77	.08	.06	-	
4. My work generally allows me the freedom to use whatever methodology I see fit	4.26	.57	.55**	.40**	.47**	-
5. My work generally encourages and challenges me to step out of my comfort zone and explore alternative ways to conceptualize clients and apply therapy / counseling	4.50	.43	.79**	.65**	.72**	.25**

Note: ** $p < .05$

Table 7

Post Hoc Games-Howell Analysis of Adaptive Performance by Work Styles

Work Style	*Mean*	*SD*	Mean Differences (Absolute Values)			
			1	2	3	4
1. My work only requires me to use certain microskills	5.08	1.01	-			
2. My work mostly requires me to use manualized or standard protocols in counseling / therapy	5.33	1.12	.26	-		
3. My work largely gives me the freedom to choose the methodology I prefer but will need to get approval first	5.30	1.09	.22	.03	-	
4. My work generally allows me the freedom to use whatever methodology I see fit	5.75	.79	.67	.41**	.45**	-
5. My work generally encourages and challenges me to step out of my comfort zone and explore alternative ways to conceptualize clients and apply therapy / counseling	6.23	.54	1.16**	.90**	.93**	.48**

Note: ** $p < .05$

Table 8

Post Hoc Games-Howell Analysis of Counseling Self-Efficacy by Work Styles

Work Style	*Mean*	*SD*	Mean Differences (Absolute Values)			
			1	2	3	4
1. My work only requires me to use certain microskills	5.68	2.07	-			
2. My work mostly requires me to use manualized or standard protocols in counseling / therapy	5.87	1.66	.20	-		
3. My work largely gives me the freedom to choose the methodology I prefer but will need to get approval first	6.02	1.69	.34	.15	-	
4. My work generally allows me the freedom to use whatever methodology I see fit	6.92	1.27	1.24	1.05**	.90**	-
5. My work generally encourages and challenges me to step out of my comfort zone and explore alternative ways to conceptualize clients and apply therapy / counseling	7.29	1.03	1.60**	1.41**	1.26**	.36

Note: ** $p < .05$

Table 9

Post Hoc Games-Howell Analysis of the Number of Theory by Work Styles

Work Style	*Mean*	*SD*	Mean Differences (Absolute Values)			
			1	2	3	4
1. My work only requires me to use certain microskills	3.83	2.81	-			
2. My work mostly requires me to use manualized or standard protocols in counseling / therapy	5.03	3.34	1.19	-		
3. My work largely gives me the freedom to choose the methodology I prefer but will need to get approval first	5.60	3.33	1.77	.58	-	
4. My work generally allows me the freedom to use whatever methodology I see fit	6.47	3.64	2.64**	1.44**	.87	-
5. My work generally encourages and challenges me to step out of my comfort zone and explore alternative ways to conceptualize clients and apply therapy / counseling	7.66	4.94	3.82**	2.63**	2.05**	1.19

Note: ** $p < .05$

FIGURES

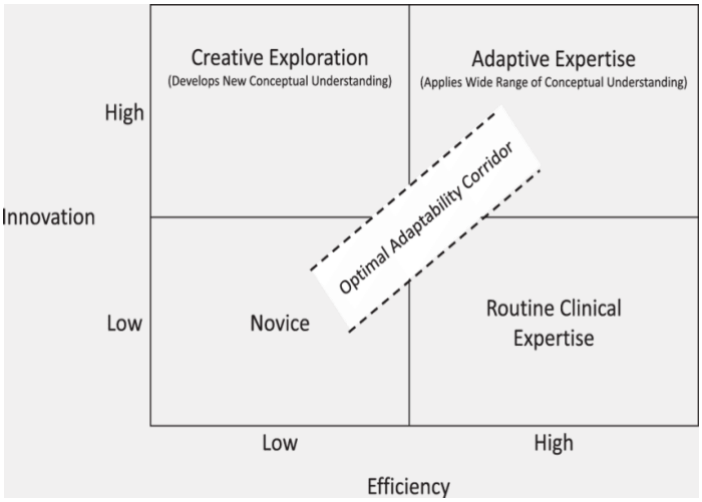

Figure 1. Trajectory toward adaptive expertise balances via the adaptability corridor
Source: Cutrer et al., (2016)

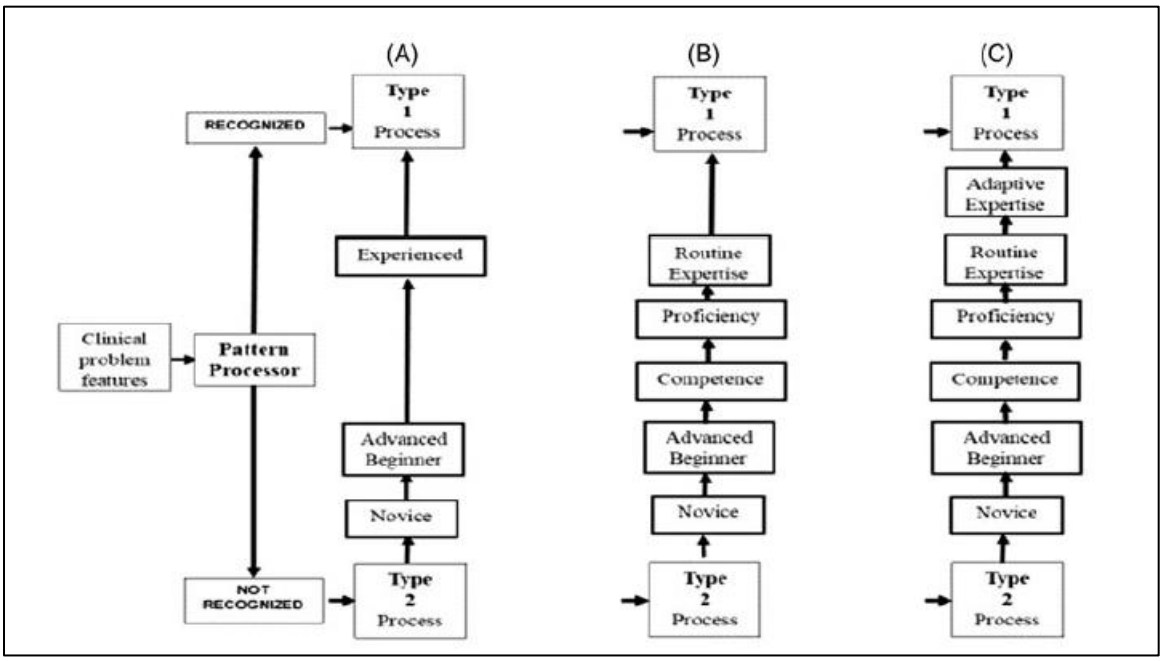

Figure 2. General schema for development of experienced (A), routine expertise (B), and adaptive expertise (C) in clinical decision making (Croskerry, 2018)

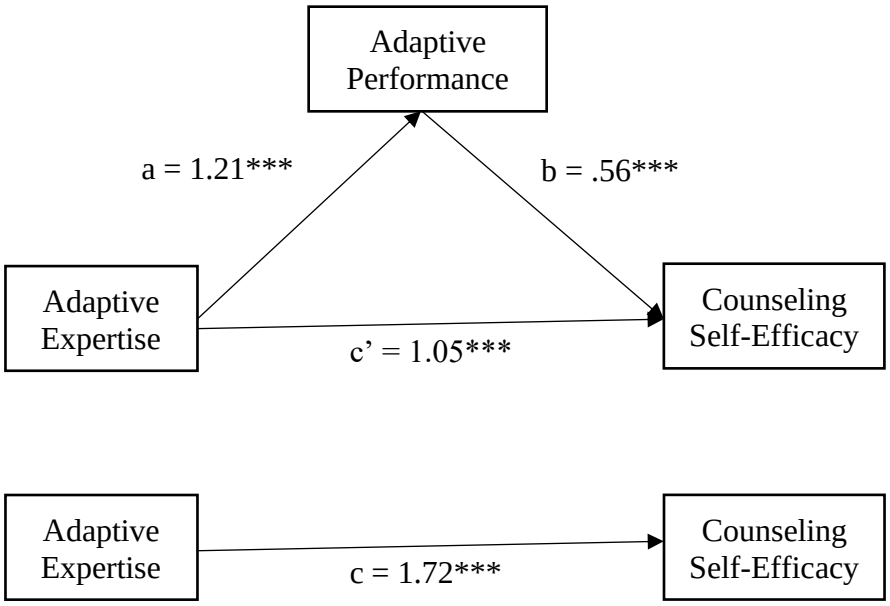

Figure 3. Schematic Diagram of the Mediation Model. All path coefficients were unstandardized.
*** p <.001

APPENDIX A: DEMOGRAPHIC QUESTIONNAIRE

1. Are you a clinical mental health or family therapy practitioner whose primary responsibility is to provide counseling or psychotherapy to clients?
   Yes
   No

2. What is your professional credential?
   1 = Substance abuse counselor
   2 = Licensed professional counselor / Mental Health counselor
   3 = Licensed psychologist
   4 = Licensed social worker
   5 = Licensed couple and family therapist
   6 = Graduated and pre-licensed practitioner
   7 = Others, please specify _____

3. How long have you been providing psychotherapy or counseling services? (Please enter number in years that includes the years in training) _____

4. On average, approximately how many hours of counseling or psychotherapy do you provide per week? (Please only include direct client therapy hours and exclude case note and other administrative hours.)
   1 = 0-5 hours
   2 = 6-15 hours
   3 = 16-25 hours
   4 = 26-35 hours
   5 = More than 35 hours

5. What is your age? (Please enter a whole number in years) _____

6. What is your gender identity?
   1 = Female
   2 = Male
   3 = Nonbinary/Genderqueer
   4 = Transgender
   5 = If none of the above fit for you, please describe your gender here: _____

7. What is your primary racial / ethnic identity?
   1 = Asian/Asian American
   2 = African American/Black
   3 = European American/White
   4 = Hispanic/Latinx
   5 = Native American/Indigenous American
   6 = Native Hawaiian/Pacific Islander
   7 = If the options above do not accurately describe you, please share with us how you self-identify. _____

8. What is the setting of your practice? (Check the most applicable category)
   1 = College counseling center
   2 = Community non-profit counseling center or clinic
   3 = Community for-profit counseling center or clinic
   4 = Government-based facility (such as VA) or government-contracted agency
   5 = Hospital-based clinic including psychiatric hospital
   6 = Private practice
   7 = Contract-based, multiple settings
   8 = Others, please specify _____

9. Choose the best description for how you work with your clients. My work
   1 = only requires me to practice certain microskills.
   2 = mostly requires me to use manualized or standard protocols in counseling/therapy.
   3 = largely gives me the freedom to choose the methodology I prefer but will need to get approval first.
   4 = generally allows me the freedom to use whatever methodology I see fit.
   5 = generally encourages and challenges me to step out of my comfort zone and explore alternative ways to conceptualize clients and apply therapy/counseling.

10. Approximately how many different theories and/or treatment modalities do you use regularly (weekly or bi-weekly) when working with clients? Please review the list below and sum up the types of theory and/or treatment modality you use and enter the integer here _____.
    ACT, Adlerian, Art Therapy, Attachment theory, Brainspotting, CBT, DBT, EMDR, EFT, Existential, Feminist, Family system, Gestalt, Gottman method, Grief counseling, Humanistic, IFS, Mindfulness-based approaches, Narrative, Neurofeedback, Person-centered, Play therapy, Polyvagal theory, Psychoanalytic, Psychodynamic, Solution-focused, Somatic-based approaches, Structural family therapy, Trauma counseling, and others.

APPENDIX B: ADAPTIVE EXPERTISE INVENTORY

Adaptive Expertise Inventory (AEI)
Answer options: 1 = Strongly disagree; 2 = Disagree; 3 = Neither agree or disagree; 4 = Agree; 5 = Strongly agree.

Please rate your degree of agreement during your past project:

Domain-specific skills	Strongly Disagree				Strongly Agree
1. I was able to develop and integrate new knowledge with what I learned in the past	1	2	3	4	5
2. I concerned myself with the latest development in the domain of my discipline	1	2	3	4	5
3. I gained a better understanding of concepts in my discipline	1	2	3	4	5
4. I realized that the knowledge in my discipline keeps on developing	1	2	3	4	5
5. I realized that I need to learn continuously to become and stay an expert in my field	1	2	3	4	5
Innovative skills					
6. I showed that I am willing to keep on learning new aspects related to my discipline	1	2	3	4	5
7. I applied my knowledge in new and unfamiliar situations in areas related to my discipline with a degree of success	1	2	3	4	5
8. I focused on new challenges	1	2	3	4	5
9. I was able to keep on performing at a high level when confronted with unfamiliar situations or tasks	1	2	3	4	5
10. I was able to apply my knowledge flexible to the different tasks within the project	1	2	3	4	5

Source: Carbonell, K. B., Konings, K. D., Segers, M., & van Merrienboer, J. J. G. (2016). Measuring adaptive expertise: Development and validation of an instrument. *European Journal of Work and Organizational Psychology*, 25, 167-180. http://dx.doi.org/10.1080/1359432X.2015.1036858

Adaptive Expertise Inventory-Psychotherapy (AEI-P)
Answer options: 1 = Strongly disagree; 2 = Disagree; 3 = Neither agree or disagree; 4 = Agree; 5 = Strongly agree

Please rate your degree of agreement while working with clients in counseling or psychotherapy context:

Domain-specific skills	Strongly Disagree				Strongly Agree
1. I am able to develop and integrate new knowledge with what I've learned in the past	1	2	3	4	5
2. I concern myself with the latest development in the domain of my practice	1	2	3	4	5
3. I possess good understanding of therapeutic concepts in my area of practice	1	2	3	4	5
4. I recognize that the knowledge in my field keeps on developing	1	2	3	4	5
5. I recognize that I need to learn continuously to become and stay an expert in my field	1	2	3	4	5
Innovative skills					
6. I am willing to keep on learning new aspects related to my practice	1	2	3	4	5
7. I applied my knowledge in new and unfamiliar situations in areas related to my practice with a degree of success	1	2	3	4	5
8. I focus on new challenges	1	2	3	4	5
9. I am able to keep on performing at a high level when confronted with unfamiliar situations or cases	1	2	3	4	5
10. I was able to apply my knowledge flexibly to the different cases within my practice	1	2	3	4	5

APPENDIX C: ADAPTIVE PERFORMANCE SCALE

Adaptive Performance Scale (APS)
Answer options: 1 = Strongly disagree; 2 = Disagree; 3 = Somewhat disagree; 4 = Neither agree or disagree; 5 = Somewhat agree; 6 = Agree; 7 = Strongly agree

Please rate your degree of agreement in a work setting:

Creativity	Strongly Disagree						Strongly Agree
1. I do not hesitate to go against established ideas and propose an innovative solution	1	2	3	4	5	6	7
2. Within my department, people rely on me to suggest new solutions	1	2	3	4	5	6	7
3. I use a variety of sources/types of information to come up with an innovative solution	1	2	3	4	5	6	7
4. I develop new tools and methods to resolve new problems	1	2	3	4	5	6	7
Reactivity in Emergency							
5. I am able to achieve total focus on the situation to act quickly	1	2	3	4	5	6	7
6. I quickly decide on the actions to take to resolve problems	1	2	3	4	5	6	7
7. I analyze possible solutions and their ramifications quickly to select the most appropriate one	1	2	3	4	5	6	7
8. I easily reorganize my work to adapt to the new circumstances	1	2	3	4	5	6	7
Interpersonal Adaptivity							
9. Developing good relationships with all my counterparts is an important factor of my effectiveness	1	2	3	4	5	6	7
10. I try to understand the viewpoints of my counterparts to improve my interaction with them	1	2	3	4	5	6	7
11. I learn new ways to do my job better in order to collaborate with such people	1	2	3	4	5	6	7
12. I willingly adapt my behavior whenever I need to in order to work well with others	1	2	3	4	5	6	7
Learning Effort							

13. I undergo training on a regular basis at or outside of work to keep my competencies up to date	1	2	3	4	5	6	7
14. I am on the lookout for the latest innovations in my job to improve the way I work	1	2	3	4	5	6	7
15. I look for every opportunity that enables me to improve my performance (training, group project, exchanges with colleagues, etc.)	1	2	3	4	5	6	7
16. I prepare for change by participating in every project or assignment that enables me to do so	1	2	3	4	5	6	7
Managing Work Stress							
17. I keep my cool in situations where I am required to make many decisions	1	2	3	4	5	6	7
18. I look for solutions by having a calm discussion with colleagues	1	2	3	4	5	6	7
19. My colleagues ask for my advice regularly when situations are difficult because of my self-control	1	2	3	4	5	6	7

Source: Charbonnier-Voirin, A., & Roussel, P. (2012). Adaptive performance: A new scale to measure individual performance in organizations. *Canadian Journal of Administrative Sciences*, *29*(3), 280-293. https://doi.org/10.1002/cjas.232

Adaptive Performance Scale-Psychotherapy (APS-P)
Answer options: 1 = Strongly disagree; 2 = Disagree; 3 = Somewhat disagree; 4 = Neither agree or disagree; 5 = Somewhat agree; 6 = Agree; 7 = Strongly agree

Please rate your degree of agreement regarding your expressed knowledge and ability while working with clients in counseling or psychotherapy context:

Creativity	Strongly Disagree						Strongly Agree
1. I do not hesitate to go against established ideas and propose an innovative solution for client-related issue	1	2	3	4	5	6	7
2. Other practitioners seek me out to suggest new solutions to client-related issues	1	2	3	4	5	6	7
3. I use a variety of sources/types of information to come up with an innovative solution	1	2	3	4	5	6	7
4. I develop new tools and methods to resolve new problems	1	2	3	4	5	6	7
Reactivity in Emergency							
5. I am able to achieve total focus on the situation to act quickly	1	2	3	4	5	6	7
6. I quickly decide on the actions to take to help client in crisis	1	2	3	4	5	6	7
7. I analyze possible solutions and their ramifications quickly to select the most appropriate one while working with client in crisis	1	2	3	4	5	6	7
8. I easily reorganize my work to adapt to my client's needs	1	2	3	4	5	6	7
Interpersonal Adaptivity							
9. Developing good relationships with all my clients is an important factor of my effectiveness	1	2	3	4	5	6	7
10. I try to understand the viewpoints of my clients to improve my interaction with them	1	2	3	4	5	6	7
11. I learn new ways to do my job in order to collaborate better with my client	1	2	3	4	5	6	7
12. I willingly adapt my behavior whenever I need to in order to work well with my clients	1	2	3	4	5	6	7
Learning Effort							

13. I undergo training on a regular basis at or outside of work to keep my competencies up to date	1	2	3	4	5	6	7
14. I am on the lookout for the latest innovation in my field to improve the way I work	1	2	3	4	5	6	7
15. I look for every opportunity that enables me to improve my performance (training, workshop, consultation, supervision, etc.)	1	2	3	4	5	6	7
16. I prepare for challenging cases by participating in workshops and/or seeking consultations	1	2	3	4	5	6	7
Managing Work Stress							
17. I keep my cool in situations where I am required to make decisions	1	2	3	4	5	6	7
18. I look for solutions by having a calm discussion with others	1	2	3	4	5	6	7
19. My colleagues ask for my advice regularly when situations are difficult because of my self-control	1	2	3	4	5	6	7

APPENDIX D: COUNSELOR ACTIVITY SELF-EFFICACY SCALE

Counselor Activity Self-Efficacy Scale

Please rate your confidence in your ability to perform the tasks, manage particular scenarios, or work effectively based on a 0-9 confidence scale where 0 = no confidence and 9 = complete confidence

A. Helping Skills Self-Efficacy	No Confidence									Complete Confidence
1. Immediacy (disclose immediate feelings you have about the client, the therapeutic relationship, or yourself in relation to the client)	0	1	2	3	4	5	6	7	8	9
2. Interpretations (make statements that go beyond what the client has overtly stated and that give the client a new way of seeing his or her behavior, thoughts, or feelings)	0	1	2	3	4	5	6	7	8	9
3. Self-disclosures for insight (disclose past experiences in which you gained some personal insight)	0	1	2	3	4	5	6	7	8	9
4. Challenges (point out discrepancies, contradictions, defenses, or irrational beliefs of which the client is unaware or that he or she is unwilling or unable to change)	0	1	2	3	4	5	6	7	8	9
5. Self-disclosure for exploration (reveal personal information about your history, credentials, or feelings)	0	1	2	3	4	5	6	7	8	9
6. Intentional silence (use silence to allow clients to get in touch with their thoughts or feelings)	0	1	2	3	4	5	6	7	8	9
7. Open questions (ask questions that help clients to clarify or explore their thoughts or feelings)	0	1	2	3	4	5	6	7	8	9
8. Listening (capture and understand the messages that clients communicate)	0	1	2	3	4	5	6	7	8	9
9. Reflection of feelings (repeat or rephrase the client's statements with an emphasis on his or her feelings)	0	1	2	3	4	5	6	7	8	9
10. Restatements (repeat or rephrase what the client has said, in a way that is succinct, concrete, and clear)	0	1	2	3	4	5	6	7	8	9
11. Attending (orient yourself physically toward the client)	0	1	2	3	4	5	6	7	8	9

12. Information giving (teach or provide the client with data, opinions, facts, resources, or answers to questions)	0 1 2 3 4 5 6 7 8 9
13. Role-play and behavior rehearsal (assist the client to role-play or rehearse behaviors in session)	0 1 2 3 4 5 6 7 8 9
14. Direct guidance (give the client suggestions, directives, or advice that imply actions for the client to take)	0 1 2 3 4 5 6 7 8 9
15. Homework (develop and prescribe therapeutic assignments for clients to try out between sessions)	0 1 2 3 4 5 6 7 8 9
B. Session Management Self-Efficacy	No Confidence ... Complete Confidence
16. Help your client to understand his or her thoughts, feelings, and actions.	0 1 2 3 4 5 6 7 8 9
17. Know what to do or say next after your client talks	0 1 2 3 4 5 6 7 8 9
18. Help your client to talk about his or her concerns at a deep level.	0 1 2 3 4 5 6 7 8 9
19. Build a clear conceptualization of your client and his or her counseling issues.	0 1 2 3 4 5 6 7 8 9
20. Help your client to explore his or her thoughts, feelings, and actions	0 1 2 3 4 5 6 7 8 9
21. Respond with the best helping skill, depending on what your client needs at a given moment	0 1 2 3 4 5 6 7 8 9
22. Help your client to set realistic counseling goals	0 1 2 3 4 5 6 7 8 9
23. Keep sessions on track and focused.	0 1 2 3 4 5 6 7 8 9
24. Remain aware of your intentions (i.e., the purposes of your interventions) during sessions.	0 1 2 3 4 5 6 7 8 9
25. Help your client to decide what actions to take regarding his or her problems.	0 1 2 3 4 5 6 7 8 9
C. Counseling Challenges Self-Efficacy	No Confidence ... Complete Confidence
26. Working with clients you have negative reactions toward (e.g., boredom, annoyance).	0 1 2 3 4 5 6 7 8 9
27. Working with client who is at an impasse in therapy	0 1 2 3 4 5 6 7 8 9
28. Working with client who wants more from you than you are willing to give (e.g., in terms of frequency of contacts or problem-solving prescriptions).	0 1 2 3 4 5 6 7 8 9

29. Working with client in dealing with issues you personally find difficult to handle.	0	1	2	3	4	5	6	7	8	9
30. Working with client who demonstrates manipulative behaviors in session.	0	1	2	3	4	5	6	7	8	9
31. Working with client who is not psychologically minded or introspective.	0	1	2	3	4	5	6	7	8	9
32. Working with client who is sexually attracted to you.	0	1	2	3	4	5	6	7	8	9
33. Working with client who you find sexually attractive	0	1	2	3	4	5	6	7	8	9
34. Working with client who differs from you in a major way or ways (e.g., race, ethnicity, gender, age, social class).	0	1	2	3	4	5	6	7	8	9
35. Working with client who has core values or beliefs that conflict with your own (e.g., regarding religion, gender roles).	0	1	2	3	4	5	6	7	8	9
36. Working with client who has experienced a recent traumatic life event (e.g., physical or psychological injury or abuse).	0	1	2	3	4	5	6	7	8	9
37. Working with client who has been sexually abused	0	1	2	3	4	5	6	7	8	9
38. Working with client who is clinically depressed	0	1	2	3	4	5	6	7	8	9
39. Working with client who is suicidal	0	1	2	3	4	5	6	7	8	9
40. Working with client who is extremely anxious	0	1	2	3	4	5	6	7	8	9
41. Working with client who shows signs of severely disturbed thinking	0	1	2	3	4	5	6	7	8	9

Source: Lent, R. W., Hill, C. E., & Hoffman, M. A. (2003). Development and validation of the Counselor Activity Self-Efficacy Scales. *Journal of Counseling Psychology*, *50*(1), 97.